



BASIC ASSESSMENT REPORT

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|----------------------------|--------------------------------------|-------|--------------|
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Prepared by:

| | | | |
|---|---|-------|-------------------|
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(For official use only)

File Reference Number:

Application Number:

Date Received:

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BASIC ASSESSMENT REPORT

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2010.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided are not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail:

1. Introduction

The Sishen Iron Ore Company (Pty) Ltd (SIOC), part of Kumba Iron Ore Limited (Kumba) who owns and operates the Kolomela Mine, proposes to expand an existing waste rock dump on the farm Kapstevél 541, to cater for waste rock generated at the mine. The proposed development will take place on the mine's property. The footprint of the proposed waste rock dump expansion will cover approximately 19 ha.

The Kolomela Mine (previously known as the Sishen South Mine) is located approximately 12 km south east of Postmasburg in the Northern Cape Province and is an open pit mining operation aimed at producing approximately 9 million tonnes of iron ore per annum. Current mining operations involve mining from three pits on the farms Leeuwfontein 488, Strydfontein 614, remainder of Klipbankfontein 489 and portion 1, 2, 3, and the remainder of Kapstevél 541. SIOC is also the holder of the surface rights of these properties.

2. Project Description

It was identified that the current approved footprint of the Kapstevél Waste Rock Dump, situated on the farm Kapstevél 541, potentially contains future iron ore reserves. To avoid the sterilisation of these iron ore reserves, SIOC has elected to stop the further development of the waste rock dump within the approved footprint area and instead expand the waste rock dump to the south, outside the approved footprint area (Error! Reference source not found.). Additionally, SIOC intend to construct a separate waste rock dump north of the current Kapstevél 541 pit. This waste rock dump is however not included in this application and forms part of a separate full Scoping and Environmental Impact Assessment Process as part of the Kolomela Expansion Project (Northern Cape Department of Environment and Nature Conservation (DENC) Ref: NC/EIA/15/ZFM//TSA/POS3/2013), which is currently in the scoping phase. The subject waste rock dump expansion project therefore serves as a short term solution to waste rock area constraints until the development of the new waste rock dump to the north of the current Kapstevél 541 pit has been approved.

The proposed waste rock dump expansion preliminarily will involve the following:

Planning and Design

The planning and design phase involves the development of plans for disposal, operation and closure of the proposed waste rock dump expansion.

Construction

Construction will entail the clearance of vegetation in the footprint of the proposed site to prepare the site to receive the waste rock as part of the overall mining process.

Given that the proposed project is an expansion of an existing waste rock dump, existing infrastructure will be used, including:

- Access roads;
- Haul roads;
- Water management infrastructure.

Operation

Operation of the waste rock dump will involve the following activities:

- Transport of waste rock from the mine to the dump;
- Off-loading of the waste rock at the dump in accordance with the planned dump development and operating plans, including lift height and location;
- Slope stabilisation and erosion control; and
- Maintenance of the access road.

- Wetting of roads to suppress dust.

Decommissioning and closure

Decommissioning and closure will entail the following:

- Development of the final landform as per final landform design plans;
- Revegetation of final landform; and
- Post closure monitoring and maintenance.

The design features associated with the waste rock dump expansion are outlined in the table below:

| Feature | Detail for waste rock dump expansion |
|---------------------------|--|
| Physical dimensions | Foot print area - approximately 19 ha Height - approximately 60 m. |
| Physical Characteristics | Particle size will vary from chunks of rock to finer material. |
| Chemical Characteristics | From an acid generating perspective the waste rock material is considered to have sufficient neutralising potential and is therefore regarded as non-acid generating. |
| Transport and placement | All material will be transported via haul trucks onto the expanded section of the Kapstevl waste rock dump. |
| Stormwater management | Stormwater trenches / berms around the upstream boundaries of the existing waste rock dump that direct clean storm water run-off around and away from the waste rock dump. In the down-stream direction berms are in place to direct dirty water runoff from the waste rock dump to an existing pollution control dam. |
| Access and Access control | Existing access roads will be used for access to the expanded section of the Kapstevl waste rock dump |
| Life of facility | The operational life is controlled by the waste rock production rate. In the best case scenario, the facility may have a life of up to 5 years. If the facility is not re-processed it could remain in perpetuity. |
| Closure | There will be concurrent rehabilitation of side slopes as the dump progresses. Maintenance and aftercare will be undertaken to ensure that rehabilitation is successful. |

The proposed development will trigger a number of activities listed under Listing Notice 1 (GN 544) of the 2010 EIA Regulations. The development will also require the amendment of Kolomela Mine's existing Integrated Water Use Licence (IWUL), for undertaking water uses listed under Section 21 (g) of the National Water Act (Act No. 36 of 1998).

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- the property on which or location where it is proposed to undertake the activity;
- the type of activity to be undertaken;
- the design or layout of the activity;
- the technology to be used in the activity;
- the operational aspects of the activity; and
- the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

No feasible alternatives have been considered for the waste rock expansion project. All alternatives to the current project were deemed unfeasible due to the following considerations:

- The development of a new waste rock dump is currently being investigated as part of a separate

full Scoping and Environmental Impact Assessment Process forming part of the Kolomela Expansion Project (Northern Cape Department of Environment and Nature Conservation (DENC) Ref: NC/EIA/15/ZFM//TSA/POS3/2013). As previously indicated, the expansion of the existing Kolomela Waste Rock Dump serves as a short term solution to waste rock area constraints until the development of the new waste rock dump to the north of the current Kapstevl 541 pit has been approved. As such, the development of a new waste rock dump has not been considered as a feasible alternative as it would constitute an alternative analogous to the no-go alternative.

- The further development of the waste rock dump within the approved footprint has not been considered as a feasible alternative as it may result in the sterilisation of iron ore reserves, which will have significant negative economic consequences.
- The expansion of the existing waste rock dump can only be feasibly undertaken toward the south. The expansion of the waste rock dump in other directions would be unfeasible due to either the presence of other mine infrastructure, including the Kapstevl Pit, or due to unsuitable conditions, such as the presence of underground iron ore reserves.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites if applicable.

Alternative:

Alternative S1¹ (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

In the case of linear activities:

Alternative:

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S2 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):

Longitude (E):

| | | | |
|-----|------------|-----|-----------|
| 28° | '24.084723 | 22° | '53.38143 |
| | | | |

Latitude (S):

Longitude (E):

| | | | |
|---|---|---|---|
| 0 | ° | 0 | ° |
| 0 | ° | 0 | ° |
| 0 | ° | 0 | ° |

| | | | |
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| 0 | ° | 0 | ° |
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| | | | |
|---|---|---|---|
| 0 | ° | 0 | ° |
| 0 | ° | 0 | ° |
| 0 | ° | 0 | ° |

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

19 000 m²

Length of the activity:

200 m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)

Size of the site/servitude:

m²

¹ "Alternative S.." refer to site alternatives.

² "Alternative A.." refer to activity, process, technology or other alternatives.

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Alternative A2 (if any)
Alternative A3 (if any)

| |
|----------------|
| m ² |
| m ² |

5. SITE ACCESS

Does ready access to the site exist?
If NO, what is the distance over which a new access road will be built

| |
|-----|
| YES |
| N/A |

Describe the type of access road planned:

Not applicable

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.10 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

**No Capital Expenditure.
This facility will be built as
part of operational costs**

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What is the expected yearly income that will be generated by or as a result of the activity?

No income is generated from this waste rock facility – it does however support the ongoing mining of iron ore and operation of Kolomela Mine.

Will the activity contribute to service infrastructure?

NO

Is the activity a public amenity?

NO

How many new employment opportunities will be created in the development phase of the activity?

No additional employment

What is the expected value of the employment opportunities during the development phase?

This will sustain current employment at the mine to the value of R3.5 mil per month on average.

What percentage of this will accrue to previously disadvantaged individuals?

The contractors working on the Kapstevl Pit has 250 employees in total of which 92.18% are HDIs.

How many permanent new employment opportunities will be created during the operational phase of the activity?

See above

What is the expected current value of the employment opportunities during the first 10 years?

R3.5 mil per month – total of R420 mil

What percentage of this will accrue to previously disadvantaged individuals?

90%

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The proposed waste rock dump expansion is essential for the continuation of mining from Kolomela Mine's Kapstevl Pit until the development of the proposed new waste rock dump to the north of the Kapstevl Pit (part of a separate application) is approved. Thus, the proposed waste rock dump expansion project will negate the need to halt production at the Kapstevl Pit for 1 to 2 years, which will have significant positive financial implications for Kolomela Mine..

Indicate any benefits that the activity will have for society in general:

The project will have positive outcomes for society in general in that it will facilitate continued production and revenue generation associated with exploitation of reserves from the Kapstevl Pit.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The project will facilitate the continuation of production from the Kapstevl Pit at Kolomela Mine and thus maintain the production rates, which will benefit local communities through continued employment, social investment and fund allocation to local economic development through the implementation of development plans identified in the mine's Social and Labour Plan.

| DESIRABILITY: | | | |
|---------------|--|-----|----|
| 1. | Does the proposed land use / development fit the surrounding area? | YES | |
| 2. | Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area? | YES | |
| 3. | Will the benefits of the proposed land use / development outweigh the negative impacts of it? | YES | |
| 4. | If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation: | | |
| | N/A | | |
| 5. | Will the proposed land use / development impact on the sense of place? | YES | |
| 6. | Will the proposed land use / development set a precedent? | | NO |
| 7. | Will any person's rights be affected by the proposed land use / development? | | NO |
| 8. | Will the proposed land use / development compromise the "urban edge"? | | NO |
| 9. | If the answer to any of the question 5-8 was YES, please provide further motivation / | | |

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| | explanation. |
| | The development of a waste rock dump may have an impact on the sense of place of the area as it will reach approximately 40 m in height and be visible from a long distance. However, the waste rock dump is an extension of an existing dump and will therefore not greatly contrast with its surroundings. As such, the additional visual intrusion that will be caused by the development of the waste rock dump is anticipated to be minimal. |
| | |

| BENEFITS: | | |
|-----------|--|------------------------------|
| 1. | Will the land use / development have any benefits for society in general? | YES <input type="checkbox"/> |
| 2. | Explain: | |
| | The project will have positive outcomes for society in general in that it will facilitate continued production from the Kapstevl Pit and thus maintenance of current rates of revenue generation associated with iron ore production at Kolomela Mine. As such, the development will facilitate economic activity locally and nationally through the maintenance of current rates of procurement and employment opportunities. | |
| 3. | Will the land use / development have any benefits for the local communities where it will be located? | YES <input type="checkbox"/> |
| 4. | Explain: | |
| | The project will facilitate the continued rates of iron ore production at Kolomela Mine, which will benefit local communities through continued levels of employment, social investment and fund allocation to local economic development through the implementation of development plans identified in the mine's Social and Labour Plan. | |

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

| Title of legislation, policy or guideline: | Administering authority: | Date: |
|---|---|------------------|
| Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA) | Department of Mineral Resources (DMR) | 10 October 2002 |
| National Environmental Management Act (Act No. 107 of 1998) (NEMA) as amended. | National Department of Environmental Affairs (DEA) & Northern Cape Department of Environment and Nature Conservation (DENC) | 27 November 1998 |
| National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations | DEA & DENC | 18 June 2010 |
| 2006 EIA Guidelines: Guideline 5: Assessment of Alternatives. | DEA | 2006 |
| Integrated Environmental Management Guideline Series 5: Companion to the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations of 2010 | DEA | 18 June 2010 |
| Integrated Environmental Management Guideline Series 6: Environmental Management Framework to the National Environmental Management Act (NEMA) Environmental Management Framework (EMF) Regulations of 2010 | DEA | 18 June 2010 |
| Integrated Environmental Management Guideline Series 7: Public Participation in the Environmental Impact Assessment Process | DEA | 18 June 2010 |
| Integrated Environmental Management Guideline Series 9: Draft Guideline on Need and Desirability in Terms of the Environmental Impact Assessment (EIA) Regulations, 2010 | DEA | 5 October 2012 |
| National Water Act (Act No. 36 of 1998) (NWA) | National Department of | 26 August |

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| | Water Affairs (DWA) | 1998 |
| Regulation 704 of the National Water Act (Act No. 36 of 1998) | DWA | 4 June 1999 |
| National Environmental Management: Biodiversity Act (Act No. 10 of 2004) | DEA & DENC | 7 June 2004 |
| Nature and Environmental Conservation Ordinance No. 19 of 1974 as amended | DEA & DENC | 1974 Promulgated: 21 Feb 1975 |
| National Environmental Management: Air Quality Act (Act No. 39 of 2004) | DEA & DENC | 19 February 2005 |
| National Environmental Management Amendment Act 62 of 2008 | DEA & DENC | 24 July 2008 |
| National Forests Act (Act No. 84 of 1998) | National and Provincial Department of Agriculture, Forestry and Fisheries (DAFF) | 20 October 1998 |
| Regulations on the National Forests Act, 1998 | DAFF | 29 Apr 2009 |
| Notice of the List of Protected Tree Species under the National Forests Act, 1998 | DAFF | 23 Sept 2010 |
| Conservation of Agricultural Resources Act (Act No. 43 of 1983) | DAFF | 21 April 1983 |
| National Veld and Forest Fire Act (Act No. 101 of 1998) | DAFF | 27 November 1998 |
| Northern Cape Nature Conservation Act (Act No.9 of 2009) | DENC | 15 December 2009 |
| National Heritage Resources Act (Act No. 25 of 1999) | South African Heritage Resources Agency (SAHRA) | 14 April 1999 |
| Environmental Health Impact Assessment (EHIA) in South Africa: Guidelines 2010 | Department of Health | 2010 |
| Siyanda Environmental Management Framework 2008 | DENC; ZF Mgcawu District Municipality | 2008 |

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

NO

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

Not applicable.

Where will the construction solid waste be disposed of (describe)?

Not applicable.

Will the activity produce solid waste during its operational phase?

NO

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

Not applicable.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Not applicable.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

NO

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If yes, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO

If yes, provide the particulars of the facility:

Facility name:

Not applicable.

Contact person:

Postal address:

Postal code:

Telephone:

Cell:

E-mail:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The waste rock dump expansion area will fall within what is considered a dirty water area at Kolomela Mine. Cut-off trenches are already in place to divert run-off from dirty water areas at the mine to a number of pollution control dams on the mine property. The water that is captured is recycled for use in the mine's processing plants or used for dust suppression inside the dirty areas.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES

If yes, is it controlled by any legislation of any sphere of government?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

The main sources of emissions due to the construction and operation of the proposed waste rock dump will be windblown dust from site clearance, entrainment from the un-vegetated surface of the waste rock dump, dust generated due to unloading and handling of waste rock on the dump and the transport of waste rock to the dump on the unpaved haul roads (see specialist air quality report: Airshed Planning Professionals, 2014 – refer to Appendix D). The envisaged 19 ha extension area under investigation in this basic assessment is estimated to result in approximately 48 tonnes of fugitive, windblown, PM10 per year (Airshed, 2014). The 19 ha extension is however estimated to account for less than 4% of total windblown dust emissions from Kolomela Mine which is currently estimated at approximately 1 215 t/a. Although the impact area might shift to the south, the change in impact is considered immaterial (Airshed, 2014).

11(d) Generation of noise

Will the activity generate noise?

YES

If yes, is it controlled by any legislation of any sphere of government?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

Noise will be generated by the activity due to the movement of machinery during site clearance and during the hauling and unloading of the waste rock from the Kapstevl Pit to the proposed waste rock dump expansion site. The noise generated will however not be significantly different from that currently generated at the mine (see specialist noise impact report: Airshed Planning Professionals, 2014 – refer to Appendix D). It is therefore expected that the activity will not result in any significant increase in noise levels (Airshed, 2014).

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

groundwater

other

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

20 000 litres

Does the activity require a water use permit from the Department of Water Affairs?

YES

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The Waste Rock Dump Expansion has been designed to minimise the movement of trucks in order to maximise energy efficiency. Machinery, vehicles and equipment will be maintained in good condition to prevent unnecessary energy consumption. In addition, vehicle logistics will be planned to minimise the operational hours and distances travelled.

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Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternatives have been considered.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A): [REDACTED]

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?
If YES, please complete form XX for each specialist thus appointed:
All specialist reports must be contained in Appendix D.

YES [REDACTED]

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat [REDACTED]

Alternative S2 (if any):

Alternative S3 (if any):

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:



2.6 Plain



3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

| | Alternative S1: | Alternative S2 (if any): | Alternative S3 (if any): |
|--|---------------------------|-----------------------------|-----------------------------|
| Shallow water table (less than 1.5m deep) | <div><div></div>NO</div> | <div><div>YES</div>NO</div> | <div><div>YES</div>NO</div> |
| Dolomite, sinkhole or doline areas | <div>YES<div></div></div> | <div>YESNO</div> | <div>YESNO</div> |
| Seasonally wet soils (often close to water bodies) | <div><div></div>NO</div> | <div>YESNO</div> | <div>YESNO</div> |
| Unstable rocky slopes or steep slopes with loose soil | <div><div></div>NO</div> | <div>YESNO</div> | <div>YESNO</div> |
| Dispersive soils (soils that dissolve in water) | <div><div></div>NO</div> | <div>YESNO</div> | <div>YESNO</div> |
| Soils with high clay content (clay fraction more than 40%) | <div><div></div>NO</div> | <div>YESNO</div> | <div>YESNO</div> |
| Any other unstable soil or geological feature | <div><div></div>NO</div> | <div>YESNO</div> | <div>YESNO</div> |
| An area sensitive to erosion | <div>YES<div></div></div> | <div>YESNO</div> | <div>YESNO</div> |

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition^E



The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good
condition^E

If any of the boxes marked with an “^E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

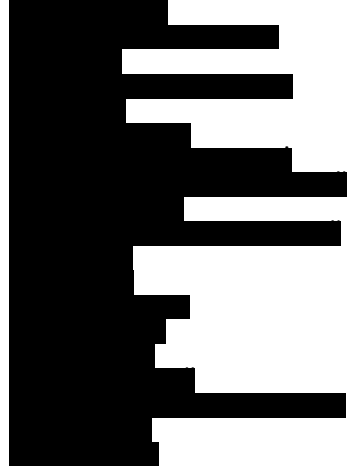
5.1 Natural area



5.9 Heavy industrial^{AN}



5.14 Quarry, sand or borrow pit



5.34 River, stream or wetland

5.36 Mountain, koppie or ridge

BASIC ASSESSMENT REPORT

5.41 Archaeological site

If any of the boxes marked with an "N" are ticked, how this impact will / be impacted upon by the proposed activity.

| | |
|------------------------------|------------------------|
| If YES, specify and explain: | Not applicable. |
|------------------------------|------------------------|

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

| | |
|------------------------------|---|
| If YES, specify and explain: | Infrastructure associated with Kolomela Mine, including an existing waste rock dump and a pit, is situated directly north of the proposed waste rock dump expansion. As it is related to mining, this land use can be characterised as heavy industrial. The proposed waste rock dump expansion will form part of and complement land uses at Kolomela Mine and is not expected to negatively impact or be impacted upon by these land uses. |
|------------------------------|---|

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

| | |
|------------------------------|------------------------|
| If YES, specify and explain: | Not applicable. |
|------------------------------|------------------------|

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site?

NO

If YES, explain:

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:

As part of Kolomela Mine's Heritage Management Plan, a Phase 1 Heritage Impact Assessment and a Phase 1 Archaeological Assessment was conducted to investigate the occurrence of heritage and archaeological resources on the farm Kapsteveld 541. No heritage or archaeological resources of significance were found on or close to the proposed waste rock dump expansion footprint area.

Will any building or structure older than 60 years be affected in any way?

NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;

- (v) the municipality which has jurisdiction in the area;
- (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
- (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
 - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
 - (iii) the nature and location of the activity to which the application relates;
 - (iv) where further information on the application or activity can be obtained; and
 - (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

- ZF Mgcawu District Municipality (Mayor, Municipal Manager).
- Tsantsabane Local Municipality (Mayor, Municipal Manager and Ward councillor).
- Northern Cape Department of Agriculture and Land Reform (Head of department).
- Department of Water Affairs (Regional Manager).
- Department of Agriculture, Forestry and Fisheries (Regional forester).
- The South African Heritage Resources Agency (SAHRA)
- Department of Environmental Affairs (DEA)
- Northern Cape Department of Environment and Nature Conservation (DENC)

List of authorities from whom comments have been received:

No comments have been received from authorities to date.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub regulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Not applicable.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No issues with respect to the proposed project have been raised by interested and affected parties to date.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

No issues with respect to the proposed project have been raised by interested and affected parties to date.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative 1 (preferred alternative)

Please refer to Appendix F for a list the potential direct, indirect and cumulative impacts that may result due to the proposed waste rock dump expansion project as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The activities associated with the expansion of the existing waste rock dump on the farm Kapstevl are not expected to have significant negative impacts on the surrounding environment. The majority of the anticipated direct impacts will be of Low to Moderate duration, High probability and Negative Low significance which can be managed through the implementation of mitigation measures.

With the implementation of the proposed project, it is expected that a negative impact with a Moderate duration, Very High probability and Moderate impact on the economy of the region will be avoided.

The larger project area has already been heavily impacted upon by historical operations at Kolomela Mine and numerous agricultural activities.

Refer to Appendix F for the complete impact ratings table of all the anticipated impacts (types, duration, likelihood of occurrence and significance) that may result from the proposed project.

No-go alternative (compulsory)

Although the following project impacts can be avoided by implementing the no-go development alternative, they are of Negative Low to Negative Moderate significance and it does not justify enforcement of the no-go development alternative:

- Increase in greenhouse gas emissions.
- Erosion risks and impacts on soils.
- Impact on land capability.
- Impact on fauna and flora.
- Potential pollution of surface water.
- Dust emissions and a reduction in air quality.
- Increase in ambient noise levels.
- Impact on the aesthetic value of the area.
- Visual impacts.
- Potential impact on cultural and heritage resources.

Kolomela Mine plays a vital economic role in the local, regional and national. If the no-go option is imposed, production rates from the Kapstevl Pit will be interrupted and Kolomela Mine will not be able to maintain current production rates and product qualities demanded by clients. This could have high negative economic impacts in lost revenue and business sales, as well as the potential loss of employment and procurement opportunities. The no-go development option would have moderate negative impacts on the future of Kolomela Mine and its place the regional economy.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES

Is an EMPr attached?

YES

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

Not applicable.

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

- On receipt of the environmental authorisation, the EMPr will be amended to include additional conditions as set out by the DENC. The EMP will then become a legally binding document to the applicant, all its contractors and their employees.
- The necessary licences and/or permits for the removal of protected plants must be obtained from the Department of Environment and Nature Conservation (DENC), before site clearance commences.
- The surface water management infrastructure should be adequate to divert clean water around the waste rock dump expansion area and intercept dirty water runoff from the waste rock dump expansion area and contain it in the Kolomela Mine's dirty water system. Water management

infrastructure must be sufficient to contain a 1 in 50 year flood event. The adequacy of existing infrastructure should be reviewed by a qualified engineer. If an upgrade to the surface water management infrastructure is required, this should be designed during the planning and design phase of the project, prior to site clearance.

- A copy of the EMPr must always be available on site for inspection by authorised officers.
- Have a complaints register available at the site for any person to record complaints regarding the operations.
- Unsealed access roads and road verges of sealed roads should be watered by means of water trucks.
- The waste rock dump expansion is to be included in Kolomela Mine's existing groundwater pollution management plan. Measures implemented as part of this plan include:
 - a groundwater monitoring programme whereby all existing and potential impact zones are monitored to track pollution;
 - determination of the extent of the existing or potential contamination plumes; and
 - Where monitoring results indicates that third party water supply has been polluted by activities associated with mining, SIOC will ensure that the affected parties are compensated for any loss as agreed with land owners.
- The footprint of disturbance must be kept to the minimum required for the activity and reasonable vehicular and equipment movement.
- The sensitive area at the quartzite outcrop to the south of the proposed waste rock dump expansion area must be demarcated. Any disturbance inside this area to be prohibited.
- All alien and invasive plants to be managed in line with Kolomela Mine's existing alien and invasive plant management procedures, which include:
 - Delineating areas of light, medium and high infestation;
 - Classifying plants according to the Conservation of Agricultural Resources Act. All category 1 plants need to be removed first or areas of light infestation.
 - Development of a follow up programme to control re-growth and seedling establishment.
 - Development of an inspection programme to identify new infestations.
- An archaeologist should immediately be notified should any historical, archaeological, cultural or heritage artefacts be unveiled during construction. The artefact or grave is not to be disturbed or relocated until the necessary permits have been obtained.
- Environmental incidents complaints by third parties and major EMPr non-compliances are to be reported in line with the existing incident reporting procedures at Kolomela Mine.
- The EMPr requirements associated with this project are to be monitored and audited in line with existing compliance monitoring and auditing procedures being undertaken at Kolomela Mine.
- All soils that have become contaminated with oils, fuels and lubricants are to be removed and managed as hazardous waste. Bioremediation of contaminated soils needs to be where appropriate.
- Measures to re-establish naturally occurring vegetation on the surface of the waste rock dump must be implemented in line with Kolomela Mine's rehabilitation programme.
- Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies.
- Side slopes of the waste rock dump are to be shaped to have a slope ratio of 1:3 or flatter.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Impact Rating Table

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Other information

Appendix A

Site Plans

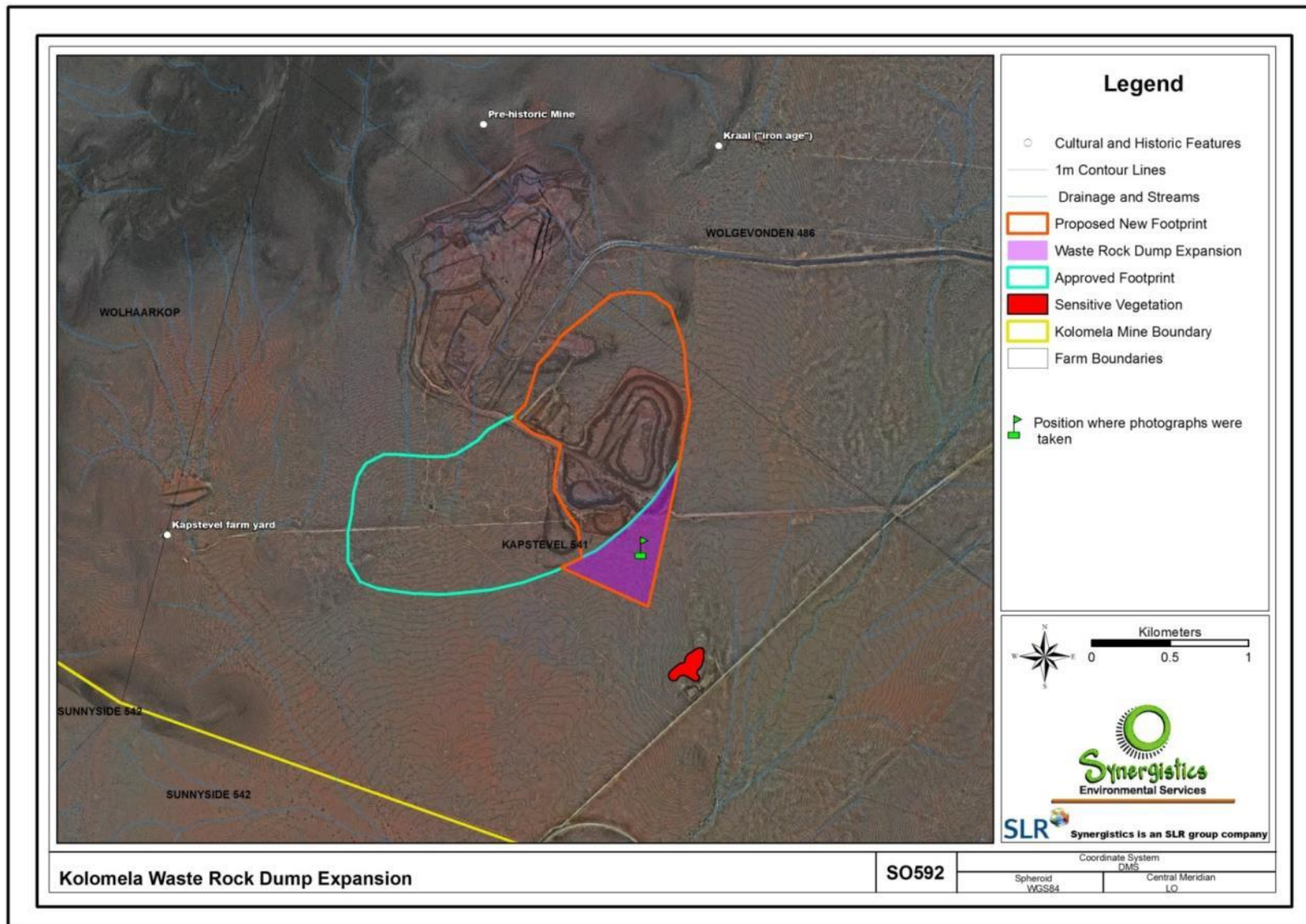


Figure 1: Site layout
EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE
DENC REF: NC/BA/24/ZFM/TSA/POS2/2014

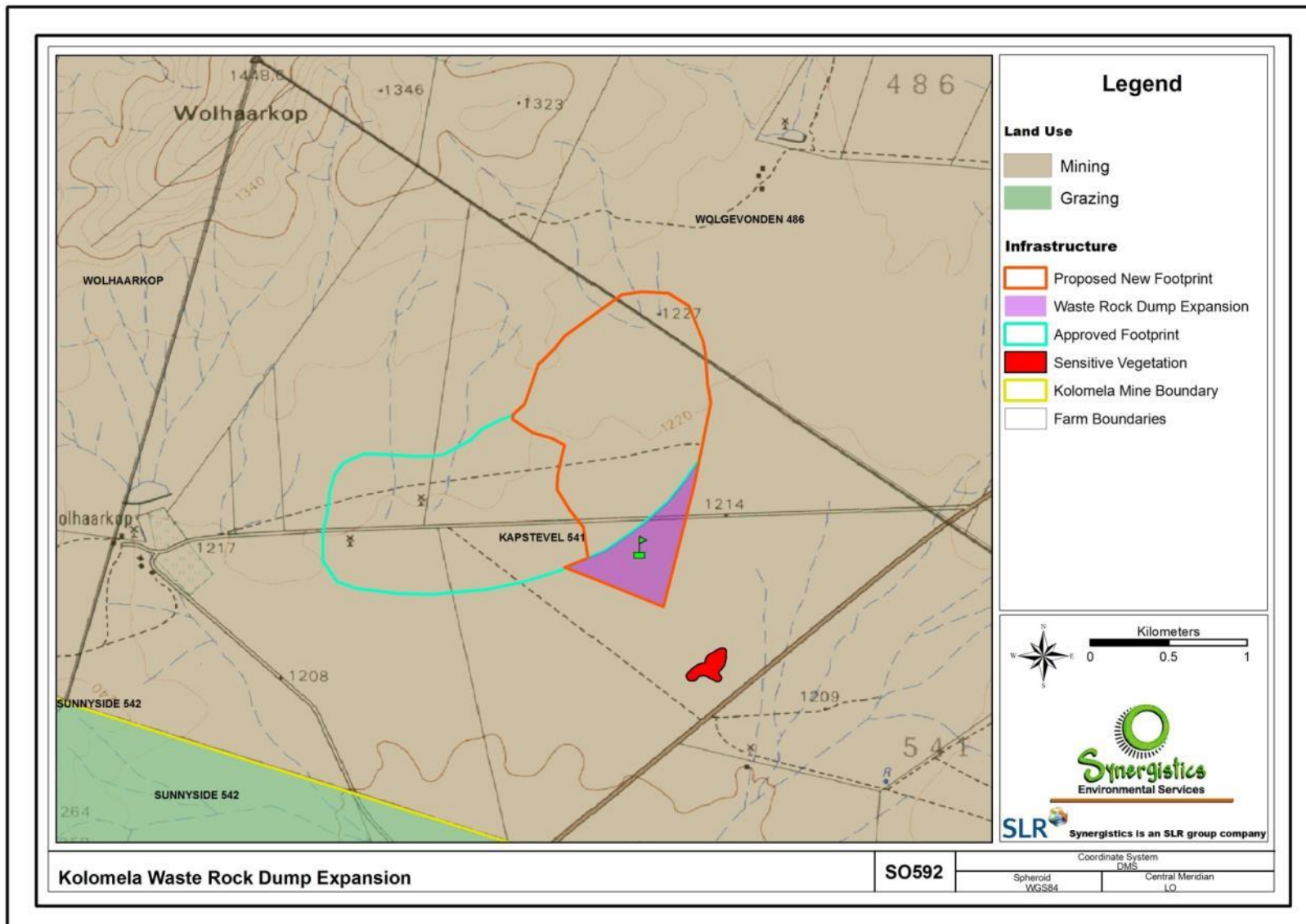


Figure 1: Land use map

EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE

DENC REF: NC/BA/24/ZFM/TSA/POS2/2014

Appendix B

Site Photographs

The following photographs were taken from the centre point (Lat: 28° 24.084723; Long: 22° 53.38143) of the proposed waste rock dump expansion. Directions in which the photograph were taken in is given below each photograph.



Photograph 1: Facing south



Photograph 2: Facing south east



Photograph 3: Facing east



Photograph 4: Facing north east

EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE
DENC REF: NC/BA/24/ZFM/TSA/POS2/2014



Photograph 5: Facing north



Photograph 6: Facing north west

EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE
DENC REF: NC/BA/24/ZFM/TSA/POS2/2014



Photograph 7: Facing west

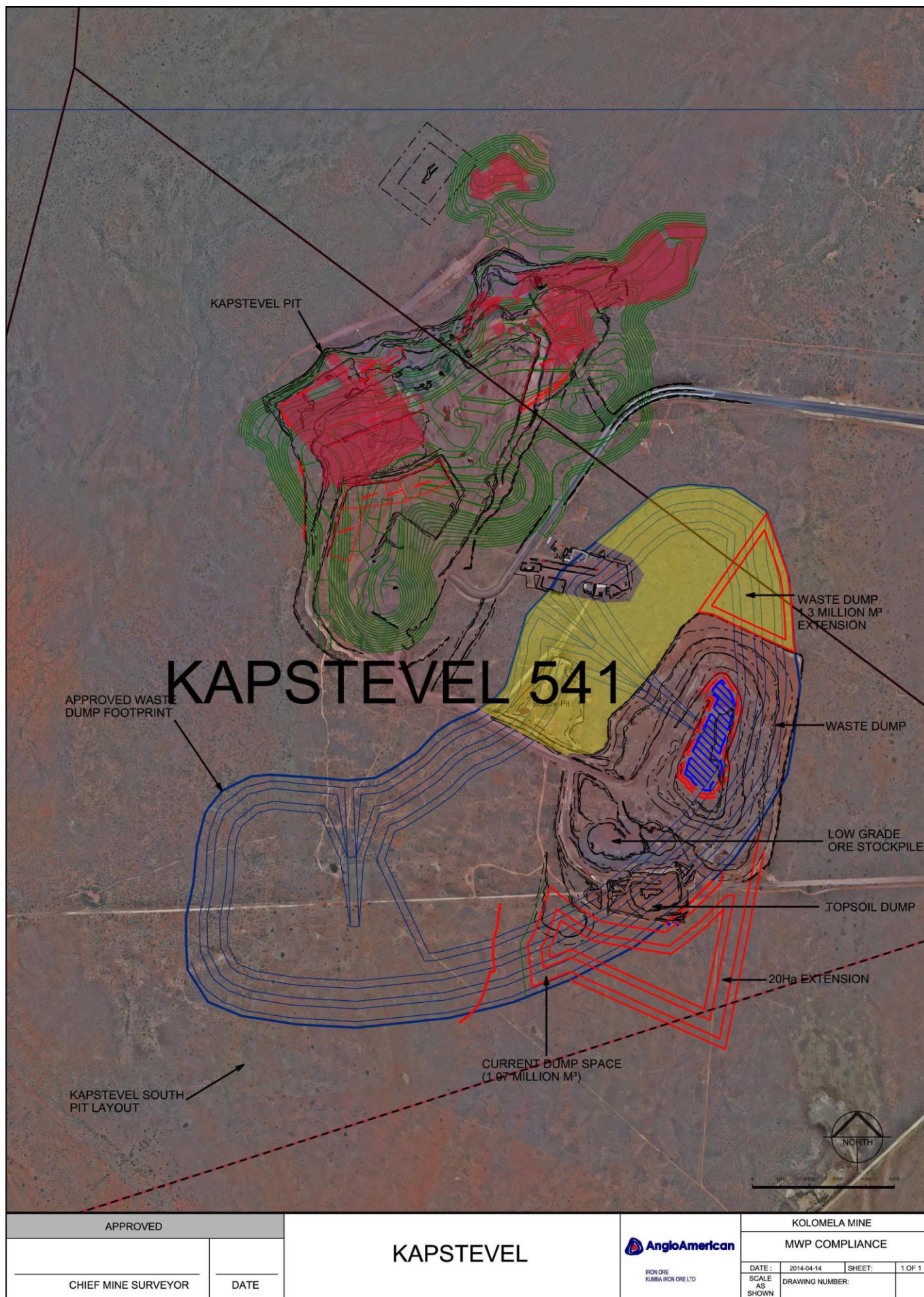


Photograph 8: Facing south west

EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE
DENC REF: NC/BA/24/ZFM/TSA/POS2/2014

Appendix C

Facility Illustration



EXPANSION OF A WASTE ROCK DUMP ON KAPSTEVEL 541 AT KOLOMELA MINE

DENC REF: NC/BA/24/ZFM/TSA/POS2/2014

Appendix D

Specialist Reports

PLANT SPECIALIST REPORT:

**EXPANSION of EXISTING
WASTE ROCK DUMP (19.9 ha) at
KAPSTEVEL PIT, Kolomela Mine.**

Prepared for: ***Synergistics***

Att: Mr Roelof Letter

PO Box 68821

Bryanston

2121

Prepared by: Dr PC Zietsman



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☎ 086 624 9573
✉ zietspc@gmail.com

PO Box 30305
Pellissier
9322

25 June 2014

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| 5 Description of potential WRD site | 6 |
| 6 Conclusions and Recommendations | 10 |
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| 8 Assessment of Potential Environmental Impacts | 11 |

EXECUTIVE SUMMARY

Synergistics Environmental Services (Pty) Ltd. requested *Omni Eko* to conduct a plant specialist study in the 20 ha area that will be affected by the expansion of the Waste Rock Dump (WRD) at the Kapsteveld Pit at Kolomela Mine, close to the town of Postmasburg in the Northern Cape. The 19.9 ha area is situated south-east of the existing WRD.

The request was to investigate the occurrence of red data and vulnerable or protected plant species and sensitive areas that could be affected by the WRD activities.

This vegetation forms part of the Savanna Biome in the Eastern Kalahari Bushveld Bioregion. Although a number of endemic or near-endemic plant species occur in the general area it is not regarded as veld types needing protection. The Ghaap plateau, of which Kapsteveld forms a part, is a unique area where many near-endemic plant succulents may still be found.

A single *Boophone disticha* (Bushman Poison Bulb) individual was observed during the site visits. Removal or destruction of the protected plants will not have a significant or detrimental effect on the populations in the region. The impact will be localised and will not extend further than the proposed waste rock dump.

The protected *Pachypodium succulentum* population occurring on the quartzite outcrop south of the WRD does not fall within the proposed expansion area. Fencing of the quartzite outcrop to protect this population is recommended.

1 Terms of Reference

Synergistics Environmental Services (Pty) Ltd. requested *Omni Eko* to conduct a plant specialist study in the 19.9 ha area that will be affected by the expansion of the Waste Rock Dump (WRD) at the Kapstevel Pit at Kolomela Mine, close to the town of Postmasburg in the Northern Cape. The 19.9 ha area is situated south-east of the existing WRD.

The request was to investigate the occurrence of red data and vulnerable or protected plant species and sensitive areas that could be affected by the WRD activities.

2 Limitations

The site visit took place during June 2014. This was however, not the first visit as this area had been visited frequently over the past three years as part of an ongoing biomonitoring programme.

3 Methods

Existing and available scientific and popular literature was used as far as possible. A map of the impacted area was prepared and supplied by *Synergistics*. Available legislation was used to determine the status of plants included in the survey. As the purpose of this assessment was

- to investigate the occurrence of red data, vulnerable or protected plant species that could be affected and
- to assess the sensitivity of the entire area and the influence of the proposed development (e.g. dust generation) on the vegetation,
- ground-truthing was conducted during site visits.

The study area is too small to necessitate the identification of smaller vegetation sub-units. Smaller plant communities were therefore not identified or described. Geophytes (bulbous plants) were included in the survey as far as possible.

4 Study Area

This area forms part of the Kuruman Mountain Bushveld (SVk 10) and of the Savanna Biome (Fig. 1) in the Eastern Kalahari Bushveld Bioregion (Mucina & Rutherford 2006). Although a number of endemic or near-endemic plant species occur in the area it is not regarded as veld types needing protection. Van Wyk & Smith (2001) regard the Ghaap plateau, of which the study area forms a part, as a unique area where many near-endemic succulent plant species may still be found. The Kuruman Mountain Bushveld is characterized by banded iron formations with jaspilite, chert and riebeckite-asbestos of the Asbestos Hills subgroup of the Griqualand West Supergroup. Soils are shallow sandy soils of the Hutton form (Mucina & Rutherford 2006).

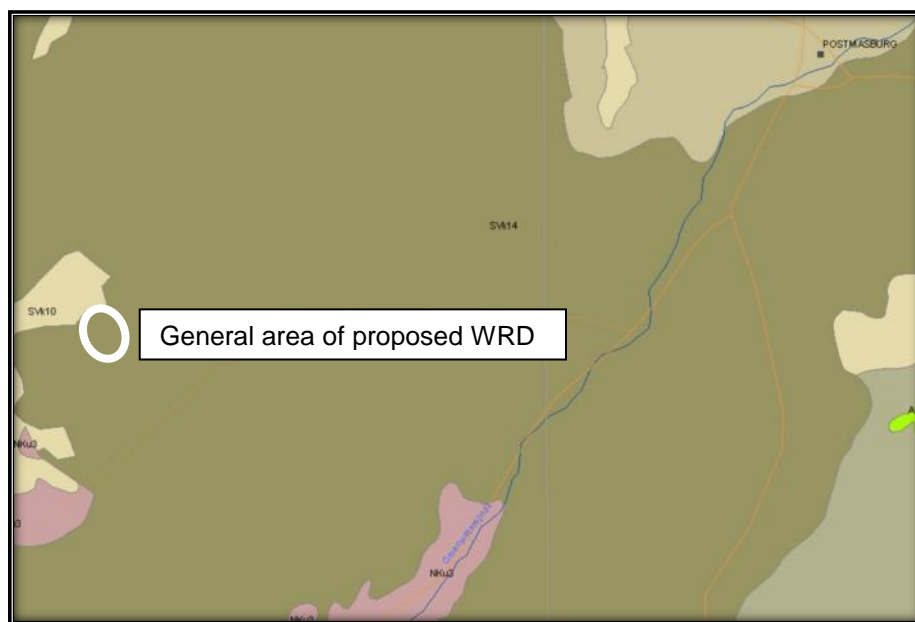


Figure 1. The area around the proposed 20 ha expansion of the Kapsteveld WRD falls within the Kuruman Mountain Bushveld vegetation type (Mucina & Rutherford 2006).

A map indicating the area of the proposed developments was prepared and supplied by Synergistics (Fig. 2).

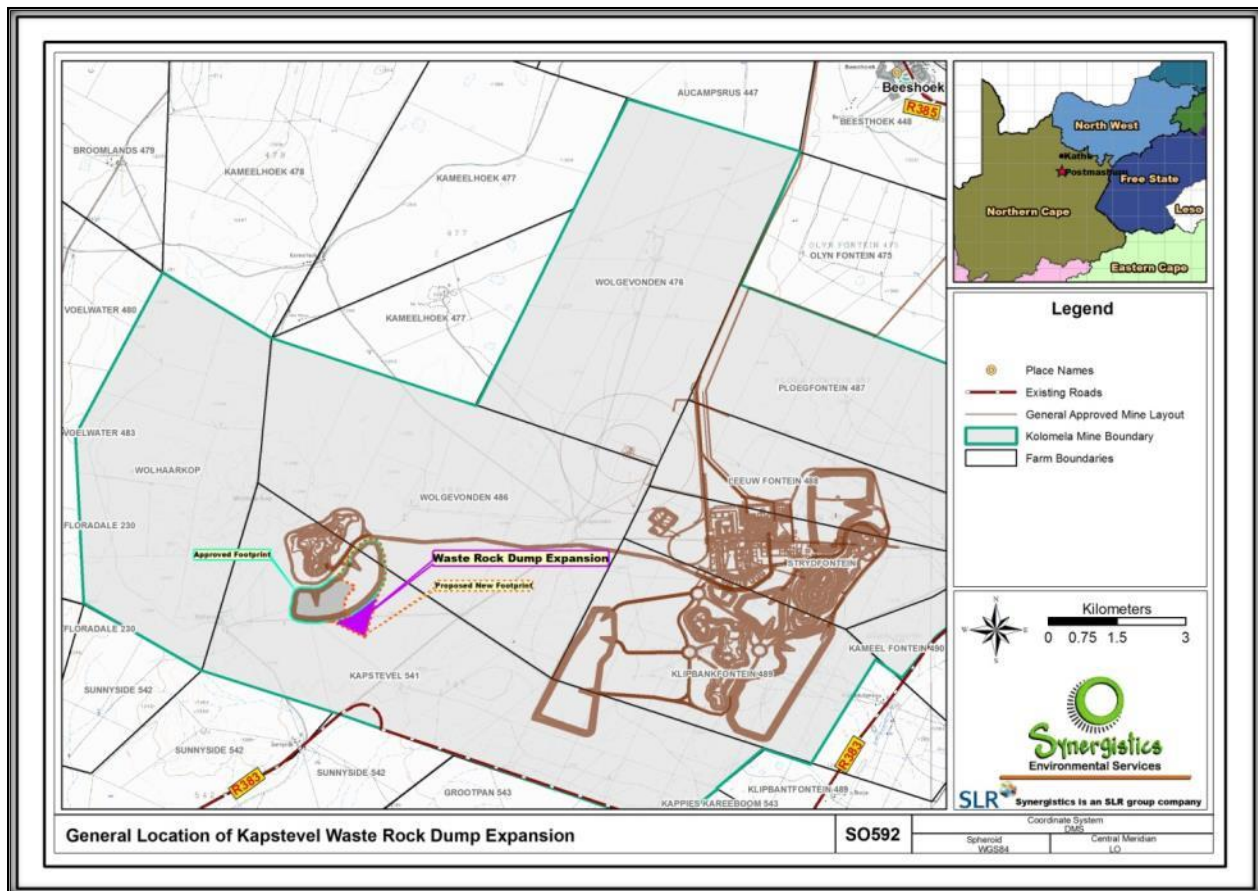





Figure 2. Locality of the proposed 20 ha expansion of the Kapstevl WRD..

5 Description of proposed WRD site

This area (19.9 ha) is situated at the south-east corner of the existing Kapstevl WRD. The area is already fairly disturbed (Fig. 4) due to previous activities around the existing WRD and the first site office that used to be in the area. No Shepherd's trees (*Boscia albitrunca*), or Camel thorn trees (*Acacia erioloba*) were noted. Driedoring (*Rhygosum trichotomum*), a declared potential encroacher, dominates the woody layer (Fig. 5).

| | |
|---|--|
|  | <p>Figure 4.</p> <p>The area of the proposed expansion is already disturbed.</p> |
|  | <p>Figure 5.</p> <p>The woody layer is dominated by driedoring (<i>Rhygosum trichotomum</i>) a declared encroacher. A few Buffalo Thorn trees occur in the area.</p> |
|  | <p>Figure 6.</p> <p><i>Stipagrostis uniplumis</i> (Boesmangras) dominates the grass layer.</p> |

The grass layer is dominated by *Stipagrostis uniplumis* (Silky Bushman grass) (Fig. 6) and various other pioneer grasses such as *Aristida* species. No protected herb species were noted during the site visit.

During the compilation of the first sensitivity map prepared for the Biodiversity Action Plan (BAP) a population of unusually high density of *Pachypodium succulentum* (Dikvoet) a protected plant (Fig. 7) was mapped and included as one of the areas where sensitive vegetation occurs and which should not be disturbed (Fig. 8).



Figure 7. *Pachypodium succulentum* (Dikvoet) occurs outside the footprint of the proposed WRD and the proposed development should not have any impact on this population.

As a result of the season during which the assessment took place few geophytes (bulbous plants) were noted. It is quite possible that more Bushman poison bulb individuals may be observed during summer. If observed, they should be removed and planted at a safe site.

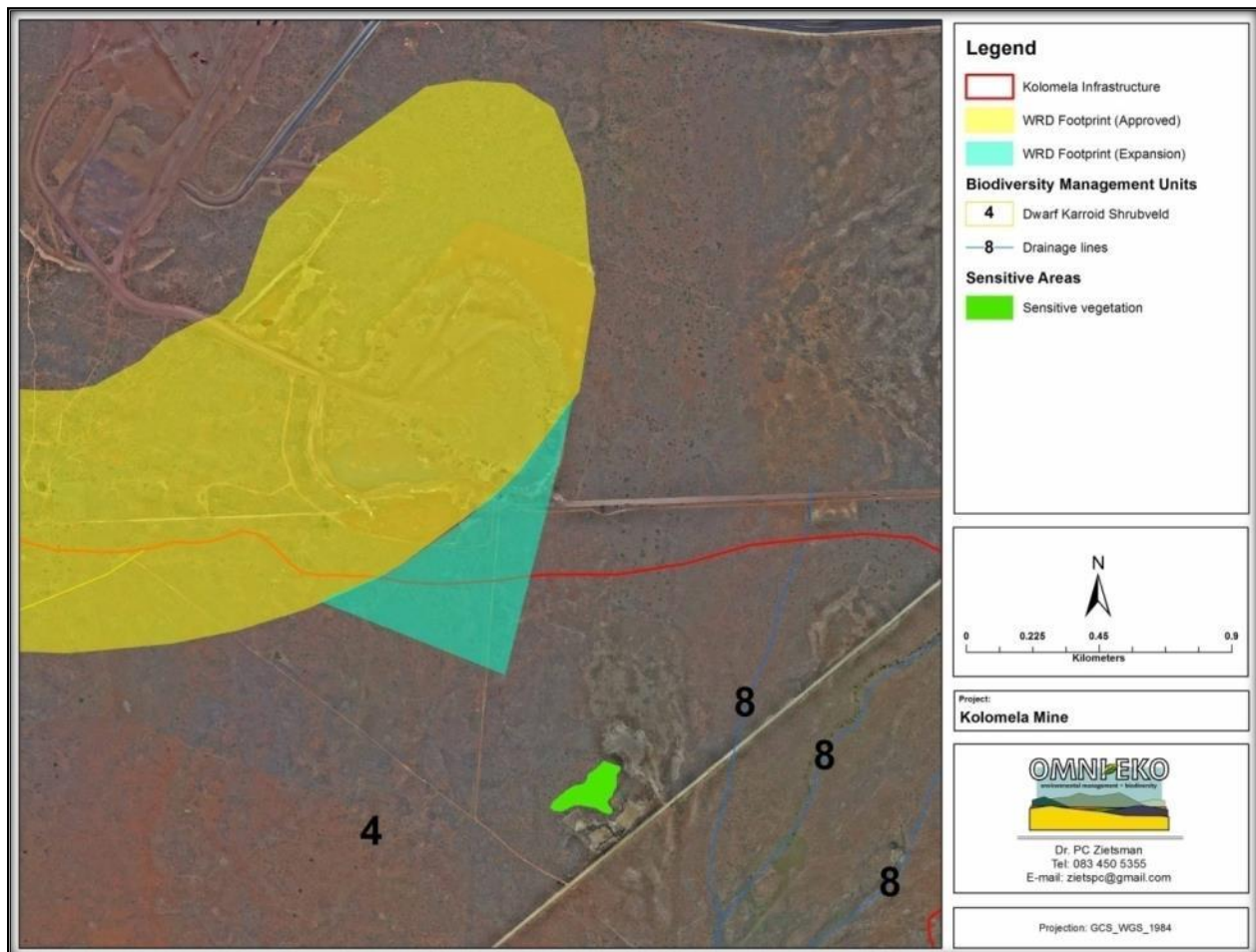


Figure 8. This map of the area around the proposed 20 ha expansion indicates the proximity of the sensitive vegetation at the quartzite outcrop south of the proposed development where an unusually dense population of Dikvoet occurs.

6 Conclusions and Recommendations

Except for the single Bushman Poison Bulb (GPS Co-ordinate: 28°24'0.96"S; 22°53'23.44"E) that was noted, no other protected plants were observed during the site visits. If such species are noted in future in the footprint area they must be removed and replanted in safe areas.

Permits to remove and/or destroy protected plants (e.g. *Boophone disticha* and *Pachypodium succulentum*) must be obtained from the Northern Cape Department of Environment and Nature Conservation (DENC).

Removal or destruction of the protected plants will not have a significant or detrimental effect on the populations in the region. The impact will be localised and will not extend further than the proposed waste rock dump.

The protected *Pachypodium succulentum* population occurring on the quartzite outcrop south of the WRD does not fall within the proposed expansion area. Fencing of the quartzite outcrop to protect this population is recommended.

7 References

- Mucina, L. & Rutherford, M.C. 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. SANBI. Pretoria.
- Van Wyk, A. E. & Smith, G. F. 2001. Regions of Floristic Endemism in Southern Africa. A review with emphasis on Succulents. Umdaus. Arcadia, Pretoria.

8 Assessment of Potential Environmental Impacts

A variety of criteria was considered before determining the significance of impacts associated with the proposed development on the environment. Impacts were assessed both with and without the implementation of appropriate mitigation measures. Impacts associated with the project were grouped under direct, indirect, and cumulative impacts for the planning/design, construction, and operational phases respectively, of the proposed development.

“Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts” DEAT (2006).

The criteria contributing to the significance of potential impacts (spatial extent, intensity, duration, probability, and confidence) were considered as follows:

(a) Extent – The size of the area that will be affected by the impact.

- Site specific
- Local (<2km from site)
- Regional (within 30km of site)
- National

(b) Duration –The timeframe during which the impact will be experienced

- Temporary (less than 1 year)
- Short term (1 to 6 years)
- Medium term (6 to 15 years)
- Long term (the impact will cease after the operational life of the activity)
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient)

(c) Intensity –The anticipated severity of the impact

- High (severe alteration of natural systems, patterns or processes)
- Medium (notable alteration of natural systems, patterns or processes)
- Low (negligible alteration of natural systems, patterns or processes)

Using the criteria above, the impacts were assessed in terms of the following:

(a) Probability –The probability of the impact occurring

- Improbable (little or no chance of occurring)
- Probable (<50% chance of occurring)
- Highly probable (50 – 90% chance of occurring)
- Definite (>90% chance of occurring)

(b) Significance without mitigation and status

- Low to very low (the impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making).
- Medium (the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated).
- High (the impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making).

(c) Significance with mitigation and status

- Low to very low (the impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making).
- Medium (the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated).
- High (the impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making).

IMPACT ASSESSMENT TABLE

| Impact | Extent | Duration | Intensity | Probability | Significance without mitigation and status | Mitigation | Significance with mitigation and status |
|--|---------------|-----------|-----------|-------------|--|--|---|
| <i>Impacts associated with construction phase</i> | | | | | | | |
| Loss of natural vegetation | Site specific | Permanent | Low | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> Vegetation clearing during construction must be restricted to the footprint of the development. Unnecessary impacts (such as driving off road) on surrounding natural vegetation must be avoided. | Low, <u>negative</u> |
| Impacts on species of special concern | Site specific | Permanent | Low | Definite | Medium, <u>negative</u> | <ul style="list-style-type: none"> Sensitive areas should be demarcated and indicated as no-go areas. | Low, <u>negative</u> |
| Increased bush encroachment following vegetation disturbance | Site specific | Temporary | Low | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> Bush encroachment must be monitored continuously. | Low, <u>negative</u> |

| Impacts associated with operational phase | | | | | | | |
|---|---------------|-----------------|-------------------|---------------------|---|---|--|
| Impact | Extent | Duration | Intensi-ty | Proba-bility | Significance without mitigation and status | Mitigation | Signifi-cance with mitiga-tion and status |
| Increased bush encroach-ment following vegetation disturbance | Site specific | Temporary | Low | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> ▪ Bush encroachment must be monitored continuously. | Low, <u>negative</u> |
| Pedestrian and vehicle traffic will disturb vegetation,. | Site specific | Temporary | High | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> ▪ Construction area should be demarcated. ▪ No traffic or movement of people should be allowed outside the demarcated areas. | Low, <u>negative</u> |
| Collecting of medicinal plants. | Site specific | Temporary | Low | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> ▪ The staff should receive environmental education to ensure that no harvesting of medicinal plants occurs. | Low, <u>negative</u> |
| Impacts associated with decommissioning phase | | | | | | | |
| On site rehabilita-tion of flora | Site specific | Temporary | Low | Definite | High, <u>negative</u> | <ul style="list-style-type: none"> ▪ All damaged areas must be rehabilitated upon completion of the development. ▪ All natural areas must be rehabilitated with species indigenous to the area. | Low, <u>negative</u> |

AIRSHED PLANNING PROFESSIONALS (Pty) Ltd

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16 July 2014

Our Ref. No.: 13SLR22/13SLR23 (Final)

SLR Africa (Block 7)
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South Africa

Attention: Rudolf De Jager

SPECIALIST OPINION ON THE POTENTIAL CHANGES IN AIR QUALITY AND NOISE IMPACTS ASSOCIATED WITH THE EXTENSION OF THE KOLOMELA MINE KAPSTEVEL WASTE ROCK DUMP

Dear Rudolf

It is understood that the Sishen Iron Ore Company (Pty) Ltd (SIOC), part of Kumba Iron Ore Limited (Kumba) who owns and operates the Kolomela Mine, proposes to expand an existing waste rock dump on the farm Kapstevél 541, to cater for waste rock generated at the mine. The proposed development constitutes a brownfields project and will take place on the mine's property. The footprint of the proposed waste rock dump expansion will cover approximately 19 ha.

According to the project description, it was identified that the current approved footprint of the Kapstevél waste rock dump potentially contains future iron ore reserves. To avoid the sterilisation of these iron ore reserves, SIOC has elected to stop the further development of the waste rock dump within the approved footprint area and instead expand the waste rock dump to the south, outside the approved footprint area (Figure 1). Additionally, SIOC intend to construct a separate waste rock dump north of the current Kapstevél 541 pit. This waste rock dump is however not considered in this specialist opinion but will be considered in a separate full Scoping and Environmental Impact Assessment Process as part of the Kolomela Expansion Project (Northern Cape Department of Environment and Nature Conservation (DENC) Ref: NC/EIA/15/ZFM//TSA/POS3/2013), which is currently in the scoping phase. The subject waste rock dump expansion project therefore serves as a short term solution to waste rock area constraints until the development of the new waste rock dump to the north of the current Kapstevél 541 pit has been approved.

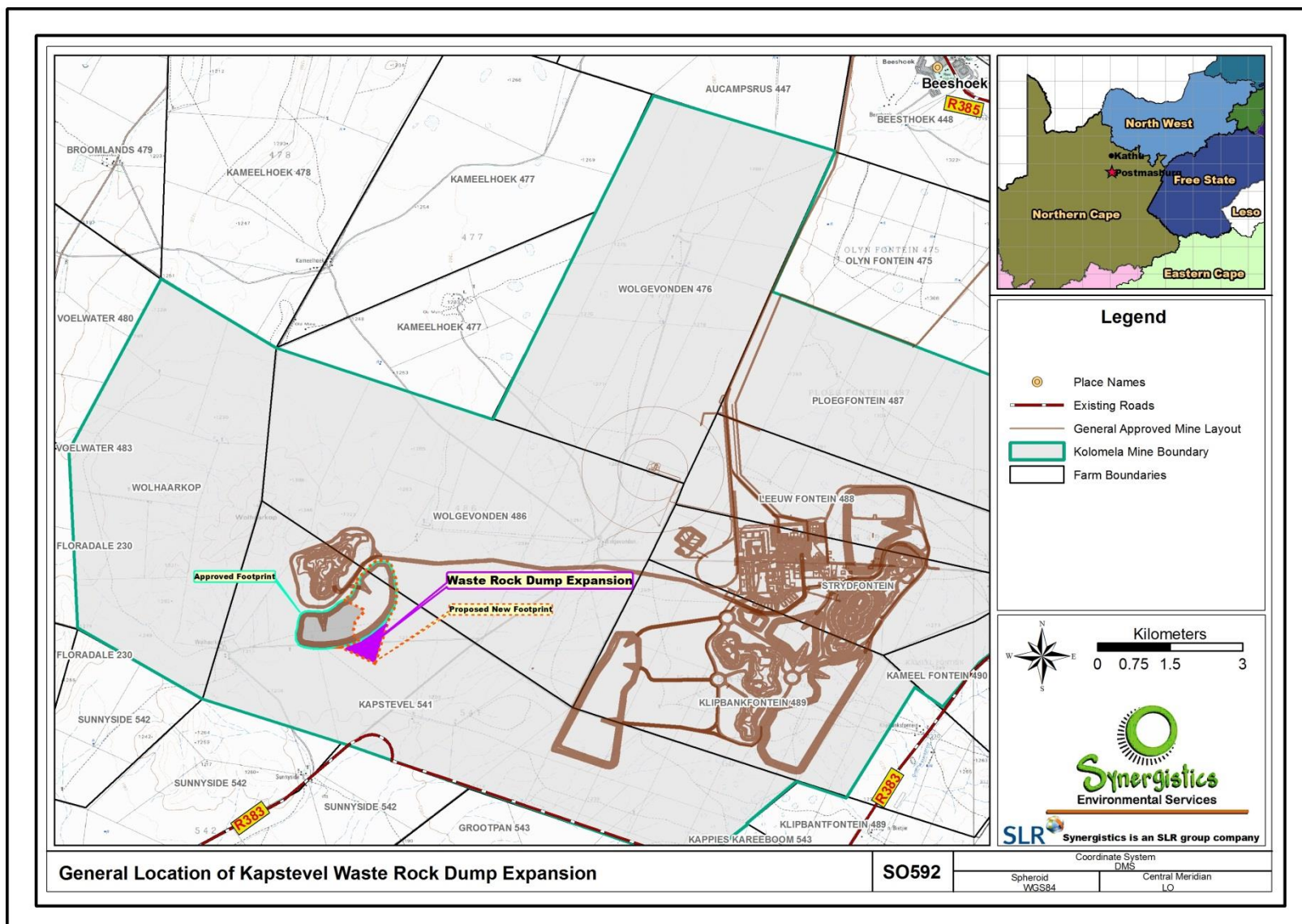


Figure 1: General location of the Kapsteveld waste rock dump expansion

1 Air Quality Impact Description

The disposal of waste rock may result in fugitive dust emissions through the following activities/mechanisms:

- The transport of waste rock to the dump on unpaved haul roads;
- The unloading and handling of waste rock on the dump; and
- The entrainment of fine dust from the surface of the waste rock dump by the wind.

Since disposal rates are not expected to change from what was originally estimated¹, emissions from the transportation and unloading/handling of waste rock are expected to remain unchanged. Windblown dust emissions may however change as a result of the difference in waste rock dump surface area exposed to the wind. The focus of this comparative assessment is therefore on the expected change in windblown dust emissions, specifically PM₁₀ which is of concern from an inhalation health perspective, associated with the change in waste rock dump footprint area.

Since the 2010 study various aspects of the way in which windblown dust emissions are estimated have changed. These changes include:

- **Updates to the windblown dust emissions model:** These changes can be provided as a technical addendum to this document should it be required.
- **The availability of recent on-site meteorological data:** The 2010 study made use of South African Weather Service (SAWS) data from Postmasburg for the period January 2000 to December 2006. Kumba has since installed an on-site meteorological station from which data for the period September 2011 to March 2013 was obtained.
- **A more accurate idea of the composition and nature of waste rock being disposed of:** On request, SLR has conducted a survey of waste rock material being disposed of at Kolomela. Pictures shown in Figure 2 indicate the highly variable size of waste rock material, ranging from large rocks, to pebbles, to coarse “sandy” material. In the absence of site specific information, the 2010 assessment conservatively assumed the entire surface of the Kapstevél waste rock dump to consist of wind erodible material that is, of particles less than 2 mm in diameter. Site observations clearly indicate this not to be the case.

In the estimation of windblown dust emissions from the Kapstevél waste rock dump and its extension use was made of information summarised in Table 1.

¹ Airshed Planning Professionals (Pty) Ltd was tasked with the assessment of air quality impacts associated with the Kolomela Mine in 2010 (Liebenberg-Enslin & Feig, 2010).



Figure 2: Waste rock material

Table 1: Windblown dust emissions model inputs

| Parameter | Original Total Footprint | Proposed Total Footprint | Proposed Extension Footprint Considered in the Basic Assessment |
|---|--|--------------------------|---|
| Footprint area | 240.9 ha | 140.6 ha | 19 ha |
| Erodible surface | 50% rock covered ² | | |
| Particle size distribution of erodible fraction | <p>Average of all Sishen waste rock dump samples:</p> <p>300 µm - 0.39%</p> <p>150 µm - 9.20%</p> <p>75 µm - 7.91%</p> <p>45 µm - 5.48%</p> <p>30 µm - 7.14%</p> <p>15 µm - 13.2%</p> <p>10 µm - 6.46%</p> <p>7 µm - 5.42%</p> <p>5 µm - 4.94%</p> <p>2 µm - 10.4%</p> <p>1 µm - 29.5%</p> | | |
| Surface material moisture | Conservatively assumed as 0.5% | | |
| Particle density | 1.9 g/cm ³ | | |
| Meteorological data | On-site hourly sequential data for the period September 2011 to March 2013. | | |
| Emissions model options | <p>Various model options were tested. In the authors experience and in comparison with the median over all estimation techniques and the 1983 State Pollution Control Commission single valued emission factor for stockpiles, the following selections resulted in the most representative emission estimates:</p> <p>The Marticorena and Bergamotti Model of 1995 including momentum partitioning and using the minimum roughness length limitation of 0.4 mm.</p> | | |

Estimated PM₁₀ emissions rates for the Kapsteveld waste rock dump is summarised in Table 2. **Total emissions from the Kapsteveld waste rock dump are expected to decrease by 42% due to the reduction in total footprint area from 240.9 ha to 140.6 ha. The envisaged 19 ha extension area under investigation in this basic assessment is estimated to result in approximately 48 tonnes of fugitive, windblown, PM₁₀ per year. The 19 ha extension is estimated to account for less than 4% of total windblown dust emissions from Kolomela Mine which is currently estimated at approximately 1 215 t/a³. Although the impact area might shift to the south, the change in impact is considered immaterial.**

² The emission model estimates a 90% reduction in windblown dust missions with 50% rock cover which was assumed representative of Kolomela waste rock dumps based on site observations.

³ Total windblown dust emissions based on site layout as per the 2010 study.

Table 2: Windblown dust emission results for Kapsteval waste rock dump

| Parameter | Original Total Footprint Area of 240.9 ha | Proposed Total Footprint Area of 140.6 ha | Proposed Extension Footprint Area of 19 ha |
|---|---|---|--|
| Average hourly PM ₁₀ emission rate (g/s-m ²) | 7.93x10 ⁻⁶ | | |
| Annual PM ₁₀ emission rate (t/a) | 602 | 351 | 47.5 |

2 Noise Impact Description

Noise is mostly generated by the equipment used in the transport and unloading/handling of waste rock. Since no data from previous noise impacts assessment for Kolomela Mine could be sourced, impacts associated with the extension are discussed qualitatively.

Since waste rock disposal rates at Kapsteval are not expected to change equipment/truck quantities and therefore sound power levels or noise 'emissions' are not expected to change. It is important to note that for an intrusive noise to increase perceptively, a doubling of noise emissions is required.

Although the noise impact area of the Kapsteval waste rock dump will shift slightly to the south it is unlikely that the 19 ha extension of the approved footprint area will result in a notable change in environmental noise levels.

I trust this meets with your requirements. Please don't hesitate to contact me should you require any further clarification.

Kind regards

Nicolette von Reiche
Principal Consultant

APPENDIX E

PUBLIC PARTICIPATION REPORT

Proponent: **SISHEN IRON ORE COMPANY (PTY) LTD**

Project: **EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT THE SISHEN IRON ORE COMPANY'S KOLOMELA MINE, NEAR POSTMASBURG.**

Report Name: **Public Participation Report**

Report Status: **Draft for client review**

Revision No: 00

Report Date: 8 August 2014

Report Number: SO592

Prepared by: Roelof Letter and Rudi de Jager



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REPORT DISTRIBUTION

| | Name | Designation | Affiliation |
|---|-----------------|--------------------------|--|
| 1 | Jaco Lambrechts | Environmental specialist | Sishen Iron Ore Company (Pty) Ltd (SIOC) |

PROJECT INFORMATION SHEET

PROJECT:

EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT THE SISHEN IRON ORE COMPANY'S KOLOMELA MINE, NEAR POSTMASBURG.

REPORT DETAILS

Report Name: Public Participation Report
Report Number: SO592:AR
Report Status: Draft for Client review
Revision Number: 00
Date: 8 August 2014

PROPONENT

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Synergistics Environmental Services (Pty) Ltd – South Africa

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SA (Interim Certification Board)

Sishen Iron Ore Company (Pty) Limited (SIOC)
EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT
THE SISHEN IRON ORE COMPANY'S KOLOMELA MINE, NEAR
POSTMASBURG

Public Participation Report

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LIST OF TERMS, ACRONYMS AND ABBREVIATIONS

| | |
|------------------|---|
| BA | Basic Assessment |
| BAR | Basic Assessment Report |
| BID | Background Information Document |
| DAFF | The Department of Agriculture, Forestry and Fisheries |
| DENC | Northern Cape Department of Environment and Nature Conservation |
| DMR | The Department of Mineral Resources |
| DWA | The Department of Water Affairs |
| EMP | Environmental Management Programme |
| I&APs | Interested and Affected Parties |
| PPP | Public Participation process |
| IWULA | Integrated Water Use License Application |

Sishen Iron Ore Company (Pty) Ltd (SIOC)

EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT THE SISHEN IRON ORE COMPANY'S KOLOMELA MINE, NEAR POSTMASBURG

Public Participation Report

1. INTRODUCTION

The Sishen Iron Ore Company (Pty) Ltd (SIOC), part of Kumba Iron Ore Limited (Kumba), owns and operates Kolomela Mine located approximately 12 km south east of Postmasburg in the Northern Cape Province.

It was identified that the current approved footprint of the Kapstevél Waste Rock Dump, situated on the farm Kapstevél, potentially contains future iron ore reserves. To avoid the sterilisation of these iron ore reserves, SIOC has elected to stop the further development of the waste rock dump within the approved footprint area and instead expand the waste rock dump to the south, outside the approved footprint area. The waste rock dump expansion project will serve as a short term solution to waste rock area constraints until the development of a new waste rock dump to the north of the current Kapstevél 541 pit has been approved. The following environmental approvals are required prior to the commencement of the project:

- **Environmental Authorisation:** For activities listed under the 2010 Environmental Impact Assessment (EIA) Regulations in terms of the National Environmental Management Act (No. 107 of 1998) as amended (NEMA).
- **A Water Use License (WUL):** As required in terms of section 21 of the National Water Act (No 36 of 1998) (NWA), from the Department of Water Affairs (DWA).

Synergistics Environmental Services was appointed by SIOC to undertake the Basic Assessment (BA) process for the Kapstevél Waste Rock Dump Expansion Project. A public participation process (PP) is required to ensure that the public issues and concerns are incorporated during the BA process.

The purpose of this report is to present the activities undertaken as part of the PPP and to present the results thereof. This report forms an appendix to the Basic Assessment Report (BAR) and the reader is advised to read both these reports as the BAR provides detailed technical information on the project.

2. LEGISLATIVE REQUIREMENTS

PPP is required in terms of the following legislation:

- Section 27(a) of Regulation 543 of the National Environmental Management Act (No 107 of 1998) (NEMA) in support of the environmental authorisation application submitted to Northern Cape Department of Environment and Nature Conservation (DENC).
- NWA, by the Department of Water Affairs (DWA) in support of the Water Use Licence Application (WULA)

The required public participation followed a single integrated process covering the requirements of the above listed acts. The following guidelines were also consulted when undertaking the public participation process:

- Guideline 4: Public Participation in support of the EIA Regulations, 2005
- Integrated Environmental Management guideline Series 7: Public Participation in the EIA Process (Draft)
- Department of Water Affairs; Generic Public Participation Guideline, September 2001

3. PUBLIC PARTICIPATION PROCESS

3.1 Objectives

The goal of PPP during the BA process is to involve the parties that will be affected by the proposed development thus ensuring the public's involvement in the development and planning of the project. This is undertaken to ensure that the community is aware of the development and understands pertinent information on the project, which may impact their communities. With this goal in mind, the objectives of the Kolomela Aquifer Recharging Project's PPP were as follows:

- To ensure widespread consultation through the identification of key stakeholders for the project which includes government departments with authority over aspects of the project, communities directly affected by the project, non-governmental organisations with an interest in the project and surrounding communities to the project area;
- Inform identified key stakeholders of the proposed project;
- Afford communities an opportunity to raise issues of concern and ask questions;
- Collate community issues of concern for incorporation in the BA process; and

- Involve the public in the project planning and development.

3.2 Methodology

The methodology followed for the project has taken into consideration the legislative requirements set out in Section 2 of the report. The process followed is described below.

3.2.1 Identification of Interested and Affected Parties (IAPs)

Potential IAPs were identified through the use of the existing SIOC I&AP databases that have been developed. The existing databases included landowners, neighbouring landowners, community members, non-governmental organizations (NGOs), regulatory authorities, local authorities and surrounding mines. A list of all parties that were consulted during the public participation and authority consultation is provided in Appendix E1. Potential I&APs were notified about the project and the public participation process by means of:

- Media advertisements (Appendix E2).
- Site notices (Appendix E3).
- Individual notifications to landowners and people who may be affected by the proposed development, as well as all I&APs on existing databases (via telephone, email and/or fax) (Appendix E5).
- Individual written notifications to the Mayor, Municipal Manager and Councilor of ZF Mgcawu District Municipality and Tsantsabane Local Municipality (Appendix E5).

3.2.2 Notifications to Relevant Authorities

The following provincial departments were notified about the project:

- Northern Cape Department of Environment and Nature Conservation (DENC).
- Department of Environmental Affairs (DEA)
- Department of Agriculture, Forestry and Fisheries (DAFF).
- The Department of Mineral Resources (DMR).
- The Department of Water Affairs (DWA).
- The South African Heritage Resources Agency (SAHRA).

3.2.3 Media Advertisements and Site Notifications

The public was notified using media and site notification in order to inform them of the proposed project as well explain how to get involved in the project. Press adverts were placed in the following newspapers:

- Die Ghaap in Afrikaans (11 July 2014).
- Volksblad in English (11 July 2014).

Site notices (posters) were placed at various locations on the 10 July 2014 (see Appendix E3). Copies of the advertisements and site notices are included in Appendix E2 and E3.

3.2.4 Circulation of Project Documents

3.2.4.1 Notification Letter

A notification letter was compiled which gave an introduction and basic description of the project. The notification letter contained information on the applicant, location of the proposed project, description of activities and contact details on where further information could be obtained together with a response sheet where issues of concern, questions and respondent contact details could be completed. The notification letter was circulated on the 14 July 2014 to neighbouring landowners and all other affected landowners and identified I&APs. A copy of the notification letter is attached in Appendix E4.

The notification letter highlighted the proposed Kapstevél Waste Rock Dump Expansion Project and invited I&APs to participate in the BA process. A response sheet was attached to the notification letter on which I&APs could provide written comments to the proposed development. Proof of distribution of the notification letter to I&APs is provided in Appendix E5.

3.2.4.2 Basic Assessment Report

The draft BAR will be made available for public and authority review for a period of 45 calendar days from 19 August to 2 October 2014. The draft BAR will be distributed to the following authorities for review:

- DENC;
- DEA;
- DAFF;
- DMR;

- DWA; and
- SAHRA.

All registered I&APs will be notified in writing of the availability of the BAR for review and will be requested to submit written comments.

3.3 Community Issues of Concern

3.3.1 Collation of Issues of Concern

As part of the PPP, it is vital that the issues of concern of stakeholders, which include government and, I&APs (surrounding communities, NGO's, businesses and other parties not directly affected by the project) are taken into consideration during the BA process. **No issues of concern associated with the proposed project were however raised during the public consultation period.**

3.3.2 Mechanisms for Collation of Issues and Concerns

Mechanisms for the collation of project issues and concerns were established in the initial PPP. The public are to submit written comment to Synergistics via Post, Email, or Fax. The collation of issues and concerns will continue throughout the BA process by making use of this mechanism. Any comments on the draft BAR will be incorporated in the final BAR before submission to DENC.

3.3.3 Grievance Mechanism

SIOC has an existing Grievance Mechanism to receive and facilitate resolution of the affected communities' concerns and grievances with regards to environmental and social performance during the construction and operational phases of the project.

4. CONCLUSIONS

There have been no issues or concerns raised by the public with respect to the Kapstevl Waste Rock Dump Expansion Project throughout the public consultation period to date.

The reader is urged to read the BAR which provides the detailed environmental management procedures that is proposed for the development. Should you have any queries please feel free to contact:

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Environmental Consultant
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CONSULTANT'S EXPERIENCE AND DECLARATION OF INDEPENDENCE

Synergistics Environmental Services (Pty) Ltd is part of the SLR Group of companies. The company has extensive experience in environmental impact assessments; environmental management plans, programmes and systems; environmental auditing; environmental monitoring reporting; environmental performance assessments; closure and rehabilitation costing and planning; and development of environmental action plans.

Kerry Fairley is certified as an Environmental Assessment Practitioner in South Africa and has over 15 years' experience in the field of environmental consulting. She has successfully completed various environmental impact assessments, audits and management programmes for mining and mining related activities.

The undersigned herewith declare that this report represents an independent, objective assessment of the environmental impacts associated with the proposed artificial recharge of aquifers on farms Leeufontein 488 and Kappies Kareeboom 540 at Sishen Iron Ore's Kolomela Mine, near Postmasburg.

| | Name | Designation | Signature | Date |
|---------------------|---------------|--------------------------------|---|------------|
| Prepared by: | Roelof Letter | Senior Environmental Scientist |  | 08/08/2014 |
| | Rudi de Jager | Environmental Scientist |  | 08/08/2014 |
| Reviewed by: | Kerry Fairley | Director |  | 08/08/2014 |

APPENDIX E1

INTERESTED AND AFFECTED PARTY DATABASE

| Title | First Name | Last Name | Relationship | Association/ Position | E-Mail | Address | Town | Code | Telephone | Fax | Cellphone |
|-----------------------|-----------------|-------------|-----------------------|-----------------------------|---|------------|-------------|------|--------------------------------|--------------|-------------------------------|
| GENERAL PUBLIC | | | | | | | | | | | |
| Mr | Jannie en Johan | Kotze | Neighbour | Plaas Floradale | huibri.kotze@kioldt.com johank@mvdkalahari.co.za skfloradale@gmail.com | Posbus 81 | Postmasburg | 8420 | | | (082) 9256032 |
| | Conrad Kotze | | Neighbour | Plaas Floradale | | Posbus 81 | Postmasburg | 8420 | (053) 3130472 | | |
| Mr | Japie | Bothma | Representative Lawyer | Van der Wall and Associates | bothmaj@vanwall.co.za / antoINETte@vanwall.co.za / mining@vanwall.co.za | Po Box 294 | Kimberly | 8300 | | | (082) 8219466 |
| Mr | Christo | Briedenhann | Local Landowner | Sunnyside | sbrewinds@mjvm.co.za | PO Box 797 | Postmasburg | 8420 | 053 313 1385 / 053 313 1035 | 053 313 1542 | (082) 371 4717 |
| Mr | Chris | Bredenkamp | Neighbour | Klipbanksfontein | chris@klipbanksfontein.co.za | PO Box 90 | Postmasburg | 8420 | 053 313 2074 | | (083) 2948386 |
| Mr | Bennie | Bredenkamp | Neighbour | Broomlands | | P.O Box 8 | Postmasburg | 8420 | 533 131 964 | | 833690308 |
| Mr | J.M (Jim) | Bredenkamp | | Postmastburg Landbou Uni | jim@jimpos.co.za | | | | | | 836797333 |
| Mr | Chris | Claassens | Local Landowner | Lynput | | PO Box 110 | Postmasburg | 8420 | 053 311 4645 | 053 313 1580 | (082) 784 7196 |
| Mr | Chris | Claassens | Local Landowner | Lynput | | PO Box 110 | Postmasburg | 8420 | 053 311 4645 | 053 313 1580 | (082) 784 7196 |
| Mr | W.J | Cornelissen | | | wright@polka.co.za | | | | | | 823680356 |
| Mr | John | Daniel | Local Landowner | Lucasdam | jemma01@webmail.co.za, elhpdan@gmail.com | PO Box 206 | Postmasburg | 8420 | (053) 3114634 | | 825522933 |
| Mr | Rudie | Erasmus | Neighbour | Kameelhoek | | PO Box 57 | Postmasburg | 8420 | 053 313 0360/ 053 313 1904 | 053 313 0360 | (073)123 9095 |
| Mr | Rassie | Erasmus | Neighbour | Kameelhoek | | PO Box 134 | Postmasburg | 8420 | 053 313 1957 | 053 313 0360 | 073 160 9977/ 083 229 5145 |
| Mr | Hennie | Karsten | Local Landowner | Paardepan | | PO Box 446 | Postmasburg | 8420 | (073)3494643 | | |
| Mr | Jaco | Karsten | Local Landowner | Paardepan | karstenJaco@gmail.com | Posbus 446 | Postmasburg | 8420 | (073)1592005 | | (073)1592005 |
| Mr | J.H.A | Kotze | | | | | | | | | |
| Mr | Wynie | Lubbe | Neighbour | Wildealsput | wynielubbe@gmail.com | PO Box 79 | Postmasburg | 8420 | | 053 313 0366 | (083) 654 1150 |
| Mr | Kobus | Maritz | Local Landowner | Heuningkranz | heuningkranz@webmail.co.za kobus.heuningkrans@gmail.com | PO Box 15 | Postmasburg | 8420 | | | (083)2900503 |

| Title | First Name | Last Name | Relationship | Association/ Position | E-Mail | Address | Town | Code | Telephone | Fax | Cellphone |
|-------|-----------------|---------------|------------------------|---|--|-------------|-------------|------|-----------------------------|--------------|----------------|
| Mr | Jacque | Meyer | Kolomela Farm Manager | Wolhaarkop | jacques.meyer@kioldt.com | PO Box 389 | Postmasburg | 8420 | | | (083) 389 0931 |
| Mr | Andrew | Motolong | Neighbour | Beeshoek Mine Environmental | andrewm@assmang.co.za | | | | | | (082)4409745 |
| Mr | J.A | Schoeman | Local Landowner | Vlakplaas | janman@mjvn.co.za | | | | (082)8206977 | | (082)8206977 |
| Mr | Tjaart | Snyman | Local Landowner | Gaasvlakte | tjaartpmg@lantic.net | PO Box 1355 | Postmasburg | 8420 | | | (083)2295828 |
| Mr | H.T | Snyman | Local Farmers Union | Neloni | snymanht@gmail.com | | | | (082)5713007 | | (082)855 7993 |
| Ms | Mimi | Swart | Rate Payer Association | Die Ghaap Newspaper, Rate Payers Association | swami5353@gmail.com | PO Box 777 | Postmasburg | 8420 | 053 313 1217 | | 832 922 540 |
| Mr | Chris | van der Merwe | Local Landowner | Mooidraai | mooidraai@lantic.net | PO Box 144 | Postmasburg | 8420 | | | (083)2353280 |
| Mr | J.C | van der Merwe | Local Landowner | Mooidraai | mooidraai@lantic.net | | | | (083) 2353280 | | (083)2353280 |
| Mr | Dries | Van Der Walt | Neighbour | Kalkfontein | | PO Box 558, | Postmasburg | 8420 | 053 313 0294 / 053 313 1501 | 053 313 1391 | |
| Mr | Johan | Van Zyl | Neighbour | Leeuwfontein (now Kameelfontein) | marnavz@lantic.net | Posbus 416 | Postmasburg | 8420 | 053 313 0174 | 053 313 0174 | (073)3611941 |
| Mr | Johan | van der Merwe | Local Landowner | Bospoort | johan@bospoort.co.za | Posbus 859 | Postmasburg | | | | (083)7681868 |
| Ms | Christa | van der Merwe | Local Landowner | Bospoort | christa@bospoort.co.za | | | | | | (083) 4465656 |
| Mr | Johan | Vijoen | Neighbour | Ploegfontein/Soetfontein | johan@soetfontein.co.za | Box 314 | Postmasburg | 8420 | 0533130982 / 0533131020/28 | | (083) 6717721 |
| Mr | Albertus | Viljoen | Neighbour | Soetfontein (Chairman of Postmasburg LandbouUnie) Tshipping WUA | info@tshipping.co.za & ajviljoen@soetfontein.co.za | PO Box 314 | Postmasburg | 8420 | 053 313 0982/053 313 1949 | 053 313 0595 | (083) 6495452 |
| Mr | Charl | Viljoen | Neighbour | Olienfontein | cfviljoen@lantic.net & cfviljoen3@gmail.com | PO Box 435 | Postmasburg | 8420 | 053 313 1906 | | 082 371 4737 |
| Mr | D.H | Maritz | | | | | | | | | (083) 6501219 |
| Mr | Byron | Redmead | Assmang | | byron@assmang.co.za | | | | | | (072) 298 2523 |
| Mr | Samuel Willemse | Viljoen | Neighbour | Swartmodder | samuelw73@ovi.com | PO Box 436 | Postmasburg | 8421 | | | (083) 2887067 |
| Ms | Hestia | Maritz | Local Landowner | Putjie | hestiamaritz@gmail.com | | | | | | (079) 1262114 |
| Ms | Sanet | Maritz | Local Landowner | Putjie | | | | | | | (083) 6502129 |
| Mr | Jan | Fourie | Local Landowner | Putjie | | | | | | | (078) 1988258 |

| Title | First Name | Last Name | Relationship | Association/ Position | E-Mail | Address | Town | Code | Telephone | Fax | Cellphone |
|--|---------------------------|------------|--|--|---|-------------------|-------------|------|---------------------|-------------------------------|---------------|
| Mr | L | Harm | Local Landowner | Praamberg | | | | | 533114637 | | |
| Mr | O | Horn | Local Landowner | Dwakhill | | | | | 533114637 | | (082) 2669748 |
| AUTHORITY AND LOCAL GOVERNANCE STRUCTURES | | | | | | | | | | | |
| Mrs | Elroy | Phete | Tsantsabane Local Municipality | Mayor | mayor@thantsabane.gov.za | PO Box 5 | Postmasburg | 8420 | 053 313 7300 | 053 313 1602 | 082 902 6113 |
| Mr | C. | Marais | Tsantsabane Local Municipality | Municipal Manager | mayor@thantsabane.gov.za | PO Box 5 | Postmasburg | 8420 | 053 313 7300 | (053) 313 1602 | 083 461 1761 |
| Mr | Abe | Abrahams | DWA | Regional Manager | AbrahamsA@dwa.gov.za | Private Bag X6101 | Kimberley | 8300 | (053) 802 0515 | (053) 832 1206 | |
| Mr | Obakeng | Kgoronyane | Tsantsabane Local Municipality | Ward Councillor | kgoronyane@gmail.com | Po Box 5 | Postmasburg | 8420 | 053 313 7300 | 053 313 1602 | 073 088 9074 |
| Mr | Samuel | Willemse | Tsantsabane Local Municipality | Municipal Representative | samuelw73@ovi.com | Po Box 5 | Postmasburg | 8420 | 533 133 548 | (053) 313 1602 | 083 288 7067 |
| Mr | Gift | Van Staden | ZF Mcgawu District Municipality | Mayor | gvanstaden@siyanda.gov.za | Private Bag X6039 | Upington | 8800 | 054 337 2838 | 054 337 2888 | |
| Mr | Hannes | Combrinck | ZF Mcgawu District Municipality | Mayor Office Manager | hannes@siyanda.gov.za | Private Bag X6039 | Upington | 8800 | 054 337 2838 | 054 337 2888 | 082 303 4301 |
| Mrs | Deshi | Ngxanga | ZF Mcgawu District Municipality | Municipal Manager | d.ngxanga@vodamail.co.za dngxanga@siyanda.gov.za | Private Bag X6039 | Upington | 8800 | 054 337 2800 | (053) 833 1516 / 054 337 2888 | 072 566 6032 |
| Mr | Wonders Viljoen Dimakatso | Mothibi | Northern Cape Department of Agriculture, Land Reform & Rural Development | Head of Department | fortunec@ncpg.gov.za | Private Bag X5018 | Kimberley | 8300 | | | |
| Mrs | N.J | Torien | Department of Agriculture | | ntoerien@agri.ncape.gov.za | P O Box 52 | Upington | 8800 | (054) 337 8000 | (054) 337 8001 | |
| Mr | Ntsundeni | Ravhugoni | Department of Mineral Resources Kimberley | Regional Manager | ntsundeni.ravhugoni@dmr.gov.za / | Private Bag X6093 | Kimberley | 8300 | 053 830 0800 / 0840 | 053 832 5631 | 0824653524 |
| Ms | Raisibe | Sekepane | Department of Mineral Resources Kimberley | Project Officer | Raisibe.sekepane@dmr.gov.za | Private Bag X6093 | Kimberley | 8300 | 0538071719 | (053) 830 0827 | |
| Mrs | Antonieta | Jerardino | South African Heritage Resources Agency | Archaeology, Palaeontology & Meteorites Unit | ajerardino@sahra.org.za | PO Box 4637 | Cape Town | 8000 | 214624502 | 214624509 | |
| Mr | Sibonelo | Mbanjwa | Department of Environmental Affairs | Provincial environmental | smbanjwa@half.ncape.gov.za | Private Bag X6102 | Kimberley | 8300 | 538077430 | | |

| Title | First Name | Last Name | Relationship | Association/ Position | E-Mail | Address | Town | Code | Telephone | Fax | Cellphone |
|-------|------------|-----------|--|-----------------------|--------------------|--------------------------------|-----------|------|----------------|----------------|-----------|
| Mr | D. | Ngxanga | Siyanda District Municipality | Municipal Manager | hub@sitanda.gov.za | 14 Hill Street | Upington | 8800 | (054) 337-2800 | (054) 337-2888 | |
| Ms | Agnes | Mogorosi | Siyanda District Municipality | Official | | Scotts Street | Upington | 8800 | (054) 332-2885 | (054) 331-1155 | |
| Mr | M | Matthews | Department of Environment and Nature Conservation (DENC) | Case Officer | | 90 Long Street, Sasko Building | Kimberley | 8300 | (053) 807-4800 | (053) 831-3530 | |

APPENDIX E2

PROOF OF NEWSPAPER ADVERT PLACEMENTS



FOTO: Dr. Thelia Pedro.

Dr. Thelia Pedro het onlangs haar praktyk in Postmasburg geopen. Sy het ingestem tot 'n weeklikse rubriek "Ebeneser - plek van hulp" in 'n poging om te help met die hantering en indien nodig, die genesing van emosionele bagasie.

Raak ontslae van onnodige emosionele bagasie

Hierdie week gesels Dr. Thelia oor die rol van 'n sielkundige en hoekom dit in sekere omstandighede goed is om 'n afspraak by 'n sielkundige te maak.

Dit is glad nie vreemd dat sommige mense dink dat net mal mense sielkundiges besoek nie. Baie mense is ook onder die indruk dat jy eers deur 'n mediese dokter verwys moet word alvorens jy 'n sielkundige mag sien. Dit is ook nie vreemd dat sommige mense moed opgee en tot die gevolgtrekking kom dat berading net 'n mors van tyd is. Die vraag is egter, is jy by die regte plek of by die regte persoon? As jy 'n tand wil trek, besoek jy die tandarts of die dokter? Daar is bestaan 'n fyn lyn wanneer dit by gespesialiseerde dienste kom.

Sielkundige berading probeer om bemoediging en leiding te verskaf aan mense wat verliese, besluite of teleurstellings in die gesig staar. Sielkundige hulp kan persoonlike groei en ontwikkeling stimuleer. Deur sielkundige hulp word mense gehelp om probleme, innerlike konflikte en verlamende emosies doeltreffender te hanteer. Dit kan enkelinge, gesinslede en getroude pare help om interpersoonlike spanning uit die weg te ruim of om meer doeltreffender verhoudings te vestig. Dit kan ook mense help om selfvernietigende lewenspatrone wat tot ongelukkigheid lei, te vervang. Sielkundiges probeer dus om vir mense vaardighede, insluitende sosiale vaardighede aan te leer, om die erkenning en uitdrukking van emosies aan te moedig, en om ondersteuning te verskaf in tye van nood. Ons probeer om mense verantwoordelikheid aan te leer, om insig te gee, om leiding te verskaf met die neem van besluite en om mense te help om hul innerlike bron van krag, maar ook hul ondersteuningsbronne in krisistye te gebruik. Daar word dus gepoog om vir mense vaardighede vir probleemoplossing aan te leer en om mense se selfverwensliking te verbeter.

Daar word dus gebruik gemaak van verskillende terapeutiese tegnieke wat probeer om mense te oortuig

dat hulp beskikbaar is om verkeerde persepsies van die wêreld, reg te stel, om die nodige sosiale vaardighede te ontwikkel en om mense te help om hulself as menswaardig te aanvaar. Alledaagse probleme word hanteer soos die huwelik, egskieding, ouerkindverhoudings, gehoorsaamheid, rasseverhoudings en vryheid vir sowel vrouens as mans. Persoonlike kwessies soos seks, angs, vrees, eensaamheid, twyfel, trots en mismoedigheid word ook aangespreek. Die middelkindersindroom, 'n afwesige ma of pa, drankmisbruik, dwelms, tienerswangerskap, selfmoord, werkloosheid, finansies, 'n dominante persoon in die huis, stres en gesinsgeweld. Ja, dit is alles kwessies waarmee mense vandag sielkundiges besoek. Dit gebeur ook nie net in tye van nood nie, maar ook om mense te help om die daaglikse uitdagings van die lewe die hooft te bied.

As almal egter handdoek ingooi, waarheen sal mense met hul probleme gaan? Dit is jammer dat mense nog met verkeerde persepsies sit en glo dat slegs mense wat hul trolle af is sielkundige hulp nodig het. Dan is daar ook die verdraaide persepsie waar geglo word dat ouer persone die geneigtheid het om hul vrese, woede, wraak en bitterheid aan die nuwe geslagte oor te dra, en sodoende is ons besig om 'n geskiedenis van trauma te skep.

Tog is alles nie verlore nie. Intendeel: Die ommekeer is maklik, want dit begin by jou. As ons elkeen ons bepaal tot die genesing van ons eie emosionele bagasie deur dit aan te spreek, word die hele land eintlik genees. Elke individu behoort aan 'n gesin, en elke gesin leef binne 'n gemeenskap en elke gemeenskap funksioneer binne die land. Wanneer 'n individu hulp kry en genees word, spoel dit oor na die gesin. 'n Gesonde gesin beïnvloed weer die gemeenskap en 'n gesonde gemeenskap dra by tot 'n gesonde land. So word die sirkel perfek voltooi, want 'n gesonde land verskaf 'n veilige hawe vir sy inwoners. Is dit nie wat enige Postmasburger verlang nie? 'n "Gesonde" Postmasburg. (Dr. Thelia Pedro)

Ysterfees slagspreuk-kompetisie



POSTMASBURG
YSTERFEES

Skole-sportterrein
31 Oktober - 1 November 2014

Wie weet, dalk
verskyn jou treffer
slagspreuk hier!

Jou slagspreuk kan hierdie jaar die Ysterfees se "slogan" wees. In die proses kan jy die gelukkige wenner wees van 2 toegangskartjies vir die Saterdag se feesgebeure. E-pos jou idees vir 'n slagspreuk na zelda@ghaapkoerant.co.za. Sluitingsdatum van die kompetisie is 18 Julie 2014.

Almal mag deelneem behalwe lede en gesinne van die Ysterfees se reëlingskomitee en personeel van Die Ghaap-Kimberley Gazette. Die gelukkige wenner sal in Die Ghaap-Kimberley Gazette van 25 Julie 2014 bekendgemaak word. Die beoordeelers se beslissing is finale en geen verdere korrespondensie sal na die aankondiging van die wenslagspreuk gevoer word nie.



GEREGISTREERDE BERADER/ SIELKUNDIGE

HPCSA Reg No. PSS0109959 - PRC: 0017930 BHF: 0511935

B A ED (UOVS): B ED MONS (NW)

B ED MONS ENDORSEMENT (UNISA) - M. ED 1 (UNISA)

- BERADING VIR ALLEDAGSE PROBLEME

- BERAAD KINDERS VANAF DIE OUDERDOM VAN 4 JAAR, TIENERS EN VOLWASSENES, INDIVIDUE SOWEL AS IN GROEP

- ASSESSERINGS TOETSE OP KINDERS EN VOLWASSENES:

Emosionele toetse, skoolgereedheidstoetse vir voor skoolse kinders, diagnostiese toetse vir leerprobleme, skooltense en beroepstoetse vir Hoërskool leerlinge vir verdere studies.

- BEWUSMAKINGS, GEMEENSAP

EN OPLEIDING PROGRAMME VIR KINDERS, TIENERS, OUIERS, WERKERS, SKOLE EN KERKE.

TEL: 053 313 0476 - SEL: 073 337 4303 - NOODNUMMER: 079 786 1698

E-pos: thelapedia@yahoo.co.za - BO-STRAAT 15, POSTMASBURG, 8420



TALISMAN POSTMASBURG IS LOOKING FOR HIRE SPECIALISTS:

The successful candidate must have the following attributes:

- At least 2 years' experience in the construction industry
- Good, solid track record
- Good communication skills
- Work well under pressure
- Strong admin orientated and multi-tasking
- Must be computer literate

Please send your CV to kathu@talisman.co.za.

Closing date for applications: 25 July 2014.

Successful candidates will be contacted within 7 days.



KENNISGEWING VAN AANSOEK VIR OMGEWINGSGOEDKEURING VIR DIE UITBREIDING VAN 'N AFVALROTSHOOP OP DIE PLAAS KAPSTEVEL 541 BY KOLOMELA MYN, NABY POSTMASBURG.

Die Sishen Iron Ore Company (Edms) Bpk (SIOC), besit en bedryf die Kolomela-myn, beplan om 'n bestaande afvalrotshoop uit te brei op die plaas Kapstevel 541. Die doel is om voorsiening te maak vir afvalrots en grond wat gegenereer word deur die myn. Die voorgestelde ontwikkeling vorm deel van rymnibou aktiwiteite en sal plaasvind op die myn se grond.

Omgewingsgoedkeuring is benodig voordat die voorgestelde ontwikkeling kan voortgaan. 'n Basiese Evalueringsproses of basic assessment (BA), soos uiteengesit in die 2010 NEMA-regulasies, sal ter ondersteuning van die benodigde omgewingsgoedkeuring onderneem word. Kennis word hiermee gegee, in terme van die wetgewing wat hieronder gegee word, van die omgewingsgoedkeuring wat vereis word voor die ontwikkeling kan voortgaan:

| Wetgewing: | Verante Goodkluring: | Bevoegde Owerheid on Aansoek: |
|---|---|---|
| Omgewingsimpakstudie Regulasies (Nr. 543) gepubliseer onder die Wet op Nasionale Omgewingsbestuur (Wet Nr. 107 van 1994) (NEMA) | Omgewingsmagtigings vir aktiwiteite geys onder Goewermementale kennisgewing GNR 544 aktiwiteite 23 en 28. | Departement van Omgewings en Natuurbe-waring (DENC: Ver- NC/BA/24/ZFM/TSA- POS2/2014) |

Synergistics Environmental Services (Edms) Bpk is aangestel as onafhanklike omgewingskonsultante wat verantwoordelik is vir die uitvoering van die benodigde aansoekproses en die uitvoering van die openbare deelname proses vir die projek.

Geleentheid om deel te neem: Belangstellers en geaffekteerde partye (B&G) word genooi om deel te neem en om geskrewe kommentaar te lewer. Belanghebbendes moet veruys na die voorsiening verwysingsnommer (s) hierbo, en moet hul kommentaar saam met hul naam en kontakbesonderhede voorsien (voorgekeurde metode van kennisgewing, by e-pos adres of faksnummer) en 'n aanduiding van enige direkte sake-, finansiële, persoonlike of ander belang wat hulle in die aansoek aan die kontakpersoon hieronder aan stuur voor of op die 24 Julie 2014.



Rudolf De Jager
Synergistics Environmental Services (Pty) Ltd
Tel: +27 11 467 0945
Faks: +27 11 467 0978
E-pos: rdejager@slrconsulting.com
Pos adres: Posbus 68821, Bryanston, 2021



APPENDIX E3

PROOF OF PLACEMENT OF SITE NOTICES

Table 1: Location of Site Notices Placed

| Item | Description of the Location of Notice | Picture/Photo |
|------|--|---|
| 1 | At the entrance to the Kolomela Mine headquarters on the Farm Strydfontein |  <p>The left photograph shows the entrance to the Kolomela Mine headquarters, a brick building with a red-tiled roof. A red circle highlights a white notice posted on a metal fence in the foreground. The right photograph is a close-up of the notice, which is titled 'NOTIFICATION OF PUBLIC PARTICIPATION PROCESS' and includes a map of the area.</p> |
| 2 | At the entrance to the Tsantsabane Municipality building in Postmasburg. |  <p>The left photograph shows the entrance to the Tsantsabane Municipality building, a modern structure with large glass windows and a sign that reads 'TSANTSABANE MUNICIPALITY'. A notice is visible on the glass facade. The right photograph is a close-up of the notice, which is titled 'NOTIFICATION OF PUBLIC PARTICIPATION PROCESS' and includes a map of the area.</p> |

| Item | Description of the Location of Notice | Photos |
|------|--|--|
| 3 | In front of the Kolomela Public Affairs Office in Postmasburg. |  <p>The left photograph shows the exterior of a light-colored building with a brown roof, identified as the Kolomela Public Affairs Office. A metal fence runs across the foreground. On the fence, there is a blue sign that reads 'No Parking in Front of Gate'. To the right of the sign, a white notice is posted on a blue board, circled in red. A red and white striped barrier is visible at the bottom of the fence. The right photograph is a close-up of the notice, titled 'NOTIFICATION OF PUBLIC PARTICIPATION PROCESS'. It contains text and a map of the area.</p> |



Figure1: Map Showing Locations of Site Notices Placed

APPENDIX E4

PROOF OF DISTRIBUTION OF NOTIFICATIONS TO I&APS AND AUTHORITIES

Example of notification letter



Date: 11/07/2014
Our Ref: SO592

Attention: Interested and Affected Party

Johannesburg: Tel: +27(0)11 467 0945, Fax: +27(0)11 467 0978

PO Box 68821, Bryanston, 2021

Block 7, Fourways Manor Office Park,

Dear Interested and Affected Party

NOTICE OF APPLICATION: ENVIRONMENTAL AUTHORISATION FOR THE EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT KOLOMELA MINE, NEAR POSTMASBURG.

The Sishen Iron Ore Company (Pty) Ltd (SIOC), part of Kumba Iron Ore Limited (Kumba) who owns and operates the Kolomela Mine, proposes to expand an existing waste rock dump on the farm Kapstevél 541, to cater for waste rock generated at the mine. The proposed development constitutes a brownfields project and will take place on the mine's property. The footprint of the proposed waste rock dump expansion will cover approximately 19 ha.

The Kolomela Mine is located approximately 12 km south east of Postmasburg in the Northern Cape Province and is an opencast mining operation aimed at producing approximately 9 million tonnes of iron ore per annum. Current mining operations involve mining from three pits on the farms Leeuwfontein 488, Strydfontein 614, remainder of Klipbankfontein 489 and portion 1, 2, 3, and the remainder of Kapstevél 541. Kumba is also the holder of the surface rights of these properties. It was identified that the current approved footprint of the Kapstevél waste rock dump potentially contains future iron ore reserves (Figure 1). To avoid the sterilisation of these iron ore reserves, SIOC has elected to stop the expansion of the current waste rock dump on the approved footprint area and to construct a separate waste rock dump north of the current Kapstevél 541 pit. This waste rock dump is however not included in this application and forms part of a separate full Scoping and Environmental Impact Assessment Process as part of the Kolomela Expansion Project (Northern Cape Department of Environment and Nature Conservation (DENC) Ref: NC/EIA/15/ZFM/TSA/POS3/2013), which is currently in the scoping phase.

In the interim and until the new future waste rock dump is approved, it is proposed to expand the existing Kapstevél Waste Rock Dump to the south west.

Working Together

Directors: KC Fairley & B Stobart
Synergistics Environmental Services (Pty) Ltd – South Africa
Registered No. 2003/030216/07

The proposed waste rock dump expansion preliminarily will involve the following:

- A survey to establish the presence of protected trees on the proposed site;
- The clearance of vegetation in the footprint of the proposed site;
- The movement of waste material.

SIOC appointed Synergistics Environmental Services (Pty) Ltd (Synergistics) as the independent Environmental Assessment Practitioner to assist with the application for environmental authorisation required under South African environmental legislation for the proposed project.

The EIA Regulations (Government Notice 543 to 546) published in terms of the National Environmental Management Act (No 107 of 1998), lists activities that potentially could have a detrimental impact on the environment. Activities listed in the EIA Regulations require environmental authorisation prior to commencement. The following listed activities will form part of the proposed project:

- The transformation of undeveloped, vacant or derelict land of approximately 19 ha to accommodate the new waste rock dump facility (GNR 544 Activity 23);
- The expansion of or changes to an existing facility that will result in the need for a new, or amendment of, an existing permit or license (GNR 544 Activity 28). The development of the proposed waste rock dump will constitute a waste discharge related water use as defined in Section 21 (g) of the National Water Act (No. 36 of 1998), and will require an amendment to the mine's Integrated Water Use Licence (IWUL).

You are hereby notified in terms of Section 54(b) of the NEMA EIA Regulations (18 June 2010) that an application for environmental authorisation has been submitted to the DENC (Ref: NC/BA/24/ZFM/TSA/POS2/2014). A Basic Assessment (BA) Process will be undertaken in support of the application to determine the environmental impact of the abovementioned activities.

This letter forms the first part of the public consultation process, which is required as part of the BA process and aims to elicit comments, questions and responses regarding the proposed project. If you would like to register as an Interested and Affected Party or raise concerns and ask questions about the proposed project, please complete the registration/comment sheet (last page of this letter) and return to Synergistics.

Yours sincerely



Rudi de Jager

Environmental Scientist

PUBLIC INPUT SHEET: EXPANSION OF A WASTE ROCK DUMP AT THE FARM KAPSTEVEL 541 AT KOLOMELA MINE, POSTMASBURG.

| | |
|------------------------------|--|
| Name: | |
| Address: | |
| Telephone/cell phone: | |
| Fax: | |
| E-mail: | |
| Date: | |
| Signature: | |

If you know of others who should be informed of the project, please provide us with their contact details:

| | |
|------------------------------|--|
| Name: | |
| Address: | |
| Telephone/cell phone: | |
| Fax: | |
| E-mail: | |

ISSUES, CONCERNS AND QUESTIONS

(use additional pages if required)

Please complete and return to Synergistics Environmental Services (as below) within 30 days.

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RETURN COMPLETED SHEET TO:

Rudi de Jager

**Expansion of a waste rock dump at the Kolomela mine,
Postmasburg.**

Synergistics Environmental Services

Tel: 011 467 0945

Fax: 011 467 0978

E-mail: rdejager@slrconsulting.com

Post: PO Box 68821, Bryanston, 2021, South Africa



Proof of email notification with attached Notification letters to IAPs

NOTICE OF APPLICATION: ENVIRONMENTAL AUTHORISATION FOR THE EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT KOLOMELA MINE, NEAR POSTMASBURG - Message (H...)

File Message

Ignore X Reply Reply Forward Meeting Move OneNote Rules Actions Mark Categorize Follow Translate Find Related Select Zoom

Delete Delete All Respond Move Move Tags Editing Zoom

From: Rudolf De Jager Sent: Fri 11/07/2014 10:34 AM

To:

Cc:

Bcc: 'AbrahamsA@dwa.gov.za'; 'mazwir@dwa.gov.za'; 'SMbanjiwa@ncpg.gov.za'; 'fortunec@ncpg.gov.za'; 'ntoerien@agri.ncape.gov.za'; 'jabu.smit@gmail.com'; 'JacolineMa@nda.agric.za'; 'pa@mcpg.gov.za'; 'zmogorosi@mcpg.gov.za'; 'jonathan.mphahlele@labour.gov.za'; 'gbmoncho@ncpg.gov.za'; 'mishamil@ncpg.gov.za'; 'meaoctober@gmail.com'; 'gvanstaden@siyanda.gov.za'; 'hannes@siyanda.gov.za'; 'd.ngxanga@vodamail.co.za'; 'dngxanga@siyanda.gov.za'; 'eljade@webmail.com'; 'gil@siyanda.gov.za'; 'kgoronyane@gmail.com'; 'swami5353@gmail.com'; 'phohlet@gmail.com'; 'kgoronyane@gmail.com'; 'boston@inext.co.za'; 'briedenhann.christo@gmail.com'; 'klaassenn@saps.org.za'; 'Roelof Letter'; 'mmanyeh@siyanda.gov.za'; 'gvanstaden@siyanda.gov.za'; 'mayor@thantsabane.gov.za'; 'cfortune@agri.ncape.gov.za'; 'info@tshping.co.za'; 'ajviljoen@soetfontein.co.za'; 'Johan.Kleynhans@assmang.co.za'; 'cfviljoen@lantic.net'; 'cfviljoen3@gmail.com'; 'chris@kipbanksfontein.co.za';

Subject: NOTICE OF APPLICATION: ENVIRONMENTAL AUTHORISATION FOR THE EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT KOLOMELA MINE, NEAR POSTMASBURG

Message Public Input Sheet.pdf

Date: 11/07/2014

Our Ref: SO592

Attention: Interested and Affected Party

Dynergistics
Environmental Services

Johannesburg: Tel: +27(0)11 467 0945, Fax: +27(0)11 467 0978
PO Box 88821, Bryanston, 2021
Block 7, Fourways Manor Office Park,
Cnr Roos and Macbeth Streets,
Fourways, Johannesburg

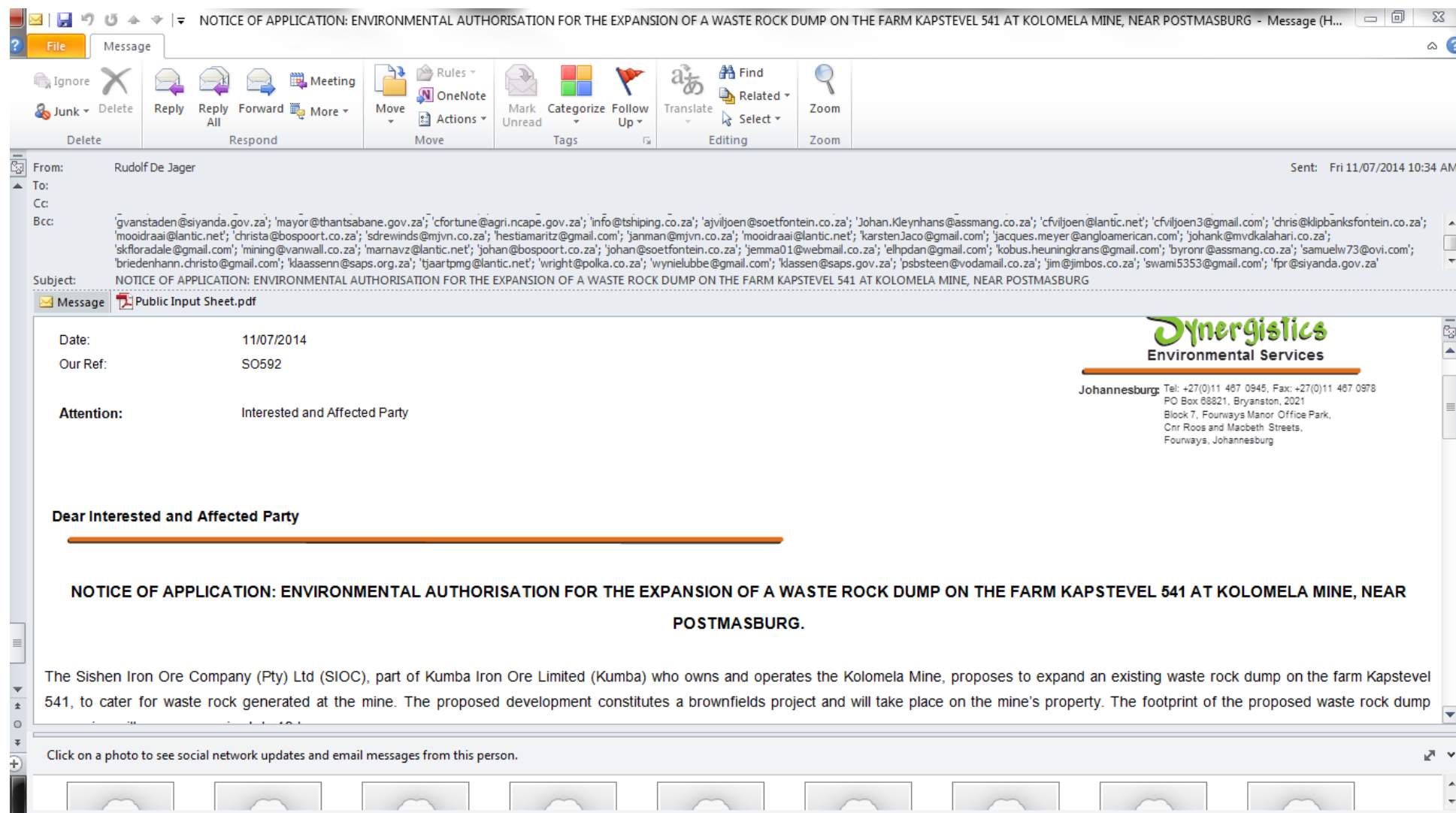
Dear Interested and Affected Party

NOTICE OF APPLICATION: ENVIRONMENTAL AUTHORISATION FOR THE EXPANSION OF A WASTE ROCK DUMP ON THE FARM KAPSTEVEL 541 AT KOLOMELA MINE, NEAR POSTMASBURG.

The Sishen Iron Ore Company (Pty) Ltd (SIOC), part of Kumba Iron Ore Limited (Kumba) who owns and operates the Kolomela Mine, proposes to expand an existing waste rock dump on the farm Kapstevel 541, to cater for waste rock generated at the mine. The proposed development constitutes a brownfields project and will take place on the mine's property. The footprint of the proposed waste rock dump

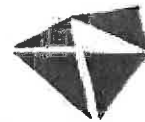
Click on a photo to see social network updates and email messages from this person.

Proof of email notification with attached BID to IAPs



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Lys van GEREISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

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Post Office

Name and address of sender:
 Naam en adres van afseender:

SLR Consulting (South Africa) (Pty) Ltd
 Consulting Engineers, Scientists
 and Environmental Specialists

Tel: (011) 467-0945
 Fax: (011) 467-0978
 Fourways Office
 Unit 7, Fourways Manor Office Park
 1 Macbeth Avenue
 Fourways, Johannesburg
 South Africa

Reg No: 2007/005517/07
 Vat No: 4630242198
 PO Box 1596
 Cramerville
 2060
 South Africa

Enquiries/Navrae
 Toll-free number
 Tolvry nommer
0800 111 502

| No | Name and address of addressee Naam en adres van geadresseerde | Insured amount Versekerde bedrag | Insurance fee Versekeringsgeld | Postage Posgeld | Service fee Diensgeld | Affix Track and Trace customer copy Plak Volg-en-Spoor-klëntafskrif |
|-----------------|--|-------------------------------------|-----------------------------------|--------------------|--------------------------|--|
| 1 | Mr J Viljoen, PO Box 314 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 605 ZA CUSTOMER COPY 30102BR |
| 2 | Mr J. Daniel, PO Box 206 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 574 ZA CUSTOMER COPY 30102BR |
| 3 | Mr K Maritz, PO Box 15 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 588 ZA CUSTOMER COPY 30102BR |
| 4 | Mr R. Erasmus, PO Box 134 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 530 ZA CUSTOMER COPY 30102BR |
| 5 | Mr R. Erasmus, PO Box 57 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 557 ZA CUSTOMER COPY 30102BR |
| 6 | Mr S Willemsse, PO Box 716 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 565 ZA CUSTOMER COPY LETTER 30102BR |
| 7 | Mr T Snyman, PO Box 1355 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 490 ZA CUSTOMER COPY 30102BR |
| 8 | Mr W. J. Cornelissen PO Box 170, Khatu, 8446 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 509 ZA CUSTOMER COPY 30102BR |
| 9 | Mr W. Lubbe, PO Box 79 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 472 ZA CUSTOMER COPY 30102BR |
| 10 | Mr A. Abrahams, Put Bag X6101 Kimberley, 8300 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.safpo.co.za RD 960 997 821 ZA CUSTOMER COPY 30102BR |
| Total Totaal | | R | R | R | R | |

Number of letters posted
 Getal briewe gepos

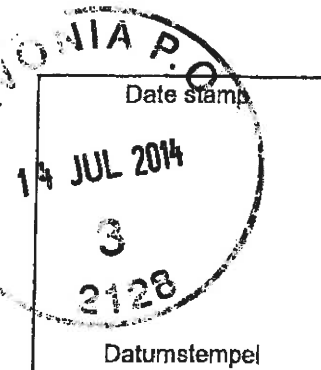
32

Signature of client
 Handtekening van kliënt

Signature of accepting officer
 Handtekening van aanneembeampte

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Name and address of sender: SLR Consulting (South Africa) (Pty) Ltd
 Naam en adres van afseender: Consulting Engineers, Scientists and Environmental Specialists
 Tel: (011) 467-0845 Reg No: 2007/005517/67
 Fax: (011) 467-0978 Vat No: 4530242198
 Fourways Office
 Unit 7, Fourways Manor Office Park PO Box 1596
 1 Macbeth Avenue Cramerville
 Fourways, Johannesburg 2060
 South Africa

Enquiries/Navrae
 Toll-free number
 Tolvry nommer
0800 111 502

| No | Name and address of addressee Naam en adres van geadresseerde | Insured amount Versekerde bedrag | Insurance fee Versekeringsgeld | Postage Posgeld | Service fee Diensgeld | Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif | |
|--|--|-------------------------------------|-----------------------------------|--------------------|--------------------------|--|---|
| 1 | Mr E Phote, PO Box 5 Postmasburg, 8420 | | | | | REGISTERED LETTER <i>(with a domestic insurance option)</i> RD 960 997 804 ZA CUSTOMER COPY 301026R REGISTERED LETTER <i>(with a domestic insurance option)</i> RD 960 997 755 ZA CUSTOMER COPY 301026R | |
| 2 | Mr G van Staden, P.O. Bag X6039 Upington, 8800 | | | | | | |
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| 10 | | | | | | | |
| Number of letters posted Getal briewe gepos | | Total Totaal | | R | R | R | R |

Signature of client
 Handtekening van kliënt *[Signature]*
 Signature of accepting officer
 Handtekening van aanneembeampte

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SLR

Tel: (011) 467-0945 Reg No: 2007/000517/07
 Fax: (011) 467-0978 Vat No: 4630242198
 Fourways Office
 Unit 7, Fourways Manor Office Park PO Box 1596
 1 Macbeth Avenue Cramerville
 Fourways, Johannesburg 2060
 South Africa South Africa

Enquiries/Navrae
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0800 111 502

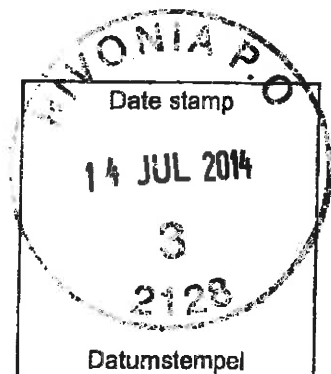
| No | Name and address of addressee Naam en adres van geadresseerde | Insured amount Versekerde bedrag | Insurance fee Versekeringsgeld | Postage Posgeld | Service fee Diensgeld | Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif |
|--|--|-------------------------------------|-----------------------------------|--------------------|--------------------------|--|
| 1 | Ms J Mams, Pmt Bag X5912 Upington, 8800 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 835 ZA CUSTOMER COPY 301028R |
| 2 | L. Nemoahonde, Pmt Bag X5912 Upington, 8800 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 818 ZA CUSTOMER COPY 301028R |
| 3 | Mr W. V. D. Motlhabi Pmt Bag X5018, Kimberley, 8300 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 795 ZA CUSTOMER COPY 301028R |
| 4 | Mr C. Marais, PO Box 5 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 778 ZA CUSTOMER COPY 301028R |
| 5 | Mr A. Viljoen, PO Box 314 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 764 ZA CUSTOMER COPY 301028R |
| 6 | Mr B. Bredenkamp, PO Box 8 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 733 ZA CUSTOMER COPY 301028R |
| 7 | Mr C. Viljoen, PO Box 435 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 747 ZA CUSTOMER COPY 301028R |
| 8 | Mr C. Bredenkamp, PO Box 90 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 716 ZA CUSTOMER COPY 301028R |
| 9 | Mr G. Claassens, PO Box 110 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 720 ZA CUSTOMER COPY 301028R |
| 10 | Mr C. van der Vlerwe, PO Box 144, Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.saps.co.za RD 960 997 693 ZA CUSTOMER COPY 301028R |
| Number of letters posted Getal briewe gepos | | Total Totaal | R | R | R | R |

Signature of client
 Handtekening van klient

Signature of accepting officer
 Handtekening van aanneembeampte

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SLR

Tel: (011) 487-0945 Fax: (011) 487-0978
 Fourways Office
 Unit 7, Fourways Manor Office Park
 1 Macbeth Avenue
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PO Box 1596
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|--|--|-------------------------------------|-----------------------------------|--------------------|--------------------------|--|
| 1 | Mr C Briederhann, PO Box 797 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 702 ZA CUSTOMER COPY 301028R |
| 2 | Mr C Kotze, PO Box 81 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 676 ZA |
| 3 | Mr D. Van Der Walt PO Box 558, Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 680 ZA CUSTOMER COPY 301028R |
| 4 | Mr H. Karsten, PO Box 446 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 659 ZA CUSTOMER COPY 301028R |
| 5 | Mr J. Karsten, PO Box 446 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 662 ZA CUSTOMER COPY 301028R |
| 6 | Mr J. Meyer, PO Box 389 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 631 ZA CUSTOMER COPY 301028R |
| 7 | Mr J. Kotze, PO Box 81 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 645 ZA CUSTOMER COPY 301028R |
| 8 | Mr J. Bothma, PO Box 294 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 614 ZA CUSTOMER COPY 301028R |
| 9 | Mr J. Van Zyl, PO Box 446 Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 628 ZA CUSTOMER COPY 301028R |
| 10 | Mr J. Van der Merwe PO Box 859, Postmasburg, 8420 | | | | | REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 960 997 591 ZA CUSTOMER COPY 301028R |
| Number of letters posted Getal briewe gepos | | Total Totaal | R | R | R | R |

Signature of client

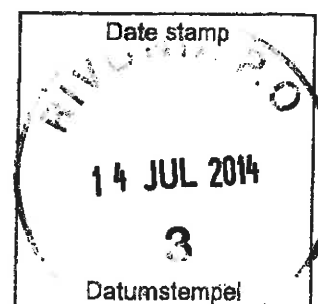
Handtekening van klënt

Signature of accepting officer

Handtekening van aanneembeamp

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Appendix F

Impact Rating Table

Table 1: Impact rating criteria

| Impact Rating Criteria | | Explanation of Rating Criteria |
|------------------------|---------------------------|--|
| Nature of the Impact | | Description of the direct and indirect effect of human actions and activities on the environment, and impacts of the environment on development. |
| Mitigation | | Environmental Management Programme Framework. Measures designed to avoid, reduce or remedy adverse potential negative impacts, including compensation for residual impacts and measures designed to expand and augment the effect of potential positive impacts for consideration during development of the final environmental management programme. |
| Project Phase | Planning | Activities, impacts and mitigation measures applicable to the planning (or pre-implementation) phase. |
| | Construction | Activities, impacts and mitigation measures applicable to the construction phase. |
| | Operational | Activities, impacts and mitigation measures applicable to the operational phase. |
| | Decommissioning & Closure | Activities, impacts and mitigation measures applicable to decommissioning (closure, removal, rehabilitation). For this project, the impacts associated with the decommissioning are very similar to that of the construction phase. |
| Impact Status | Negative | Impacts with a potential negative / adverse effect. |
| | Neutral | Neutral, no impact. |
| | Positive | Impacts with a potential positive / beneficial effect. |
| Duration | low | Short-term. May occur for weeks or a few months and are rapidly reversible. |
| | moderate | Medium-term. May occur for the first few years of the project, up to three years. Impacts reversible within a three year period. |
| | high | Long-term. May occur throughout the existence of the waste rock dump, but will cease after operations ceases either because of natural processes or human intervention. |
| | very high | Permanent and irreversible. Residual impacts will remain after decommissioning and closure. |
| Scale / Extent | none | None. Impact will not occur anywhere. |
| | low | Site impact. Small area. No sensitive receptors outside property affected. |
| | moderate | Local. May affect immediate neighbours, never nearby townships. Small area or small number of sensitive receptors affected. |
| | high | Widespread impact. Affects nearby townships. Large area or large numbers of sensitive receptors affected. |
| | very high | National or international impact. Impacts over a vast area or over vast numbers of sensitive receptors. |
| Probability | none | Never (0 % likelihood). |
| | low | Conceivable. Will only happen in exceptional circumstances (<10 % likelihood). |
| | moderate | Plausible. Could happen and has occurred here or elsewhere (11 - 40 % likelihood). |
| | high | Probable (> 40 - 80 % likelihood). |
| | very high | Expected. Highly likely to happen (>80 % likelihood). |
| Significance | Neg High | Substantial negative impact. |
| | Neg Moderate | Negative impact that is real but not substantial. |
| | Neg Low | Low to negligible negative impact with little real effect. |
| | Pos Low | Low to insignificant positive impact. |
| | Pos Moderate | Positive impact that is real but not substantial. |
| | Pos High | Substantial positive impact. |
| | Pos Very High | Widespread / substantial beneficial effect. An alternative means to achieve the same benefits not possible. |

Table 2: Description of cumulative impacts.

| |
|---|
| <p>For the purpose of this Basic Assessment Report, cumulative impacts will be determined as:</p> <div><div>Existing Impacts</div><div>Existing impacts within the project area. Current level of degradation associated with existing developments and operations.</div><div>+</div><div>Incremental Impacts</div><div>Impacts of the proposed relocation of a section of the power line</div><div>=</div><div>Cumulative Impacts</div><div>Existing Impacts (current level of degradation) associated with existing developments and operations in the project area combined with the impacts of the proposed waste rock dump expansion. Future impacts might also arise from the approved mine pit expansion of Kolomela Mine.</div></div> |
| <p>Sources of Existing Impacts:</p> <p>The proposed project will take place at Kolomela Mine, which is a large open pit mine producing approximately 9 million tonnes of iron ore per annum. Mining is currently taking place from three pits on the farms Leeufontein 488, Strydfontein 614, remainder of Kapstevl 489 and portion 1, 2, 3, and the remainder of Kapstevl 541. Kolomela is mined by conventional open pit mining method. Mining activities involve topsoil stripping and stockpiling; blast hole drilling; blasting; dozing and excavation; shovelling and loading of material; haulage of run of mine ore from the mine pits to the crushing plants; and haulage of waste material to the mining waste rock dumps, or back-filled into mined out areas of the mine. The mine also has a great deal of transport infrastructure including railways, access roads etc. SIOC intends to increase production at Kolomela Mine to approximately 13 million tonnes of iron ore per annum in the near future, which will involve the accelerated mining of existing pits and the potential inclusion of additional pits, the expansion of the mine's processing capabilities and support infrastructure.</p> <p>There are a number of significant sources of existing impacts in the immediate vicinity of the proposed project. The proposed waste rock dump expansion is the expansion of an existing waste rock dump on the Farm Kapstevl 541, which is situated directly to the north of the proposed development. The Kapstevl pit, which is currently actively mined, is situated approximately 1.2 km to the north of the proposed waste rock dump expansion area.</p> |

Table 3: Impacts associated with the planning and design phase of the proposed waste rock dump expansion.

| | | IMPACT DESCRIPTION | DURATION | EXTENT | PROBABILITY | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE: MITIGATED | MITIGATION MEASURES |
|---|----------------------------|--|----------|----------|-------------|------------------------------|----------------------------|---|
| Planning and Design Phase | | | | | | | | |
| 1.1 | Direct Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 1.1.1. | Soils and land capability. | Loss of soils and reduction in land capability resulting from erosion of the waste rock dump due to failure to provide for erosion control and final land use of the waste rock as part of planning and design. | High | Low | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none">As part of closure planning, the designs of the waste rock dump expansion's final permanent landform will take into consideration the requirements for land function, long term erosion prevention and confirmatory monitoring. |
| 1.1.2. | Surface Water | Deterioration of water quality in surrounding surface water environment due to the failure to provide sufficient water management infrastructure. Contaminated runoff from the waste rock dump expansion area may impact downstream surface water features if adequate surface water management infrastructure is not in provided for in the planning and design phase. | High | Moderate | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none">The surface water management infrastructure should be adequate to divert clean water around the waste rock dump expansion area and intercept dirty water runoff from the waste rock dump expansion area and contain it in the Kolomela Mine's dirty water system. Water management infrastructure must be sufficient to contain a 1 in 50 year flood event. The adequacy of existing infrastructure should be reviewed by a qualified engineer. If an upgrade to the surface water management infrastructure is required, this should be designed during the planning and design phase of the project, prior to site clearance. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | |
| 1.1.3. | Enviro-legal Compliance | Enviro-legal non-compliance due to the failure to obtain a relevant permit from the Northern Cape Department of Environment and Nature Conservation (DENC) prior to removal of identified specimen of <i>Boophone disticha</i> (Bushman Poison Bulb). | Low | Low | High | Negative Low | Negative Low | <ul style="list-style-type: none">The relevant permit should be obtained from DENC during the planning and design phase of the project, prior to site clearance. |
| 1.2 | Indirect Impacts | | | | | | | |
| No noteworthy negative, indirect impacts on the environment are expected during the planning and design phase of the waste rock dump expansion. | | | | | | | | |
| 1.3 | Cumulative Impacts | | | | | | | |
| The selection of the preferred alternative during the planning and design phase is done to minimise cumulative impacts. The preferred alternative involves the development of the waste rock dump expansion next to an existing waste rock dump within the mine property where few sensitive receptors reside. Therefore the preferred alternative will have the least impact on the environment. | | | | | | | | |

Table 4: Impacts associated with the construction phase of the proposed waste rock dump expansion.

| | | IMPACT DESCRIPTION | DURATION | EXTENT | PROBABILITY | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE: MITIGATED | MITIGATION MEASURES |
|------------------------|---------------------------|---|----------|----------|-------------|------------------------------|----------------------------|---|
| Construction Phase | | | | | | | | |
| 2.1 | Direct Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 2.1.1. | Soils and Land Capability | Contamination of soils due to hydrocarbon spills from vehicles and machinery involved in construction activities. | Low | Low | Low | Negative Low | Negative Low | <ul style="list-style-type: none">All petroleum products to be stored in lined and bunded areas.Dispensing of petroleum products to take place over a drip tray or within a lined and bunded area.Use drip trays under machinery, vehicles and equipment with minor fuel or hydraulic fluid leaks.Repairs and maintenance to machinery, vehicles and equipment to be undertaken in a workshop. Any on-site emergency repairs to be undertaken over impervious surfaces.Contaminated soils are to be removed and disposed of as hazardous waste at an appropriately licenced waste disposal facility. |
| | | Loss of soils due to water and wind erosion from cleared areas and topsoil stockpiles. | High | Low | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none">In order to rehabilitate the waste rock dump and avoid the loss of fertile soils, all available topsoil within the footprint of the waste rock dump expansions, as well as areas compacted and disturbed by construction activities, will be stripped and stockpiled for later reuse during rehabilitation.Rapid growth of vegetation on the topsoil stockpiles will be promoted (e.g. by means of watering or fertilisation).Erosion control measures will be implemented to ensure that the topsoil is not washed away and that erosion gulley's do not develop prior to vegetation establishment.The stockpile side slopes should be flat enough to promote vegetation growth and reduce run-off related erosion.Soil stockpiles height will be controlled to avoid compaction and damage to the underlying soils.Soil stockpiles will be monitored for signs of significant erosion.Where significant erosion has been identified, measures should be put in place to stop further erosion. |
| 2.1.2. | Noise | <p>Generation of noise due to the operation of the heavy vehicles and noisy equipment/ machinery for material handling and transport associated with site clearance.</p> <p>Construction activities are likely to result in a minor increase in the ambient noise levels in the area. The proposed construction will however occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the area to be cleared. The nearest residences are ±4 from the proposed construction activities, while the town of Postmasburg is located more than 15 km to the north-east</p> | Low | Moderate | Very High | Negative Moderate | Negative Low | <ul style="list-style-type: none">Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs.Complaints regarding noise to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | |
| 2.1.3. | Ecology and Biodiversity | <p>Habitat disturbances and a loss of local biodiversity due to the removal of vegetation during site clearance.</p> <p>Site clearance will involve the removal of a single Bushmen Poison Bulb, a protected plant (refer to plant specialist report: OmniEko, 2014 – Appendix D). The impact will be localised and will not extend further than the proposed waste rock dump (OmiEko, 2014). Additionally, disturbance associated with construction activities may increase bush encroachment.</p> | High | Low | Very High | Negative Moderate | Negative Low | <ul style="list-style-type: none">Disturbance of natural vegetation beyond the footprint of the proposed waste rock dump expansion is not permitted.Construction area should be demarcated and the footprint of disturbance must be kept to the minimum required for the activity and reasonable vehicular and equipment movement.The single <i>Boophone disticha</i> (Bushman Poison Bulb) individual that was observed within the footprint of the proposed waste rock dump expansion area (refer to plant specialist study, OmniEcko, 2014 – Appendix D) must be relocated to a suitable habitat prior to site clearance taking place.Bush encroachment must be monitored continuously. |

| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | |
|---------------------------------|---------------------------------|--|----------|----------|----------|-------------------|-------------------|---|
| 2.1.4. | Aesthetics | <p>Deterioration of the aesthetic value of the area and surrounds due to visual impacts and the generation of noise associated with site clearance activities.</p> <p>The proposed project will however occur within the property boundary and mining rights area of the Kolomela Mine. There are no sensitive receptors located within close proximity to the area to be cleared. The nearest residences are ±4 km to the west, while the town of Postmasburg is located more than 15 km to the north-east. Site clearance will also take place concurrently with the development of the waste rock dump expansion. As such, a relatively small area will be cleared at any one time.</p> | Low | Low | High | Negative Low | Negative Low | <ul style="list-style-type: none">• The removal of vegetation should be limited to the footprint area of the proposed waste rock dump expansion.• Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs.• Complaints regarding noise and dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure.• Minimise movement of vehicles as far as reasonably possible.• Unsealed access roads should be watered by means of water trucks.• Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. |
| CULTURAL AND HERITAGE RESOURCES | | | | | | | | |
| 2.1.5. | Cultural and Heritage Resources | Potential loss of cultural and heritage resources due to site clearance. | High | Low | Low | Negative Moderate | Negative Low | <ul style="list-style-type: none">• An archaeologist should immediately be notified should any historical, archaeological, cultural or heritage artefacts be unveiled.• All construction activities should immediately be seized in such an event.• The artefact or grave is not be disturbed or relocated until the necessary permits have been obtained. |
| 2.2 | Indirect Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 2.1.6. | Air Quality | <p>Deterioration of air quality due to dust generated during topsoil stripping and vegetation clearance. Cleared areas will be susceptible to wind erosion, which may also cause an increase in ambient dust levels.</p> <p>Site clearance will however occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the area to be cleared. The nearest residences are ±4 km to the south west, while the town of Postmasburg is located more than to the 15 km north-east. Site clearance will also take place concurrently with the development of the waste rock dump expansion. As such, a relatively small area will be cleared at any one time.</p> | Low | Moderate | High | Negative Moderate | Negative Low | <ul style="list-style-type: none">• Minimise movement of vehicles as far as reasonably possible.• Unsealed access roads should be watered by means of water trucks.• Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked.• Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| 2.1.7. | Soils and land capability | <p>Loss of soils due to erosion from cleared areas.</p> <p>Due to the flat gradient of the area however, storm water runoff is not anticipated to be significant. Site clearance will also take place concurrently with the development of the waste rock dump expansion. As such, a relatively small area will be cleared at any one time.</p> | High | Low | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none">• Cleared areas will be monitored for signs of significant erosion.• Where significant erosion has been identified, measures should be put in place to stop further erosion. |
| 2.1.8. | Surface Water | <p>Sedimentation of downstream surface water environment due to storm water runoff from cleared areas.</p> <p>Site clearance associated with the construction phase will result in cleared areas that will be susceptible to erosion. Storm water runoff from cleared areas will likely have high levels of suspended material which may impact on the water quality of downstream surface water features. However, due to the flat gradient of the area, storm water runoff is not anticipated to be significant.</p> | Low | Low | Low | Negative Low | Negative Low | <ul style="list-style-type: none">• Cleared areas will be monitored for signs of significant erosion.• Where significant erosion has been identified, measures should be put in place to stop further erosion. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | |
| 2.2.1. | Ecology and Biodiversity | <p>Disturbance to fauna and flora due to dust-fallout associated with site clearance.</p> <p>Dust can settle on plants thereby negatively impacting their vigour and palatability and reducing the grazing capacity in the area. This may impact on surrounding habitat by making it less suitable for</p> | Moderate | Moderate | High | Negative Moderate | Negative Moderate | <ul style="list-style-type: none">• Disturbance of natural vegetation beyond the footprint of the proposed waste rock dump expansion is not permitted.• Unsealed access roads should be watered by means of water trucks.• Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation |

| | | | | | | | | |
|--|---------------------------|---|------|-----|----------|-------------------|--------------|--|
| | | locally occurring fauna and flora. | | | | | | Nominal speed limit of 40 km/h applies unless otherwise marked. |
| 2.2.2. | Alien and Invasive Plants | Proliferation of alien and invasive plants due to disturbances associated with site clearance. | High | Low | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none"> Alien and invasive plants need to be monitored and any alien and invasive plants establishing on the disturbed areas removed. |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | |
| 2.1.9. | Aesthetics | <p>Deterioration of the aesthetic value of the area and surrounds due to dust fallout associated with site clearance activities.</p> <p>During the construction phase natural vegetation will be removed. Cleared areas will be susceptible to wind erosion, which may increase dust fallout. Dust-fallout could be a nuisance to nearby receptors and negatively impact the aesthetic value of the area. However, the proposed project will occur within the property boundary and mining rights area of the Kolomela Mine. There are no sensitive receptors located within close proximity to the area to be cleared. The nearest residences are ± 4 km to the south west, while the town of Postmasburg is located more than 15 km to the north-east. Site clearance will also take place concurrently with the development of the waste rock dump expansion. As such, a relatively small area will be cleared at any one time.</p> | Low | Low | High | Negative Low | Negative Low | <ul style="list-style-type: none"> The removal of vegetation should be limited to the footprint area of the proposed waste rock dump expansion. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Minimise movement of vehicles as far as reasonably possible. Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. |
| 2.1.10. | Health | <p>Increased health risk to nearby receptors due to deterioration of air quality associated with site clearance.</p> <p>During the construction phase natural vegetation will be removed. Cleared areas will be susceptible to wind erosion, which may cause a local increase in the concentration of PM10. PM10 is a criteria pollutant and may be a health risk at high concentrations. However, the proposed project will occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ± 4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, Air quality impacts are anticipated to be limited.</p> | Low | Low | Moderate | Negative Low | Negative Low | <ul style="list-style-type: none"> The removal of vegetation should be limited to the footprint area of the proposed waste rock dump expansion. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Minimise movement of vehicles as far as reasonably possible. Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|----------------------|---------------------------|--|-------------------|--------------------------------|-------------------------------|----------|-------------|-------------------|--|
| | | | | | Duration | Extent | Probability | Significance | |
| 2.3 | Cumulative Impacts | | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | | |
| 3.3.1 | Soils and land capability | <p>Loss of soils and land capability associated with site clearance.</p> <p>The soils in areas directly adjacent to the project site are regarded as transformed and heavily impacted upon by mining activities. Topsoil stripping has been carried out in preparation of a great deal of the operations currently underway in the area. This includes preparation for mining, excavation of a mine pit, development of a waste rock dump, etc.</p> <p>Agricultural land capability in the area is low and generally suitable for light grazing, with small pockets of land on steeper slopes that are not suitable for agriculture but only for conservation. The area is generally not conducive to cultivation due to the low rainfall, semi-arid climate and shallow soil depths. The current projects and operations do not affect agricultural practices on private farms as the directly affected property is owned by the specific company operating in that area.</p> | Negative Moderate | Negative Low | Moderate | Moderate | High | Negative Moderate | <ul style="list-style-type: none">The soil and land capability in the larger project area has been disturbed. The proposed waste rock dump expansion will take place directly adjacent to areas that have been disturbed. Additional impacts resulting from this project is expected to be limited.All available topsoil will be stripped from areas compacted and disturbed by the proposed development.Topsoil will be stockpiled for later reuse during rehabilitation. |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|-------------------------------|--------------------------|--|-------------------|--------------------------------|-------------------------------|----------|-------------|-------------------|--|
| | | | | | Duration | Extent | Probability | Significance | |
| | | The proposed waste rock dump expansion will add to existing impacts and enlarge the size of the entire footprint of the mine. The expansion will however occur within the property boundary and mining rights area of Kolomela Mine, therefore no private land will be affected. As such, the additional impact due to the waste rock dump expansion is anticipated to be low compared to existing impacts. | | | | | | | |
| 3.3.2 | Surface Water | Deterioration in water quality in surrounding surface water environment. The surface water courses in the larger area are not under a great deal of pressure due to existing projects and operations. Impacts include sedimentation from loose particles blown into pans, especially in close proximity to Kolomela Mine. Runoff due to heavy rains may also result in materials being deposited in surface watercourses. Additional impacts on surface watercourses from the proposed project are expected to be minimal. | Negative Moderate | Negative Low | Moderate | Low | Moderate | Negative Moderate | <ul style="list-style-type: none"> No further impacts on the area's surface water are expected to occur due to this project. Adequate surface water management infrastructure to be in place to divert clean water around the waste rock dump, as well as intercept dirty water runoff from the waste rock dump expansion area and contain it in the Kolomela Mine's dirty water system. Water management infrastructure must be sufficient to contain a 1 in 50 year flood event. |
| 3.3.3 | Air Quality | Deterioration in air quality. Most of the current projects and operations in the area generate dust in one way or the other. Dust generation at the mine is caused by activities such as topsoil stripping and stockpiling, blasting, dozing and excavation, shovelling and loading of material, haulage of run of mine ore from the mine pit to the crushing plants, haulage of waste material to the mine waste rock dumps, deposition of waste materials, travelling on gravel roads etc. High winds across loose surfaces can also result in fine particles becoming airborne. Dust-fallout could be a nuisance to adjacent receptors (adjacent farmers and Postmasburg residents). The proposed site clearance activities associated with the construction phase of the project will add to the existing dust generation (pollution) in the area. However, additional dust created by the project will be very little compared to the current operations in the area. | Negative High | Negative Low | High | High | High | Negative High | <ul style="list-style-type: none"> The proposed site clearance will generate very little dust compared to the current operations in the area. Minimise movement of vehicles as far as reasonably possible. Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| 3.3.4 | Noise | Generation of noise pollution. The main sources of noise generation in the area are from blasting, machinery movement, reverse horns, trains etc. The larger area already experiences relatively high ambient noise levels. The proposed project will generate noise through the movement of construction vehicles and machinery during site clearance which is likely to result in a minor increase in the ambient noise levels in the area. | Negative High | Negative Low | High | Moderate | High | Negative High | <ul style="list-style-type: none"> A very limited, short term increase in the level of noise will be caused by the proposed activities associated with site clearance. Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs. Complaints regarding noise to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | | |
| 3.3.5 | Ecology and Biodiversity | Loss of local habitat and biodiversity. The current projects and operations have already greatly impacted on the prevailing ecology and biodiversity in the area. The establishment of Kolomela Mine has led to a loss of large areas of natural habitats. Habitats in the area have been affected in terms of ecological processes, fragmentation and reduced connectivity for animal movement. | Negative High | Negative Moderate | High | Moderate | High | Negative High | <ul style="list-style-type: none"> Minimal impacts to the destruction of the ecology and biodiversity will be experienced due to the proposed project in relation to the areas affected by the current operations. Disturbance of natural vegetation beyond the footprint of the waste rock dump expansion is not permitted. The footprint of disturbance must be kept to the minimum required for the activity and reasonable vehicular and equipment movement. Trapping, catching and hunting of all animals are |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|--|---------------------------|--|-------------------|--------------------------------|-------------------------------|----------|-------------|-------------------|---|
| | | | | | Duration | Extent | Probability | Significance | |
| | | Site clearance associated with the proposed waste rock dump expansion will result in a permanent loss of habitat. This includes the removal of a protected plant. This impact will contribute to existing impacts at the mine. Removal or destruction of the protected plant will however not have a significant or detrimental effect on the populations of the region (OmniEko, 2014). | | | | | | | <ul style="list-style-type: none"> prohibited. Collection of any plant material from natural veld areas is prohibited. Open fires for heating and cooking purposes will not be allowed on site or near areas where there is a risk of starting a veld fire. Damage to and removal of protected plant and animal species is prohibited unless licenses and/or permits for the removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree, and plant and animal species cannot be avoided and have to be removed, respectively). |
| 3.3.6 | Alien and Invasive Plants | <p>Proliferation of alien and invasive plants.</p> <p>The establishment of alien and invasive species on disturbed areas is evident throughout the larger project area.</p> <p>The disturbance of the soil surface on the proposed project could provide further opportunity for alien and invasive plant species to establish and proliferate in the area.</p> | Negative Moderate | Negative Low | High | Low | High | Negative Moderate | <ul style="list-style-type: none"> Alien and invasive plants establishing on the proposed project site will have a very limited contribution to the total number in the larger project area. Alien and invasive plants need to be monitored and any plants establishing on the disturbed areas removed. |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | | |
| 3.3.7 | Aesthetics | <p>Deterioration in the aesthetic value of the mine and surrounds.</p> <p>The development of Kolomela Mine has permanently intruded on the aesthetic value of the area. The sense of place is permanently disrupted and will never return to the same state as prior to mining. The aesthetic impact caused by dust-fallout generated by mining related activities (blasting, driving on haul roads etc.) is the most pressing concern for the adjacent receptors (farmers, Postmasburg residents).</p> <p>The construction activities will involve the removal of natural vegetation. This will contribute to the negative impact on the aesthetic value of the area.</p> | Negative Moderate | Negative Low | High | Moderate | Moderate | Negative Moderate | <ul style="list-style-type: none"> The area's sense of place has been disturbed. The expansion of an existing waste rock dump will not contribute significantly, if at all. The removal of vegetation should be limited to the footprint of the proposed waste rock dump expansion. Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs. Complaints regarding noise and dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Minimise movement of vehicles as far as reasonably possible. Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. |
| 3.3.8 | Visual Impact | <p>Visual impact on surrounding receptors.</p> <p>Mining activities have altered the landscape. The domination of mining and other related activities (vehicle movement, topsoil stripping etc.) and infrastructure (power lines, railway lines, haul roads, offices etc.) in the vicinity of the site, contribute greatest to the visual impacts in the larger area – a rolling, open landscape dominated by the waste rock stockpiles that can be seen protruding above the horizon from 20 km away.</p> <p>The construction activities will involve the removal of natural vegetation. This will contribute to the negative visual impact.</p> | Negative High | Negative Low | High | Moderate | High | Negative High | <ul style="list-style-type: none"> The visual impact in the area is already very high. The site clearance associated with the waste rock dump expansion will not contribute significantly, if at all. The removal of vegetation should be limited to the footprint of the waste rock dump expansion. |
| CULTURAL AND HERITAGE RESOURCES | | | | | | | | | |
| 3.3.9 | Cultural and Heritage | Loss of cultural and heritage resources. | Low negative | Low | High | Low | Moderate | Negative Low | <ul style="list-style-type: none"> An archaeologist should immediately be notified should any |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|--|-----------|---|------------------|--------------------------------|-------------------------------|--------|-------------|--------------|---|
| | | | | | Duration | Extent | Probability | Significance | |
| | Resources | <p>The areas directly adjacent to the project footprint are already transformed by past mining activities.</p> <p>The proposed construction activities associated with the waste rock dump expansion might unearth artefacts of cultural or historic value.</p> | | | | | | | <p>historical, archaeological, cultural or heritage artefacts be unveiled.</p> <ul style="list-style-type: none">• All construction activities should immediately be seized in such an event.• The artefact or grave is not to be disturbed or relocated until the necessary permits have been obtained. |

Table 5: Impacts associated with the operational phase of the proposed waste rock dump expansion.

| | | IMPACT DESCRIPTION: | DURATION: | EXTENT: | PROBABILITY: | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE : MITIGATED | MITIGATION MEASURES: |
|---------------------------------|-----------------|--|-----------|----------|--------------|------------------------------|-----------------------------|--|
| Operational Phase | | | | | | | | |
| 3.1 | Direct Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 3.1.1 | Land capability | <p>Loss of land capability due to the development of the waste rock dump.</p> <p>The development of the waste rock dump expansion will make the footprint area of the waste rock dump expansion unavailable for any future agricultural activity, therefore permanently impacting on the land capability of the area. The waste rock dump will remain in perpetuity unless reprocessed. Agricultural land capability in the area is however low and generally suitable only for light grazing. The area is generally not conducive to cultivation due to the low rainfall, semi-arid climate and shallow soil depths.</p> | High | Low | High | Negative Moderate | Negative Moderate | <ul style="list-style-type: none">The dumping of waste rock must be limited to the footprint of the proposed waste rock dump.All available topsoil in the waste rock dump expansion footprint area will be stripped.Topsoil will be stockpiled for later reuse during rehabilitation.Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. |
| 3.1.2 | Air Quality | <p>Deterioration in air quality due to dust emissions from windblown dust from the exposed surface of the waste rock dump, as well as from materials handling and the transport of waste rock from the pit to the dump.</p> <p>The abovementioned activities will cause a reduction in air quality in the area, mainly as a result of increased concentrations of PM10. PM10 is a criteria pollutant and may be a health risk at high concentrations.</p> <p>The proposed project will however occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ±4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, air quality impacts are anticipated to be limited.</p> | Moderate | Moderate | High | Negative Moderate | Negative Low | <ul style="list-style-type: none">Unsealed access roads should be watered by means of water trucks.Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked.Plan vehicle logistics to minimise the operational hours and distances travelled.If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface.Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure.Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. |
| 3.1.3 | Surface Water | Sedimentation of downstream surface water features due to contaminated runoff from the waste rock dump. | Low | Low | Moderate | Negative Moderate | Negative Low | <ul style="list-style-type: none">The surface water management infrastructure adequate to divert clean water around the waste rock dump expansion area and intercept dirty water runoff from the waste rock dump expansion must be in place. Water management infrastructure must be sufficient to contain a 1 in 50 year flood event. |
| 3.1.4 | Groundwater | <p>Deterioration in groundwater quality due to the seepage of contaminants from the waste rock dump into the underlying aquifer.</p> <p>Although there is no material risk of acid mine drainage associated with the waste rock dump expansion, there is the potential for groundwater contamination through the seepage of contaminants, including nitrates, originating from the waste rock material into the underlying aquifer.</p> | High | Moderate | Low | Negative Moderate | Negative Low | <ul style="list-style-type: none">The waste rock dump expansion is to be included in Kolomela Mine's existing groundwater pollution management plan, which will be implemented as part of the operational phase. Measures implemented as part of this plan include:<ul style="list-style-type: none">a groundwater monitoring programme whereby all existing and potential impact zones are monitored to track pollution;determination of the extent of the existing or potential contamination plumes; andwhere monitoring results indicates that third party water supply has been polluted by activities associated with mining, SIOC will ensure that the affected parties are compensated for any loss as agreed with land owners. |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | |
| 3.1.5 | Aesthetics | Deterioration in the aesthetic value of the area due to visual impacts and the generation of noise associated with operational activities. | High | Moderate | High | Negative Moderate | Negative Low | <ul style="list-style-type: none">If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface.The placement of waste rock should be limited to the proposed |

| | | IMPACT DESCRIPTION: | DURATION: | EXTENT: | PROBABILITY: | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE : MITIGATED | MITIGATION MEASURES: |
|---------------------------------|---|--|-----------|----------|--------------|------------------------------|-----------------------------|--|
| | | During the operational phase the waste rock will be transported and dumped in the proposed footprint area. This will negatively impact the aesthetic value of the area due to visual and noise impacts associated with the abovementioned activities. The proposed waste rock dump expansion will occur within the property boundary and mining rights area of Kolomela Mine, therefore no private land will be affected. The proposed project will constitute the expansion of an existing waste rock dump and will therefore not contrast with its surroundings. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ±4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, the impacts on the area’s aesthetics will be limited. | | | | | | <div>footprint area.</div> <ul style="list-style-type: none">Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Vegetation must be monitored and maintained for at least 3 growing seasons post closure.Complaints regarding noise to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure |
| 4.1.1 | Economic Impact | Loss of potential income associated with the loss in land capability due to the development of the waste rock dump. The footprint of the waste rock dump expansion will not be available for agricultural activities during operation and following closure. As such, potential income generated from the project area through an alternate land use, namely grazing, will not be possible. Agricultural land capability in the area is however low and generally not conducive to cultivation due to the low rainfall, semi-arid climate and shallow soil depths. | Very High | Low | Very High | Negative High | Negative High | <ul style="list-style-type: none">As part of closure planning, the designs of the waste rock dump expansion's final permanent landform will take into consideration the requirements for land function, long term erosion prevention and confirmatory monitoring. |
| 3.1.6 | Noise | Generation of noise pollution due to operational activities. Operation of heavy vehicles and noisy equipment/ machinery for material handling and transport will generate noise. This is likely to result in a minor increase in the ambient noise levels in the area. The proposed construction will occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ±4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, noise impacts due to the project are expected to be limited. | Low | Moderate | Very High | Negative Moderate | Negative Low | <ul style="list-style-type: none">Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs.Complaints regarding noise to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| 3.2 | Indirect Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 3.1.7 | Climate change and Greenhouse Gas Emissions | Contribution to climate change due to the emission of greenhouse gasses associated with operational activities. Operational activities will entail the movement of heavy motor vehicles which consume fuel, produce greenhouse gas emissions and ultimately contribute to climate change. | Moderate | Low | Low | Negative Low | Negative Low | <ul style="list-style-type: none">Maintain machinery, vehicles and equipment in good condition to prevent unnecessary emissions.Plan vehicle logistics to minimise the operational hours and distances travelled. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | |
| 3.2.1 | Ecology and Biodiversity | Disturbance to fauna and flora due to dust and noise generation associated with operational activities. Activities associated with the operational phase of the project, including the movement of heavy vehicles and the transportation and dumping of waste rock, will generate dust fallout and noise. Dust-fallout can settle on plants thereby negatively impacting their vigour and palatability and reducing the grazing capacity in the area. The generation of noise will disturb fauna occurring in the area and may result in them migrating out of the area. These impacts may result in the habitat surrounding the proposed project area becoming less suitable for locally occurring fauna and flora. | High | Moderate | Moderate | Negative Moderate | Negative Moderate | <ul style="list-style-type: none">Disturbance of natural vegetation beyond the footprint of the proposed waste rock dump expansion is not permitted.Unsealed access roads should be watered by means of water trucks.Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked.Maintain machinery, vehicles and equipment in good condition to prevent unnecessary emissions.Plan vehicle logistics to minimise the operational hours and distances travelled. |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | |
| 3.1.8 | Economic Impact | Avoidance of negative economic impacts which would result if the Kapstevel waste rock dump project is not implemented. | Low | Moderate | High | Negative Moderate | No Impact | <ul style="list-style-type: none">Execution of the waste rock dump expansion. |

| | | IMPACT DESCRIPTION: | DURATION: | EXTENT: | PROBABILITY: | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE : MITIGATED | MITIGATION MEASURES: |
|--------|-------------|--|-----------|----------|--------------|------------------------------|-----------------------------|---|
| | | The expansion of the Kapstevl waste rock dump is necessary to facilitate the continued production of iron ore from Kolomela Mine's Kapstevl Pit and thus avoid significant negative economic impacts. | | | | | | |
| 3.1.9 | Groundwater | <p>Increased health risk to nearby receptors due to the deterioration in groundwater quality associated with operational activities.</p> <p>Although there is no material risk of acid mine drainage associated with the waste rock dump expansion, there is the potential for groundwater contamination through the seepage of contaminants, including nitrates, originating from the waste rock material into the underlying aquifer. This contamination has the potential to spread and influence third party boreholes to the point where contaminants in the groundwater will be at a level at which it is harmful to humans and livestock. This scenario is however unlikely as the nearest third party borehole is approximately 2 km from the project area.</p> | High | Moderate | Low | Negative Moderate | Negative Low | <ul style="list-style-type: none"> The waste rock dump expansion is to be included in Kolomela Mine's existing groundwater pollution management plan, which will be implemented as part of the operational phase. Measures implemented as part of this plan include: <ul style="list-style-type: none"> a groundwater monitoring programme whereby all existing and potential impact zones are monitored to track pollution; determination of the extent of the existing or potential contamination plumes; and where monitoring results indicates that third party water supply has been polluted by activities associated with mining, SIOC will ensure that the affected parties are compensated for any loss as agreed with land owners. |
| 3.1.10 | Aesthetics | <p>Deterioration in the aesthetic value of the area due to the generation of dust associated with operational activities.</p> <p>The waste rock dump expansion will result in dust emissions from windblown dust from the exposed surface of the waste rock dump, as well as from materials handling and the transport of waste rock from the pit to the dump. Dust-fallout could be a nuisance to nearby receptors.</p> <p>However, the proposed project will occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ± 4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, Air quality impacts are anticipated to be limited.</p> | Moderate | Moderate | High | Negative Moderate | Negative Low | <ul style="list-style-type: none"> Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. Plan vehicle logistics to minimise the operational hours and distances travelled. If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump. Vegetation must be monitored and maintained for at least 3 growing seasons post closure. |
| 3.1.11 | Health | <p>Increased health risk to nearby receptors due to the deterioration in air quality associated with operational activities.</p> <p>The waste rock dump expansion will result in dust emissions from windblown dust from the exposed surface of the waste rock dump, as well as from materials handling and the transport of waste rock from the pit to the dump. The concentration of PM10 is anticipated to increase due to the abovementioned activities. PM10 is a criteria pollutant and may be a health risk at high concentrations.</p> <p>However, the proposed project will occur within the property boundary and mining rights area of Kolomela Mine. There are no sensitive receptors located within close proximity to the proposed project. The nearest residences are ± 4 km to the south west, while the town of Postmasburg is located more than 15 km north-east. As such, Air quality impacts are anticipated to be limited.</p> | Moderate | Moderate | High | Negative Moderate | Negative Low | <ul style="list-style-type: none"> Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. Plan vehicle logistics to minimise the operational hours and distances travelled. If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump. Vegetation must be monitored and maintained for at least 3 growing seasons post closure. |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|----------------------|---------------------------|--|-------------------|--------------------------------|-------------------------------|----------|-------------|-------------------|---|
| | | | | | Duration | Extent | Probability | Significance | |
| 3.3 | Cumulative Impacts | | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | | |
| 3.3.1 | Soils and land capability | <p>Loss of soils and land capability.</p> <p>The soils in areas directly adjacent to the project site are regarded as transformed and heavily impacted upon by mining activities. This includes the excavation of a mine pit, a waste rock dump, etc.</p> <p>Agricultural land capability in the area is low and generally suitable for light grazing. The area is generally not conducive to cultivation due to the low rainfall, semi-arid climate and shallow soil depths. The current projects and operations do not affect agricultural practices on private farms as the directly affected property is owned by the specific company operating in that area.</p> <p>The proposed waste rock dump expansion will occur within the property boundary and mining rights area of Kolomela Mine, therefore no private land will be affected. Impacts on land capability due to the proposed project will be moderate however due to its long term nature.</p> | Negative Moderate | Negative Moderate | Moderate | Moderate | High | Negative Moderate | <ul style="list-style-type: none">The soil and land capability in the larger project area has been disturbed. The proposed waste rock dump expansion will take place directly adjacent to areas that have been disturbed. Additional impacts resulting from this project is expected to be moderate.All available topsoil will be stripped from areas compacted and disturbed by the proposed development.Topsoil will be stockpiled for later reuse during rehabilitation.Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Vegetation must be monitored and maintained for at least 3 growing seasons post closure |
| 3.3.2 | Groundwater | <p>Deterioration in groundwater quality.</p> <p>The groundwater regime in the greater area has been significantly impacted by activities undertaken at Kolomela Mine, including the excavation of pits, pit dewatering, the storage and disposal of mineralogical and non-mineralogical wastes, etc.</p> <p>Additional impacts resulting from this project is expected to be low compared to existing impacts. As the proposed project will occur on the edge of the Kolomela Mine, it may potentially enlarge the existing pollution plume of the entire mine.</p> | Negative High | Low | High | High | High | Negative High | <ul style="list-style-type: none">Additional impacts resulting from this project is expected to be low compared to existing impacts. As the proposed project will occur on the edge of the Kolomela Mine, it may potentially enlarge the existing pollution plume of the entire mine.The waste rock dump expansion is to be included in Kolomela Mine's existing groundwater pollution management plan, which will be implemented as part of the operational phase. Measures implemented as part of this plan include:<ul style="list-style-type: none">a groundwater monitoring programme whereby all existing and potential impact zones are monitored to track pollution;determination of the extent of the existing or potential contamination plumes; andwhere monitoring results indicates that third party water supply has been polluted by activities associated with mining, SIOC will ensure that the affected parties are compensated for any loss as agreed with land owners. |
| 3.3.3 | Surface Water | <p>Deterioration in the water quality of surrounding surface water environment.</p> <p>The surface water courses in the larger area are not under a great deal of pressure due to existing projects and operations. Impacts include sedimentation from loose particles blown into pans, especially in close proximity to Kolomela Mine. Runoff due to heavy rains may also result in materials being deposited in surface watercourses. No significant additional impacts on the surface watercourses are expected from the proposed project.</p> | Negative Moderate | Negative Low | Moderate | Low | Moderate | Negative Moderate | <ul style="list-style-type: none">No significant impacts on the area's surface water are expected to occur due to this project.Adequate surface water management infrastructure to be in place to divert clean water around the waste rock dump, as well as intercept and contain contaminated run-off from the waste rock dump in Kolomela Mne's dirty water systemImplement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Vegetation must be monitored and maintained for at least 3 growing seasons post closure. |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|--|--------------------------|--|------------------|--------------------------------|-------------------------------|----------|-------------|---------------|--|
| | | | | | Duration | Extent | Probability | Significance | |
| 3.3.4 | Air Quality | <p>Deterioration in air quality.</p> <p>Most of the current projects and operations in the area generate dust in one way or the other. Dust generation at the mine is caused by activities such as topsoil stripping and stockpiling, blasting, dozing and excavation, shovelling and loading of material, haulage of run of mine ore from the mine pit to the crushing plants, haulage of waste material to the mine waste rock dumps, deposition of waste materials, travelling on gravel roads etc.</p> <p>High winds across loose surfaces can also result in fine particles becoming airborne. The abovementioned activities cause an increase in ambient dust levels and negatively impact on air quality.</p> <p>The proposed expansion of an existing waste rock dump will involve the movement of heavy vehicles and the transport and handling of waste rock, which will generate dust and add to the existing dust generation (pollution) in the area. The expansion of the waste rock dump will however constitute the continuation of existing levels of activity and is not likely to result in any significant increase in the ambient dust levels in the area (refer to air quality specialist report: Airshed Planning Professionals, 2014 – Appendix D).</p> | Negative High | Negative Low | High | High | High | Negative High | <ul style="list-style-type: none"> No significant increase in dust levels compared to current levels at Kolomela Mine is expected. Minimise movement of vehicles as far as reasonably possible. Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. Complaints regarding dust to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump. Vegetation must be monitored and maintained for at least 3 growing seasons post closure |
| 3.3.5 | Noise | <p>Generation of noise.</p> <p>The main sources of noise generation in the area are from blasting, machinery movement, reverse horns, trains etc. The larger area already experiences relatively high ambient noise levels.</p> <p>The proposed project will generate noise through the movement of heavy vehicles and the handling and transport of waste rock. The expansion of the waste rock dump will however constitute the continuation of existing levels of activity and is not likely to result in any significant increase in the ambient noise levels in the area (refer to noise impact specialist report: Airshed Planning Professionals, 2014 – Appendix D).</p> | Negative High | Negative Low | High | Moderate | High | Negative High | <ul style="list-style-type: none"> No significant increase in the level of noise is expected due to activities associated with the operational phase of the project. Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise outputs. Complaints regarding noise to be registered in the complaints register and to be investigated and managed in accordance with the incident reporting procedure. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | | |
| 3.3.6 | Ecology and Biodiversity | <p>Loss of local habitat and biodiversity.</p> <p>The current projects and operations have already greatly impacted on the prevailing ecology and biodiversity in the area. The establishment of Kolomela Mine has led to a loss of large areas of natural habitats. Habitats in the area have been affected in terms of ecological processes, fragmentation and reduced connectivity for animal movement.</p> <p>Activities associated with the operational phase of the project are not anticipated to significantly contribute to existing impacts.</p> | Negative High | Negative Moderate | High | Moderate | High | Negative High | <ul style="list-style-type: none"> Activities associated with the operational phase of the project are not anticipated to significantly contribute to existing impacts. Disturbance of natural vegetation beyond the footprint of the waste rock dump expansion is not permitted. The footprint of disturbance must be kept to the minimum required for the activity and reasonable vehicular and equipment movement. Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump. Vegetation must be monitored and maintained for at least 3 growing seasons post closure |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | | |
| 3.3.7 | Aesthetics | <p>Deterioration in the aesthetic value of the area.</p> <p>The development of Kolomela Mine has permanently</p> | Negative Low | Negative Low | High | Moderate | Moderate | Negative Low | <ul style="list-style-type: none"> The area's sense of place has been disturbed. The expansion of an existing waste rock dump will not contribute significantly, if at all. |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|--|---------------------------------|--|-------------------|--------------------------------|-------------------------------|----------|-------------|-------------------|---|
| | | | | | Duration | Extent | Probability | Significance | |
| | | <p>intruded on the aesthetic value of the area. The sense of place is permanently disrupted and will never return to the same state as prior to mining. The aesthetic impact caused by dust-fallout generated by mining related activities (blasting, driving on haul roads etc.) is the most pressing concern for the adjacent receptors (farmers, Postmasburg residents).</p> <p>The additional impact on the aesthetic value (visual, noise, dust and health impacts) of the area that will be caused by the proposed waste rock dump expansion is anticipated to be minimal.</p> | | | | | | | <ul style="list-style-type: none"> Unsealed access roads should be watered by means of water trucks. Speed limits on unsealed roads will be limited to a maximum speed consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface. |
| 3.3.8 | Economic Impact | <p>Sustained economic activity in the region.</p> <p>The expansion of the Kapstevl waste rock dump is necessary to facilitate the continued production of iron ore from Kolomela Mine's Kapstevl Pit and to avoid significant negative economic impacts. Kolomela Mine is one of the major contributors to the economy of the Northern Cape. The execution of the proposed waste rock dump expansion will ensure that existing positive impacts are not diminished.</p> | Positive High | No Impact | High | High | High | Positive High | <ul style="list-style-type: none"> Execution of the proposed waste rock dump expansion. |
| 3.3.9 | Visual Impact | <p>Deterioration of the visual environment.</p> <p>Mining activities have altered the landscape. The domination of mining and other related activities (vehicle movement, topsoil stripping etc.) and infrastructure (power lines, railway lines, haul roads, offices etc.) in the vicinity of the site, contribute greatest to the visual impacts in the larger area – a rolling, open landscape dominated by the waste rock stockpiles that can be seen protruding above the horizon from 20 km away.</p> <p>The proposed project will constitute the expansion of an existing waste rock dump and will therefore not greatly contrast with its surroundings. As such, any additional visual intrusion that will be caused by the development of the waste rock dump expansion is anticipated to be minimal.</p> | Negative Moderate | Negative Low | High | Moderate | High | Negative Moderate | <ul style="list-style-type: none"> The visual impact in the area is already very high. The waste rock dump expansion will not contribute significantly to existing impacts, if at all. If not reprocessed, ensure the concurrent rehabilitation of the expanded waste rock dump through the establishment of naturally occurring vegetation on its surface. |
| CULTURAL AND HERITAGE RESOURCES | | | | | | | | | |
| 3.3.10 | Cultural and Heritage Resources | <p>Loss of cultural and heritage resources.</p> <p>The areas directly adjacent to the project footprint are already transformed by past mining activities.</p> <p>The development of the proposed waste rock dump expansion might unearth artefacts of cultural or historic value.</p> | Negative Low | Low | High | Low | Moderate | Negative Low | <ul style="list-style-type: none"> An archaeologist should immediately be notified should any historical, archaeological, cultural or heritage artefacts be unveiled. All construction activities should immediately be seized in such an event. The artefact or grave is not be disturbed or relocated until the necessary permits have been obtained. |

Table 6: Impacts associated with the decommissioning and closure phase of the waste rock dump expansion.

| | | IMPACT DESCRIPTION: | DURATION: | EXTENT: | PROBABILITY: | SIGNIFICANCE: UNMITIGATED | SIGNIFICANCE: MITIGATED | MITIGATION MEASURES: |
|---|---------------------------|--|-----------|----------|--------------|------------------------------|----------------------------|--|
| Decommissioning and Closure | | | | | | | | |
| 4.1 | Direct Impacts | | | | | | | |
| PHYSICAL ENVIRONMENT | | | | | | | | |
| 4.2.1 | Soils and land capability | <p>Increase in land capability and positive impact to soils due to rehabilitation of waste rock dump.</p> <p>Decommissioning will involve the implementation of appropriate rehabilitation measures and the re-establishment of naturally occurring vegetation on the surface of the waste rock dump. Positive impacts to the soils and land capability in the project area can be expected following rehabilitation.</p> | Low | Low | High | Positive Low | Positive Low | <ul style="list-style-type: none">Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. |
| 4.2.2 | Air Quality | <p>Improved air quality due to rehabilitation of waste rock dump.</p> <p>The re-establishment of vegetation on the surface of the waste rock dump will reduce the emission of wind-blown dust, which will slightly reduce ambient dust levels and positively impact on air quality.</p> | Low | Low | High | Positive Low | Positive Low | <ul style="list-style-type: none">Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. |
| BIOLOGICAL ENVIRONMENT | | | | | | | | |
| 4.1.2 | Ecology and Biodiversity | <p>Improvements to local habitats and biodiversity due to the re-establishment of naturally occurring vegetation associated with the rehabilitation of the waste rock dump.</p> <p>Decommissioning will involve the implementation of appropriate rehabilitation measures and the re-establishment of naturally occurring vegetation on the surface of the waste rock dump. This will enhance the ecology and biodiversity within the footprint of the waste rock dump expansion, which will serve as usable habitat to locally occurring fauna and flora.</p> | Low | Low | High | Positive Low | Positive Low | <ul style="list-style-type: none">Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Remove alien invasive species from rehabilitated area. |
| SOCIAL AND ECONOMIC ENVIRONMENT | | | | | | | | |
| 4.1.3 | Aesthetics | <p>Improvement to the visual environmental due to the re-establishment of naturally occurring vegetation associated with the rehabilitation of the waste rock dump</p> <p>Decommissioning will involve the implementation of appropriate rehabilitation measures and the re-establishment of naturally occurring vegetation on the surface of the waste rock dump. This will enhance the visual aspect of the area.</p> | Low | Moderate | High | Positive Low | Positive Moderate | <ul style="list-style-type: none">Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump.Vegetation must be monitored and maintained for at least 3 growing seasons post closure. |
| No indirect impacts are expected during the decommissioning and closure phases. | | | | | | | | |

| | | IMPACT DESCRIPTION | EXISTING IMPACTS | INCREMENTAL IMPACTS: MITIGATED | CUMULATIVE IMPACTS: MITIGATED | | | | MITIGATION MEASURES |
|---|--------------------|--------------------|------------------|--------------------------------|-------------------------------|--------|-------------|--------------|---------------------|
| | | | | | Duration | Extent | Probability | Significance | |
| 4.2 | Cumulative Impacts | | | | | | | | |
| Assuming that rehabilitation measures at the rest of Kolomela Mine are implemented as per Kolomela Mine's approved EMP, it is expected that rehabilitation will have a positive impact of high significance on the soils, land capability, ecology, biodiversity, air quality and aesthetics over the entire mine and, in some cases, its immediate surrounds. The positive incremental impacts associated with the rehabilitation of the waste rock dump expansion will contribute to these positive impacts. However, due to the relatively small area affected by the waste rock dump expansion compared to the rest of the mine, this contribution is not expected to be significant. | | | | | | | | | |

Appendix G
Environmental Management Programme

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

This Draft Environmental Management Programme (EMPr) sets out mitigation/management measures for the potential impacts identified for the proposed expansion of an existing waste rock dump on the farm Kapstevel 541 at Kolomela Mine. Due to the nature of the project, impacts of negative-low to negative-moderate significance are anticipated to occur. On receipt of the environmental authorisation, the EMP will be amended to include additional conditions as set out by the DENC. The EMP will then become a legally binding document to the applicant, all its contractors and their employees.

Mitigation/management measures have been set out for each phase of the proposed Waste Rock Dump Expansion project. The project phases will comprise the following:

1. Planning and Design

The planning and design phase involves the development of plans for disposal, operation and closure of the proposed waste rock dump expansion.

2. Construction

Construction will entail the clearance of vegetation in the footprint of the proposed site to prepare the site to receive the waste rock as part of the overall mining process.

Given that the proposed project is an expansion of an existing waste rock dump, existing infrastructure will be used, including:

- Access roads;
- Haul roads;
- Water management infrastructure.

3. Operation

Operation of the waste rock dump will involve the following activities:

- Transport of waste rock from the mine to the dump;
- Off-loading of the waste rock at the dump in accordance with the planned dump development and operating plans, including lift height and location;
- Slope stabilisation and erosion control;
- Maintenance of the access road; and
- Wetting of roads to suppress dust.

4. Decommissioning and closure

Decommissioning and closure will entail the following:

- Development of the final landform as per final landform design plans;
- Revegetation of final landform; and
- Post closure monitoring and maintenance.

The tables below outline the proposed action plans and mitigation measures to reduce the potential negative impacts associated with each phase of the proposed project.

1. Planning and Design

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|---|--------------------------|--------------------------------|
| 1.1. ENVIRO-LEGAL COMPLIANCE | | | |
| Ensure enviro-legal compliance with respect to protected fauna and flora. | The necessary permit for the removal of protected plants must be obtained from the Department of Environment and Nature Conservation (DENC), before site clearance commences. | Kolomela Mine Management | Prior to construction |
| 1.2. WATER QUALITY MANAGEMENT | | | |
| Ensure that sufficient water management infrastructure is in place prior to construction. | The surface water management infrastructure should be adequate to divert clean water around the waste rock dump expansion area and intercept dirty water runoff from the waste rock dump expansion area and contain it in the Kolomela Mine's dirty water system. Water management infrastructure must be sufficient to contain a 1 in 50 year flood event. The adequacy of existing infrastructure should be reviewed by a qualified engineer. If an upgrade to the surface water management infrastructure is required, this should be designed during the planning and design phase of the project, prior to site clearance. | Kolomela Mine Management | Prior to construction |
| 1.3. CLOSURE PLANNING | | | |
| Ensure adequate design and monitoring measures are in place for the decommissioning and closure phase of the project. | As part of closure planning, the designs of the waste rock dump expansion's final permanent landform is to take the requirements for land function, long term erosion prevention into consideration. | Kolomela Mine Management | Prior to closure |

2. Construction

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|---|--------------------------|--|
| 2.1. APPOINTMENTS AND DUTIES | | | |
| Define organisational and administrative arrangements for EMP implementation. Adequate management and mitigation of environmental impacts. | The Kolomela Mine Management will be overall responsible to ensure all conditions of the EMP are implemented. | Kolomela Mine Management | Prior to construction |
| | The existing Environmental Manager (EM) at Kolomela Mine will monitor compliance with and oversee implementation of the EMP during all stages of the project. | EM | Ongoing |
| | Where necessary, the EM will develop and oversee implementation of procedures and action plans, and will issue EMP instructions to give effect to the commitments of the EMP and to address non-compliances with the EMP. | EM | Ongoing |
| | The EM will ensure that the EMP commitments are implemented by employees and contractors through the Environmental Management System procedures of Kolomela Mine | EM | Upon appointment and with any updates of the EMP |
| | The EM will ensure that Contractors and Suppliers appointed by the project team are bound to implement the EMP as it applies to the Contractors' specific line of work. | EM | Monthly |
| | Appointed contractors to 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 Kolomela Mine. | EM | Prior to construction |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|--|--------------------------|--|
| | Procedures for the regular inspection and maintenance of the site must be in place to ensure that environmental degradation is prevented and possible impacts arising from the operation are mitigated. | EM, Contractor/ EREP | Ongoing |
| | A copy of the EMrP (this document) must always be available on site for inspection by authorised officers. | EM, | Ongoing |
| | The EM is to monitor and conduct inspections of Contractors' activities and their compliance with the EMP. Records of reporting will be kept on file. | EM | As risks are identified |
| 2.2. PUBLIC RELATIONS | | | |
| Maintain transparent communication with project affected community. | Include the waste rock dump expansion project as an item on the agenda of the Kolomela Mine environmental forum meetings. | EM | Ongoing, quarterly |
| Keeping project affected community up to date with developments at Kolomela Mine and surrounding area. | Any complaints regarding the development must be handled in line with Kolomela Mine's existing complaints and incident reporting procedure. | EM | Ongoing |
| 2.3. TRAINING, AWARENESS AND COMPETENCE | | | |
| Ensure adequate knowledge and understanding of EMP stipulations, policies and procedures. Understanding the interface between the work environment and environmental protection. | All construction workers, suppliers and service providers entering the construction site are to attend and undergo an environmental awareness induction 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, and the requirements of the EMP. | Contractor/ EREP & EM | Upon appointment and before entering the construction site |
| 2.4. SOIL | | | |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|--|------------------|--------------------------------|
| Optimise availability and viability of soil as growth medium to enable sustainable vegetation cover after rehabilitation. Maximise topsoil availability for rehabilitation at the completion of construction activities. | All available topsoil will be stripped from areas to be cleared, compacted and/or disturbed. | Contractor/ EREP | Ongoing |
| | Topsoil is to be stockpiled for later use during rehabilitation. | Contractor/ EREP | Ongoing |
| | Topsoil is to be stored and managed in accordance with relevant Kolomela Mine's procedures as developed and issued by the SHEQ Department. The procedures are to cover: <ul style="list-style-type: none"> Erosion (wind and water) protection and repair; Location of stockpiles to ensure easy access, minimise erosion and avoid areas for future mining and development. | | Ongoing |
| | The EM is to develop and maintain up to date action plan for soil utilisation. The procedures will address: <ul style="list-style-type: none"> Growth medium and rehabilitation experiments. Volumes of soil / growth medium needed for rehabilitation. Volumes of soil available for stripping. Volumes of stockpiled soil. | EM | Ongoing |
| | Soil erosion will be monitored over cleared areas. | Contractor/ EREP | Ongoing |
| 2.5. EROSION AND SEDIMENTATION CONTROL | | | |
| Develop and implement appropriate erosion control measures. | Water used for dust suppression shall be quantities small enough not to generate run-off and cause erosion. | EREP & EM | Ongoing |
| | Appropriate drainage and attenuation structures to be installed where erosion problems are identified as a result of construction. | EM | As Required |
| | Topsoil stockpiles must be protected from erosion (wind and water). | EM | Ongoing |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|---|-----------------|--------------------------------|
| 2.6. SPILL PREVENTION, RESPONSE AND CLEAN-UP | | | |
| Define and implement control measures for hazardous spill prevention, and ensure adequate response and clean-up measures are put in place. | Soil polluted by a spill of chemicals, oil or diesel shall be handled as hazardous waste if remediation in situ has not been authorised by the EM. | Contractor & EM | Ongoing |
| | All vehicles shall be serviced regularly according to a pre-planned maintenance programme in order to minimise oil drips and spillages. | Contractor & EM | Ongoing |
| | All petroleum products to be stored in lined and bunded areas. | Contractor & EM | Ongoing |
| | Dispensing of petroleum products to take place over a drip tray or within a lined and bunded area. | Contractor & EM | Ongoing |
| | Use drip trays under machinery, vehicles and equipment with minor fuel or hydraulic fluid leaks. | Contractor & EM | Ongoing |
| | Repairs and maintenance to machinery, vehicles and equipment to be undertaken in workshop. Any on-site emergency repairs to be undertaken over impervious surfaces. | Contractor & EM | As required |
| 2.7. NOISE | | | |
| Develop and implement appropriate noise control measures. | Complaints regarding noise to be handled in line with Kolomela Mine's existing complaints and incident reporting procedure. | EREP & EM | As Required |
| 2.8. DUST | | | |
| Develop and implement appropriate dust control measures. | Unsealed access roads and road verges of sealed roads should be watered by means of water trucks. | EM | Ongoing |
| | Minimise movement of vehicles as far as reasonably possible. | EREP & EM | Ongoing |
| | Speed limits on unsealed roads will be limited to a maximum speed | EM | Ongoing |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|--|-------------------------------|--------------------------------|
| | consistent with the minimisation of dust generation. Nominal speed limit of 40 km/h applies unless otherwise marked. | | |
| | Complaints regarding dust to be handled in line with Kolomela Mine's existing complaints and incident reporting procedure. | EM | As Required |
| 2.9. WATER QUALITY MANAGEMENT | | | |
| Protection of surface and groundwater resources. | Clean storm-water is to be diverted around all construction areas. | Kolomela Mine Management & EM | Ongoing |
| | All dirty storm-water run-off is to be intercepted and prevented from entering into natural drainage systems. | Kolomela Mine Management & EM | Ongoing |
| | Chemical toilets are to be provided at construction areas and strategic points where construction is taking place. These toilets need to be cleaned on a bi-weekly basis. Wastes are to be managed in accordance with Kolomela Mine's waste management principles. | Kolomela Mine Management & EM | Ongoing |
| | <p>The waste rock dump expansion is to be included in Kolomela Mine's existing groundwater pollution management plan, which will be implemented as part of the construction phase. Measures implemented as part of this plan include:</p> <ul style="list-style-type: none"> – a groundwater monitoring programme whereby all existing and potential impact zones are monitored to track pollution; – determination of the extent of the existing or potential contamination plumes; and – where monitoring results indicates that third party water supply | Kolomela Mine Management & EM | Ongoing |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|--|-----------------------|---|
| | has been polluted by activities associated with mining, SIOC will ensure that the affected parties are compensated for any loss as agreed with land owners. | | |
| 2.10. BIODIVERSITY | | | |
| Prevent the alteration of natural ecological systems and processes. Minimise impacts on protected plant species and areas identified as sensitive. | The footprint of disturbance must be kept to the minimum required for the activity and reasonable vehicular and equipment movement. | Contractor/ EREP & EM | Ongoing |
| | Damage to and removal of protected species of vegetation is prohibited unless permits for removal from the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Nature Conservation (DENC) are in place (licenses and permits are required where protected tree and plant species cannot be avoided and have to be removed, respectively). | Contractor/ EREP & EM | Prior to site clearance and removal of protected tree and plant species |
| | Remove any alien or invasive plants that have established within disturbed areas. | Contractor/ EREP & EM | Ongoing |
| | The sensitive area at the quartzite outcrop to the south of the proposed waste rock dump expansion area must be demarcated. Any disturbance inside this area to be prohibited. | Contractor/ EREP & EM | During construction |
| | The EM is to familiarise all contractors with the location of the sensitive areas. | EM | Prior to construction |
| | All alien and invasive plants to be managed in line with Kolomela Mine's | | |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|--|-----------------------|--|
| | existing alien and invasive plant management procedures, which include: <ul style="list-style-type: none"> • Delineating areas of light, medium and high infestation; • Classifying plants according to the Conservation of Agricultural Resources Act. All category 1 plants need to be removed first or areas of light infestation. • Development of a follow up programme to control re-growth and seedling establishment. • Development of an inspection programme to identify new infestations. | | |
| 2.11. MACHINERY, EQUIPMENT, VEHICLE MOVEMENT AND ROADS | | | |
| Minimise construction-related disturbances during the use of machinery, equipment and vehicles. | Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise output, emissions, and risks of hydrocarbon spills (fuels and lubricants). | Contractor/ EREP | Ongoing |
| | Road sections affected by the construction operations to be maintained in an acceptable condition. | Contractor/ EREP | Ongoing |
| | No new roads and tracks will be created, unless approved by the EM. | Contractor/ EREP & EM | Ongoing |
| | Upon completion of construction activities, all access roads used during the construction process must be rehabilitated to their original condition. | Contractor/ EREP & EM | At the end of the construction process |
| 2.12. HERITAGE RESOURCES | | | |
| Avoid disturbance or loss of important heritage sites and artefacts. | An archaeologist should immediately be notified should any historical, archaeological, cultural or heritage artefacts be unveiled. | Contractor/ EREP | As required |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|--|--|--|
| | All construction activities should immediately be seized in such an event. | Contractor/ EREP | As required |
| | The artefact or grave is not to be disturbed or relocated until the necessary permits have been obtained. | Contractor/ EREP | As required |
| 2.13. INCIDENT REPORTING AND MANAGEMENT | | | |
| Adequately assess root cause of incidents in order to develop and implement appropriate corrective actions and prevent incidents from recurring. | Environmental incidents complaints by third parties and major EMP non-compliances are to be reported in line with the existing incident reporting procedures at Kolomela Mine. | Kolomela Mine Management, Contractor/ EREP, EM | At start of construction, ongoing thereafter |
| 2.14. WASTE MANAGEMENT | | | |
| Adhere to waste management principles of avoidance, minimisation, reuse, recycling and correct disposal methods. Define and implement control measures to prevent inappropriate storage, treatment and construction of waste. | The collection, transport and disposal of waste are to be in accordance with waste management procedures developed for Kolomela Mine. | Contractor/ EREP & EM | As required. |
| | Chemical toilets are to be provided at strategic points where construction is taking place. These toilets need to be cleaned on a bi-weekly basis. | Contractor/ EREP & EM | As required |
| 2.15. COMPLIANCE MONITORING | | | |
| 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. | Records relating to the compliance/non-compliance within the conditions of the EMP must be kept in good order. | Contractor/ EREP & EM | Ongoing |
| | Officials employed by the regulatory authority shall be given access to the property for the purpose of assessing and/or monitoring compliance with the conditions contained in the EMP. | Contractor/ EREP & EM | Ongoing |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|---|-------------------------------|---|
| Maintain accurate records and transparent communication with regulatory bodies. Keeping regulatory bodies up to date with the development. | The EM needs to monitor any changes in fallout and PM10 dust due to construction activities and provide input to ensure dust is within acceptable standards. | EM | Ongoing |
| | Should dust and groundwater monitoring at Kolomela Mine indicate that there are unacceptable impacts on sensitive receptors associated with the waste rock dump expansion, mitigation measures are to be investigated and put in place to reduce impacts to within acceptable levels. | Kolomela Mine Management & EM | As required |
| | The EMP requirements associated with this project are to be monitored and audited in line with existing compliance monitoring and auditing procedures being undertaken at Kolomela Mine. | Kolomela Mine Management & EM | Prior to construction, on a quarterly basis |
| 2.16. REHABILITATION PLANNING AND IMPLEMENTATION | | | |
| Rehabilitation of temporary structures following construction. | All soils compacted by construction activities are to be ripped where necessary to assist with vegetation growth. | Contractor/ EREP & EM | |
| | All soils that have become contaminated with oils, fuels and lubricants are to be removed and managed as hazardous waste and/or treated at the Kolomela bioremediation of contaminated soils needs to take place as soon as such a facility is available. | Contractor/ EREP & EM | |
| | All rehabilitated areas are to be seeded with a locally indigenous seed mix, or covered with stripped topsoil containing seed. | Contractor/ EREP & EM | |
| | Vegetation growth needs to be monitored until the following rain season to ensure re-growth and sustainable growth. | Contractor/ EREP & EM | |
| | All dirty water needs to be released into the dirty water management | Contractor/ EREP | |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|------------|---------------------|----------------|--------------------------------|
| | system of the mine. | & EM | |

3. Operation

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|----------------------------|-----------------------|--------------------------------|
| 3.1. PUBLIC RELATIONS | | | |
| Maintain transparent communication with project affected community. | As per construction phase. | EM | Ongoing, quarterly |
| 3.2. SOIL | | | |
| Optimise availability and viability of soil as growth medium to enable sustainable vegetation cover after rehabilitation. Maximise topsoil availability for rehabilitation at the completion of construction activities. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.3. SPILL PREVENTION, RESPONSE AND CLEAN-UP | | | |
| Define and implement control measures for hazardous spill prevention, and ensure adequate response and clean-up measures are put in place. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.4. NOISE | | | |
| Develop and implement appropriate noise control measures. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.5. DUST | | | |
| Develop and implement appropriate dust control measures. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.6. EROSION AND SEDIMENTATION CONTROL | | | |
| Develop and implement appropriate erosion control | As per construction phase. | Contractor/ EREP & | Ongoing |

| | | | |
|---|----------------------------|--------------------------|---------|
| measures. | | EM | |
| 3.7. WATER QUALITY MANAGEMENT | | | |
| Protection of surface and groundwater resources. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.8. BIODIVERSITY | | | |
| Prevent the alteration of natural ecological systems and processes. Minimise impacts on protected plant species and areas identified as sensitive. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.9. MACHINERY, EQUIPMENT, VEHICLE MOVEMENT AND ROADS | | | |
| Minimise operation-related disturbances during the use of machinery, equipment and vehicles. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.10. INCIDENT REPORTING AND MANAGEMENT | | | |
| Adequately assess root cause of incidents in order to develop and implement appropriate corrective actions and prevent incidents from recurring. | As per construction phase. | EM | Ongoing |
| 3.11. WASTE MANAGEMENT | | | |
| Adhere to waste management principles of avoidance, minimisation, reuse, recycling, treatment and correct disposal methods. Define and implement control measures to prevent inappropriate storage, treatment and construction of waste. | As per construction phase. | Contractor/ EREP & EM | Ongoing |

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|---|---|--------------------------|---------|
| 3.12. FIRES | | | |
| Preserve grazing land and natural habitats. Protect private property. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.13. COMPLIANCE MONITORING | | | |
| 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 bodies up to date with the development. | As per construction phase. | Contractor/ EREP & EM | Ongoing |
| 3.14. REHABILITATION PLANNING AND IMPLEMENTATION | | | |
| Planning and implementation of rehabilitation associated with the project. | Operational activities are to be carried out with the objective of meeting Kolomela Mine's final rehabilitation and closure objectives. | Contractor/ EREP & EM | Ongoing |
| | Opportunities for rehabilitation during the operational phase are to be identified and rehabilitation is to be implemented as soon as possible. | Contractor/ EREP & EM | Ongoing |

4. Decommissioning & Closure

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|---|-----------------------|---|
| 4.1. PUBLIC RELATIONS | | | |
| Maintain transparent communication with project affected community. | As per operational phase. | EM | Ongoing, quarterly, during decommissioning phase. |
| 4.2. SOIL | | | |
| Optimise availability and viability of soil as growth medium to enable sustainable vegetation cover after rehabilitation. Maximise topsoil availability for rehabilitation at the completion of operational phase. | Fertility of topsoil needs to be investigated by a soil specialist and recommendations made by the specialist implemented. | Contractor/ EREP & EM | During decommissioning phase. |
| | Suitable growth medium is to be placed on waste rock dump surface and disturbed areas (150 mm to 300 mm layer). Where insufficient topsoil is available growth medium will be provided by chemical modification of plant discard material | Contractor/ EREP & EM | During decommissioning phase. |
| | Measures to re-establish naturally occurring vegetation on the surface of the waste rock dump must be implemented. | Contractor/ EREP & EM | Ongoing |
| | Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. | EM | Annually for 3 years post closure |
| 4.3. TOPOGRAPHY | | | |
| Optimise final landform. | Side slopes of the waste rock dump are to be shaped to have a slope ratio of 3:1 or flatter. | Contractor/ EREP & EM | During decommissioning |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|---|-----------------------|--|
| | | | phase. |
| 4.4. LAND USE | | | |
| Optimise final landform. | All land is to be returned to its pre-mining land capability where possible or as close as possible. | Contractor/ EREP & EM | During decommissioning phase. |
| 4.5. NOISE | | | |
| Develop and implement appropriate noise control measures. | As per operational phase. | Contractor/ EREP & EM | Ongoing |
| 4.6. AESTHETICS | | | |
| Develop and implement appropriate dust control measures. | Assess residual post-closure impacts and develop measures to reduce residual impacts. | Contractor/ EREP & EM | Reviewed annually and updated as required. |
| 4.7. EROSION AND SEDIMENTATION CONTROL | | | |
| Develop and implement appropriate erosion control measures. | Inspect rehabilitated areas on an annual basis for at least 3 years post closure to repair any erosion gullies. | Contractor/ EREP & EM | Annually, post closure |
| 4.8. WATER QUALITY MANAGEMENT | | | |
| Protection of surface and groundwater resources. | Adequate surface water management infrastructure to be in place to divert clean water around the waste rock dump, as well as intercept contaminated run-off from the waste rock dump. | Contractor/ EREP & EM | Ongoing until rehabilitation is completed. |
| | Allowance is to be made at closure for storm water management to prevent erosion and to mimic the natural pre-mining surface runoff as closely as possible. | Contractor/ EREP & EM | Ongoing until rehabilitation is completed. |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|--|--|-------------------------------|---|
| 4.9. BIODIVERSITY | | | |
| Re-establish usable habitat on areas affected by the project. | Implement measures to re-establish naturally occurring vegetation on the surface of the waste rock dump. | Contractor/ EREP & EM | Throughout decommissioning phase. |
| | Naturally occurring indigenous plant species are to be used in the re-vegetation. | Contractor/ EREP & EM | Throughout decommissioning phase. |
| | Remove alien invasive species from rehabilitated area. | EM | Throughout decommissioning phase. |
| | To ensure successful rehabilitation, an ecologist is to be appointed to conduct annual inspections of rehabilitated areas for the first three years after completion of rehabilitation, or until closure is obtained for the site. | Kolomela Mine Management & EM | Following rehabilitation. |
| 4.10. INCIDENT REPORTING AND MANAGEMENT | | | |
| Adequately assess root cause of incidents in order to develop and implement appropriate corrective actions and prevent incidents from recurring. | As per operational phase. | EM | Throughout decommissioning phase. |
| 4.11. COMPLIANCE MONITORING | | | |
| Provide information and ensure early detection of the impact of the decommissioning activities upon the receiving environment. | The EM is to monitor EMP compliance and assist with rehabilitation queries. | EM | Reviewed annually and updated as required |
| Recognise environmental changes in order to enable | The EM is to develop a comprehensive action plan to implement | EM | Reviewed annually |

| OBJECTIVES | MANAGEMENT ACTION | RESPONSIBILITY | TIME PERIOD FOR IMPLEMENTATION |
|---|---|----------------|---|
| analysis of their cause. Maintain accurate records and transparent communication with regulatory bodies. Keeping regulatory bodies up to date with the development. | rehabilitation measures according to the EMP. | | and updated as required |
| 4.12. POST CLOSURE MAINTENANCE | | | |
| Environmental monitoring and maintenance post closure. | Environmental monitoring and maintenance to continue for at least 20 years after closure, or until an acceptable post closure steady state has been obtained. | EM | Reviewed annually and updated as required |

Appendix H

Other Information

1. BIBLIOGRAPHY

Information for this Basic Assessment Report (BAR) was gathered from the review of specialist reports prepared for this project as well as previous specialist reports based on studies undertaken for the Environmental Impact Assessment process conducted for the development of Kolomela Mine. Table 1-1 below indicates the documents that were examined in preparing this BAR:

Table 1-1: Specialist Reports reviewed for the preparation of this Basic Assessment Report

| Section of BAR | Source of Information |
|---|---|
| Section B1: Gradient of the Site | <ul style="list-style-type: none"> Synergistics Environmental Services (2010) The construction and Operation of an Iron Ore Mine near Postmasburg, Northern Cape: Environmental Impact Assessment and Environmental Management Programme Report. Google Earth, aerial imagery and site observations. |
| Section B2: Location in Landscape | <ul style="list-style-type: none"> Synergistics Environmental Services (2010) The construction and Operation of an Iron Ore Mine near Postmasburg, Northern Cape: Environmental Impact Assessment and Environmental Management Programme Report. Google Earth, aerial imagery and site observations. |
| Section B3: Groundwater, Soil and Geological Stability of the Site | <ul style="list-style-type: none"> Kolomela Mine: Yearly Hydro-census data and water quality results. Clean Stream Groundwater Services (2005) Sishen South Iron Ore Project Report on Geohydrological Investigation as part of the EMPR. Synergistics Environmental Services (2010) Kolomela Mine Integrated Water and Waste Management Plan (IWWMP). Synergistics Environmental Services (2010) The construction and Operation of an Iron Ore Mine near Postmasburg, Northern Cape: Environmental Impact Assessment and Environmental Management Programme Report. Synergistics Environmental Services (2005) Report on Sishen South Baseline Soil Survey of the farms Kameelhoek, Welgevonden, Olyfontein, Ploegfontein, Leeufontein, Klipbankfontein, Kapstevl and Wolhaarkop. |
| Section B4: Groundcover | <ul style="list-style-type: none"> OmniEko (2014) Plant specialist report: Expansion of existing waste rock dump (19.9 ha) at Kapstevl Pit, Kolomela Mine. |
| Section B5: Land Use Character of Surrounding Area | <ul style="list-style-type: none"> Synergistics Environmental Services (2010) The construction and Operation of an Iron Ore Mine near Postmasburg, Northern Cape: Environmental Impact |

| Section of BAR | Source of Information |
|--|--|
| | <p>Assessment and Environmental Management Programme Report.</p> <ul style="list-style-type: none"> Google Earth, aerial imagery and site observations. |
| Section B6: Cultural /Historical Features | <ul style="list-style-type: none"> Morris, D. (2005) Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevel, west of Postmasburg, Northern Cape. Morris, D. (2005) Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevel, west of Postmasburg, Northern Cape. Dr U KÜSEL, 2011: Heritage Management Plan for Kolomela Mine In the Postmasburg District Municipality of the Northern Cape Province. Dr U KÜSEL, 2011: Phase 2 documentation of architectural elements on the farms Leeuwfontein, Kapstevel, Welgevonden and Strydfontein in the Postmasburg district municipality of the Northern Cape Province. Maria van der Ryst, 2011: Specialist report on the Stone Age and other heritage resources at Kolomela, Postmasburg, Northern Cape. |
| Section D: Impact Assessment | <p>Reports reviewed for this section are presented below under the environmental aspect it relates to:</p> |
| Air Quality | <ul style="list-style-type: none"> Airshed Planning Professionals (2010); Kolomela mine Air Quality Impact Assessment and Management plan based on the current mine plan. Kolomela Mine PM10/2.5 Monitoring results 2010-present. Kolomela Mine Dust fallout Monitoring results 2010-present. Airshed Planning Professionals (2014) Specialist Opinion on the Potential Changes in Air Quality and Noise Impacts Associated with the Extension of the Kolomela Mine Kapstevel Waste Rock Dump. Report Ref: 13SLR22/13SLR23. |
| Geology and Soils | <ul style="list-style-type: none"> Synergistics Environmental Services (2010) The construction and Operation of an Iron Ore Mine near Postmasburg, Northern Cape: Environmental Impact Assessment and Environmental Management Programme Report. |
| Surface Water | <ul style="list-style-type: none"> BVI Consulting Engineers, 2010: Kolomela Mine Storm water Management |

| Section of BAR | Source of Information |
|-------------------------------------|--|
| | <p>Plan.</p> <ul style="list-style-type: none"> • Various 1:100 and 1: 50 flood line assessment. |
| Land Capability and Land Use | <ul style="list-style-type: none"> • Agricultural Research Council (GIS Data). • South African National Biodiversity Institute (SANBI) GIS META DATA. • Villjoen and associated (2006) Sishen South baseline soil survey of the farms Kameelhoek, Welgevonden, Olynfontein, Ploegfontein, Leeuwfontein, Klipbankfontein, Kapsteevel and Wolhaarkop. |
| Biodiversity | <ul style="list-style-type: none"> • Vegetation monitoring on the property of the Sishen South (Kolomela) mine, Postmasburg - 2011/12 season. • Vegetation diversity at Kolomela Mine, Postmasburg (2013). • OmniEko (2014) Plant specialist report: Expansion of existing waste rock dump (19.9 ha) at Kapsteevel Pit, Kolomela Mine. |
| Noise | <ul style="list-style-type: none"> • Noise Impact Assessment undertaken for Kolomela Mine. |
| Cultural Heritage | <ul style="list-style-type: none"> • As for Section B6 |
| Socio-Economics | <ul style="list-style-type: none"> • Kolomela Mine SEAT report, 2011. • Updated Social Impact Assessment for Kolomela Mine, 2010. • Golder Associates, 2005: Sishen South Socio-Economic Impact Assessment. • Kolomela Stakeholder Management Toolkit and • Kolomela Community Engagement Plan. |