



**mineral resources**

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

# **O'OKIEP DUMPS INVESTIGATION**

**DRAFT FOR COMMENT**

## **BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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<b>FILE REFERENCE NUMBER SAMRAD:</b>	<b>NC30/5/1/1/2(00025)BP</b>

**April 2019**  
**Report #: 2783/D-BAR**



## IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

**It is therefore an instruction that** the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

**It is furthermore an instruction that** the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

## **Objective of the basic assessment process**

The objective of the basic assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:
  - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  - (ii) the degree to which these impacts—
    - (aa) can be reversed;
    - (bb) may cause irreplaceable loss of resources; and
    - (cc) can be managed, avoided or mitigated;
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
  - (i) identify and motivate a preferred site, activity and technology alternative;
  - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
  - (iii) identify residual risks that need to be managed and monitored.

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## PART A

### SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

#### 1 Contact Person and correspondence address

##### 1.1 Details of the EAP

Name of the Practitioner: Craig Donald  
Tel No.: 021 854 4260  
Fax No. : 021 854 4321  
E-mail address: craig@siteplan.co.za

##### 1.2 Expertise of the EAP

**The qualifications of the EAP**  
(with evidence).

Refer Appendix 1.

**Summary of the EAP's past experience.**

(In carrying out the Environmental Impact Assessment Procedure)

Refer Appendix 1.

#### 2 Location of the overall activity

This sampling programme consists of sampling at three main dump locations (Okiep Dump, Carolusberg Leachate Dump and Carolusberg Tailings Dumps) and the sampling consists of a combination of Reverse Circulation Drilling and excavator dug Trial Pits.

Farm Name:	<b>Okiep Main Section: Brakfontein 133 Remainder</b> <b>Okiep Section 2: Brakfontein 133/9</b> <b>Okiep Section 3: Brakfontein 133 /16</b> <b>Carolusberg Leachate Dump: Melkboschkuil 132/1</b> <b>Carolusberg Tailings Dump:</b> <b>1) Melkboschkuil 132/1</b> <b>2) Melkboschkuil 132/3</b>	
Application area (Ha)	<b>Section</b>	<b>Area (ha)</b>
	Okiep Main Section	57.3194ha
	Okiep Section 2	1.017ha
	Okiep Section 3	1.1381ha
	Carolusberg Leachate Dump	7.5278ha
	Carolusberg Tailings Dump	82.6167ha
	<b>Total</b>	<b>149.6190ha</b>
Magisterial district:	<b>Namaqualand</b>	
Distance and direction from nearest town:	<b>Okiep Dump located immediately north of Okiep town</b> <b>Carolusberg Leachate Dump located 400m south of Carolusberg</b> <b>Carolusberg Tailings Dump located ±3km south of Carolusberg</b>	



21 digit Surveyor General Code for each farm portion:	<b>Section</b>	<b>Farm</b>	<b>21 Digit Code</b>
	Okiep Main Section	Brakfontein 133 Remainder	C05300000000013300000
	Okiep Section 2	Brakfontein 133/9	C05300000000013300009
	Okiep Section 3	Brakfontein 133 /16	C05300000000013300016
	Carolusberg Leachate Dump	Melkboschkuil 132/1	C05300000000013200001
	Carolusberg Tailings Dump	Melkboschkuil 132/1	C05300000000013200001
	Carolusberg Tailings Dump	Melkboschkuil 132/3	C05300000000013200003
Locality map	<b>Attach a locality map at a scale not smaller than 1:250000 and attach as Appendix 2.</b>		
Description of the overall activity.	(Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity). <b>Sampling of dumps in existing approved Mining Right area</b>		

### 3 Locality map

(show nearest town, scale not smaller than 1:250000).

Refer Figure 1 overleaf.

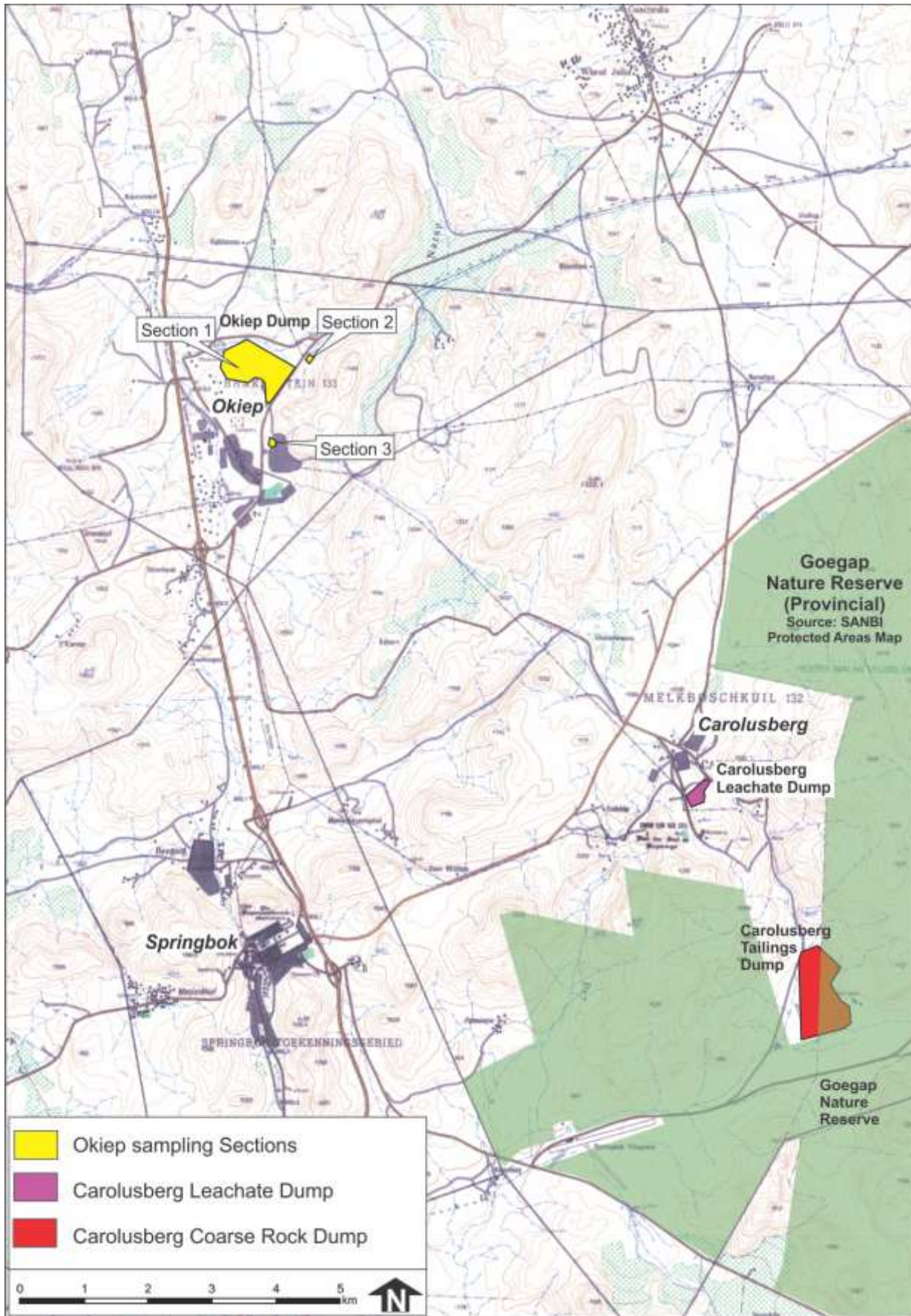


Figure 1: Locality Plan

**Note:** The proclaimed Goegap Reserve boundary crosses the Carolusberg Tailings Dump (shaded red in the figure above). However, the actual physical fence of the reserve skirts the eastern edge of the dump.

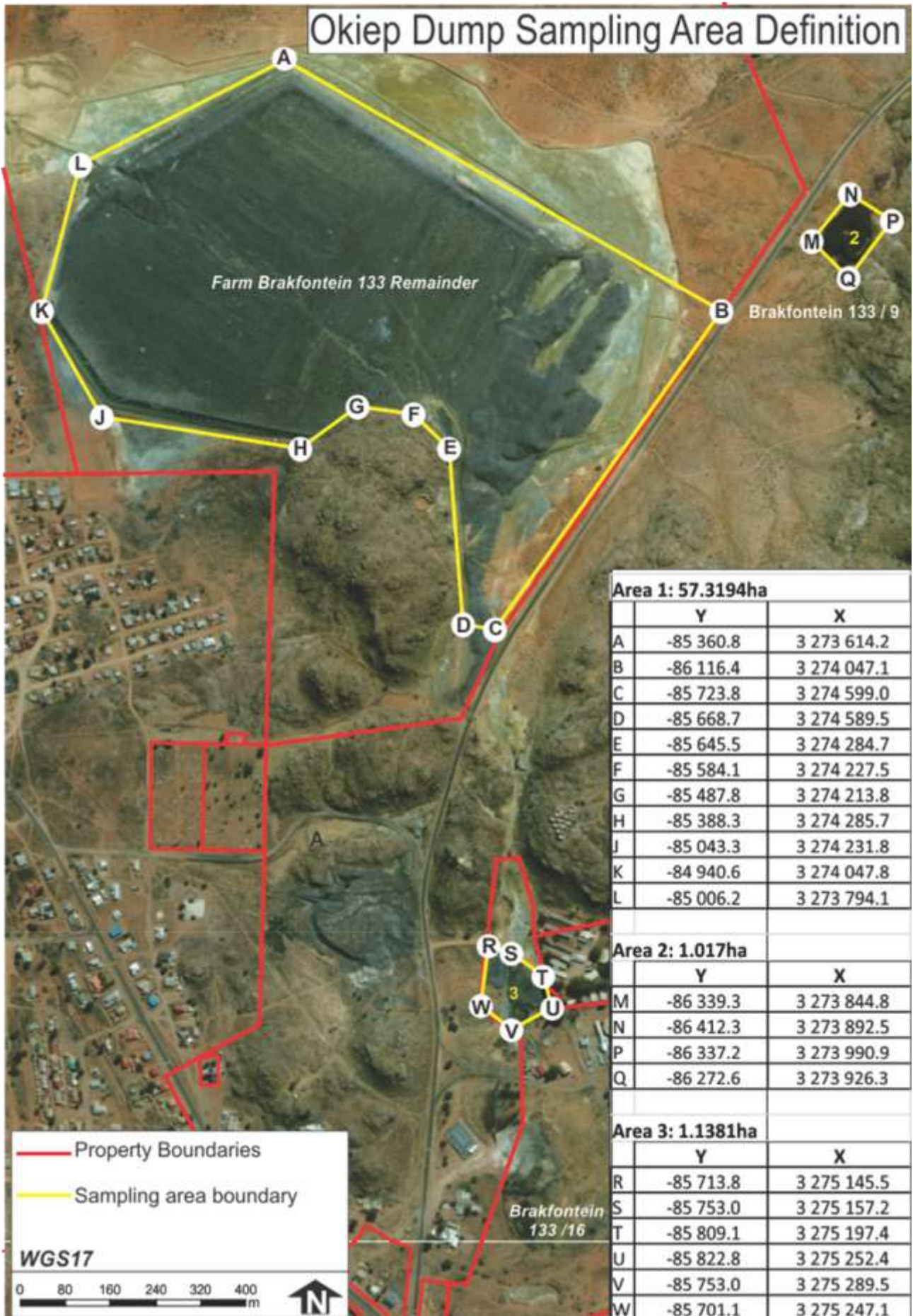


Figure 2: Detail locality of Okiep dumps under application

# Carolusberg Leachate Dump Sampling Area Definition



Figure 3: Detail locality of Carolusberg Leachate Dump

# Carolusberg Tailings Sampling Area Definition

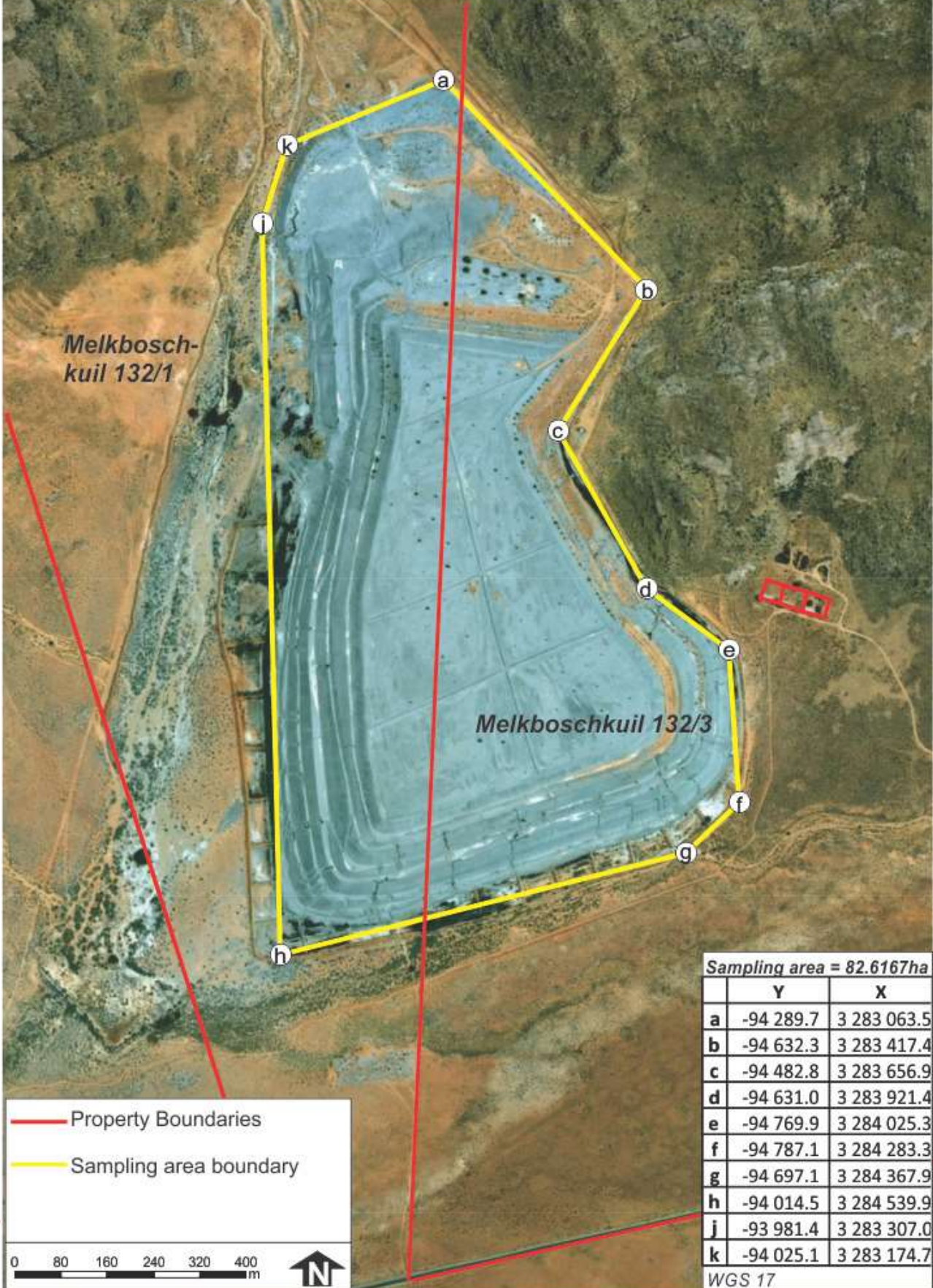


Figure 4: Detail Locality of Carolusberg Tailings Dump

## 4 Description of the scope of the proposed overall activity

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site

### 4.1 Listed and specified activities

#### 4.1.1 In table format

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m <sup>2</sup> )	LISTED ACTIVITY (Mark with an X)	LISTING NOTICE (GNR 983, GNR 984 or GNR 985, as amended 2017)	WASTE MANAGEMENT AUTHORISATION (Mark with an X)
<b>Prospecting Right – Does not apply</b>	This is sampling by the mining company in an existing Mining Authorisation area.			
<b>1. ESTABLISHMENT ACTIVITIES</b>				
1.1. Provide chemical toilets for staff <sup>1</sup>	3m <sup>2</sup>			
1.2. Conduct Environmental Induction training to staff	All staff members			
1.3. Collation of all available information & final planning				
1.4. Conclude final agreements with contractors				
<b>2. OPERATIONAL PHASE ACTIVITIES</b>				
2.1. Reverse Circulation drilling (wet or dry): <ul style="list-style-type: none"> <li>Okiep: ± 22 sites.</li> <li>Carolusberg Leachate Dump: ±9 sites</li> <li>Carolusberg Tailings Dump: ± 24 sites</li> </ul> Max 25m <sup>2</sup> disturbance per site. <i>Preliminary</i> work flow as follows:	±1 375m <sup>2</sup>			X
2.1.1. Remove cover material from drilling site on dump				
2.1.2. Dig and line small reservoir in case of wet drilling (if contemplated)				
2.1.3. Conduct drilling				
2.1.4. Collect and bag samples				
2.1.5. Backfill small reservoir (if applicable) and re-spread cover material				
2.1.6. Note that access will simply entail use of existing roads and tracks to the dump surface and driving across dump surface.				

<sup>1</sup> Chemical toilet chosen over toilet to septic tank given the fairly long distances covered during prospecting right period. The chemical toilet is fully mobile.

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m <sup>2</sup> )	LISTED ACTIVITY (Mark with an X)	LISTING NOTICE (GNR 983, GNR 984 or GNR 985, as amended 2017)	WASTE MANAGEMENT AUTHORISATION (Mark with an X)
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbances per hole.	Max 600m <sup>2</sup>			X
2.2.1. Remove and stockpile cover material if applicable				
2.2.2. Dig trial pit				
2.2.3. Take sample for processing and testing off site				
2.2.4. Backfill with remaining material				
2.2.5. Shape and cover (if applicable)				
2.3. Grinding of sample material to required grading (in laboratory off site)				
2.4. Testing of material (off site) (probably through leaching)				
2.5. Use of <u>existing</u> access roads				
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>				
3.1. Remove all mobile equipment and toilet structures from site.		X	GNR983: Activity # 22. Only applies at time of closure/ decommissioning	
3.2. Ensure any unrehabilitated disturbed areas are raked (by hand)		X	GNR983: Activity # 22. Only applies at time of closure/ decommissioning	
<b>4. AFTERCARE PERIOD</b>				
4.1. Conduct final performance assessment				
4.2. No Closure application will be required				

#### 4.1.2 In word format

##### GNR983: Activity # 22. Only applies at time of closure/ decommissioning

The decommissioning of any activity requiring –

- (i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or
- (ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure;

but excluding the decommissioning of an activity relating to the secondary processing of a –

- (a) mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource; or

(b) petroleum resource, including the refining of gas, beneficiation, oil or petroleum products; –  
in which case activity 31 in this Notice applies.

## **4.2 Description of the activities to be undertaken**

(Describe methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

The proposed investigation of the dumps consists of sampling through 2 methods of recovering dump material viz, reverse circulation drilling and trial pitting, according to the following methods:

### **4.2.1 Reverse Circulation drilling (wet or dry):**

- Okiep: ± 22 sites.
- Carolusberg Leachate: ±9 sites
- Carolusberg Tailings Dump: ±24 sites

Max 25m<sup>2</sup> disturbance per site.

Proposed work flow as follows:

1. Remove cover material from drilling site on dump, if required
2. Dig and line small reservoir in case of wet drilling (if contemplated)
3. Conduct drilling
4. Collect and bag samples
5. Backfill reservoir (if applicable) and re-spread cover material

Trial pitting:

Assume 15 holes – Refer figures 5-7 for location of such holes.

Max 40m<sup>2</sup> disturbances per hole.

1. Remove and stockpile cover material if applicable
2. Dig trial pit
3. Take sample for processing and testing off site
4. Backfill with remaining material
5. Shape and cover (if applicable)

### **4.2.2 Access roads:**

Note that access will simply entail use of existing roads and tracks to the dump surface and driving across dump surface.





Figure 5: Okiep Dumps Site Layout Plan

# Carolusberg Leachate Dump Site Layout Plan

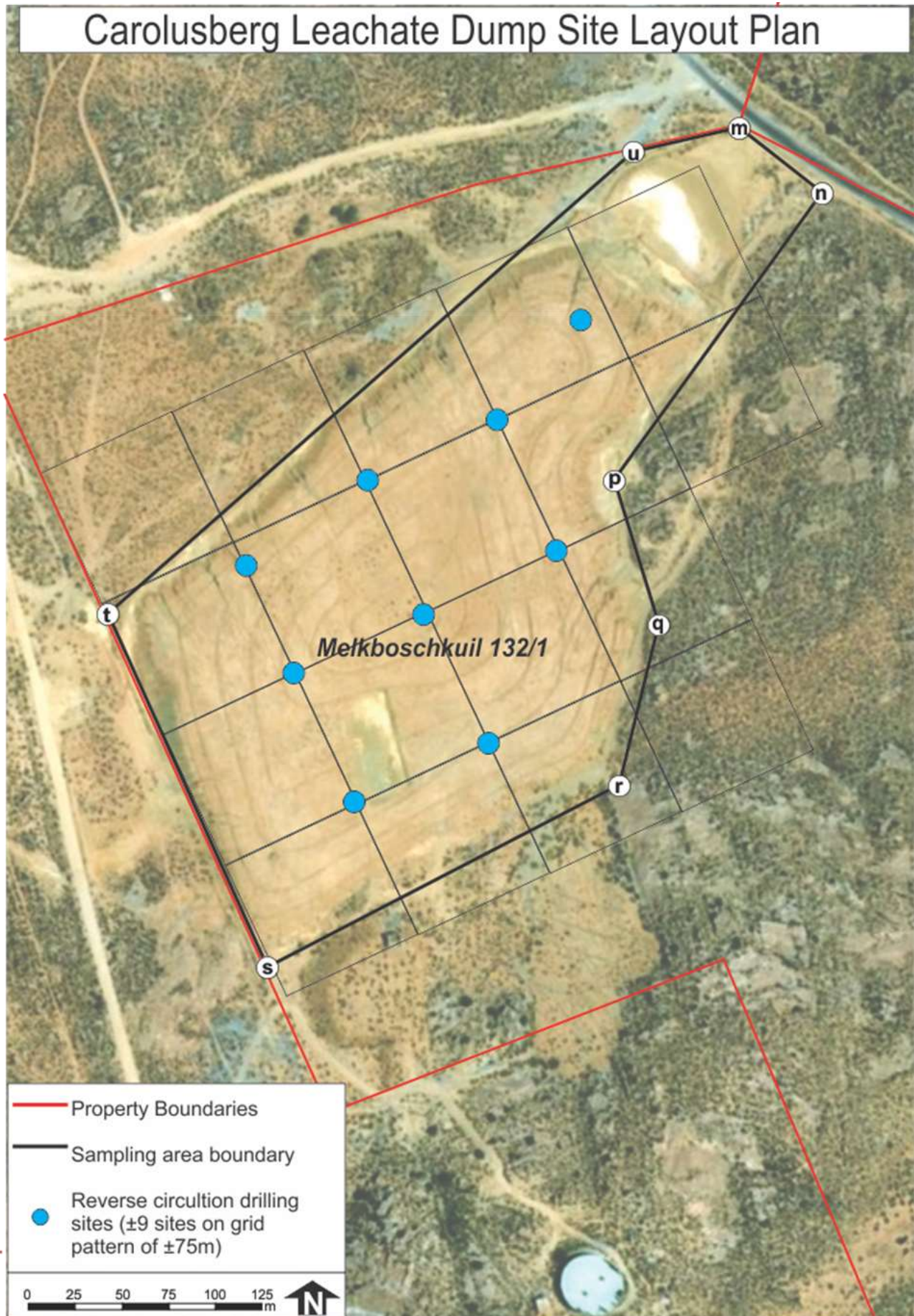


Figure 6: Carolusberg Leachate Dump Site Layout Plan

# Carolusberg Tailings Site Layout Plan

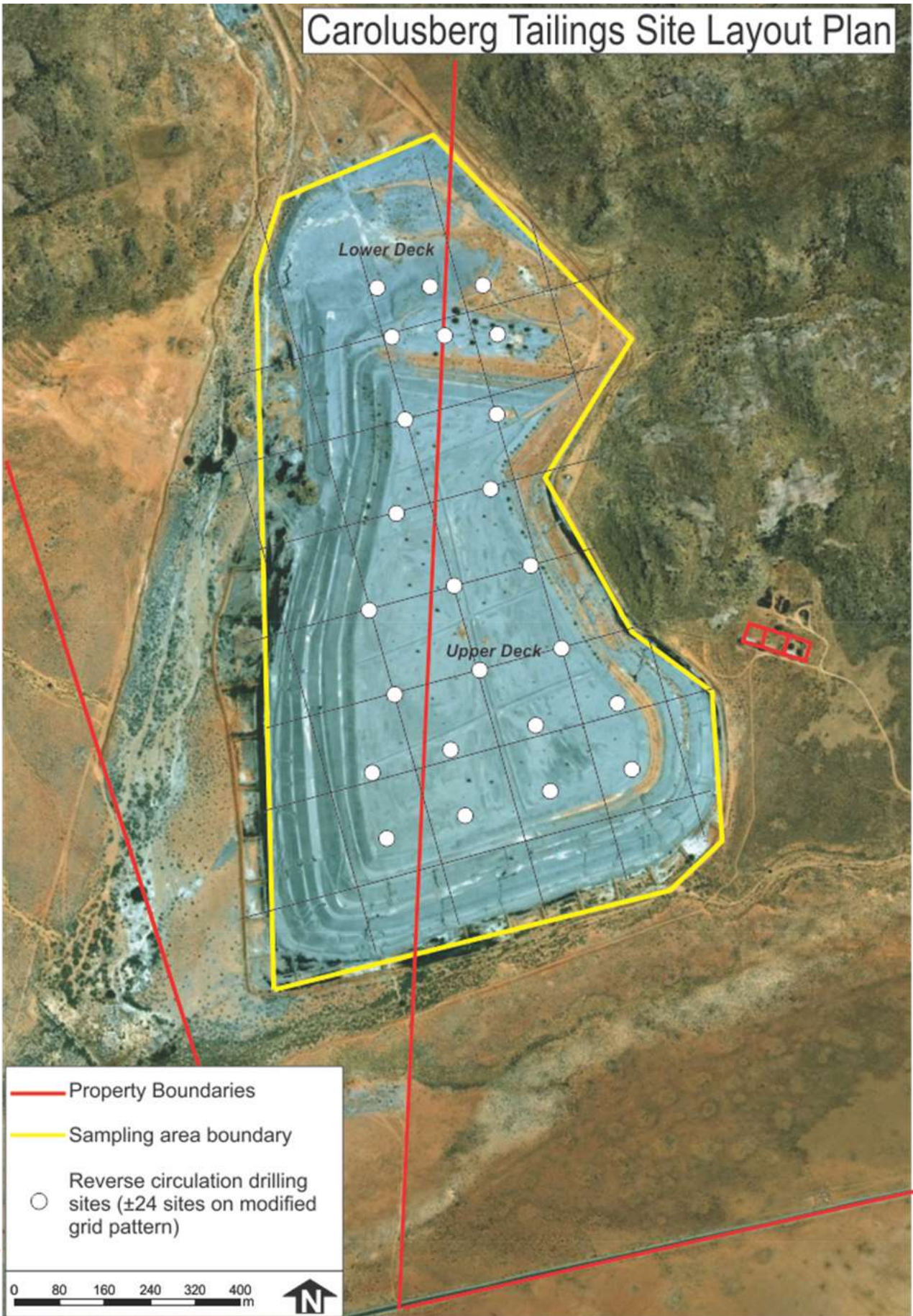


Figure 7: Carolusberg Tailings Site Layout Plan

## 5 Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT (E.g. In terms of the National Water Act: - Water Use License has/has not been applied for).
National Environmental Management Act	Entire document including public participation	Environmental Authorization from DMR as competent authority
Mineral and Petroleum Resources Development Act	Template for BAR	DMR application and process
Northern Cape Mapping of CBA's (from SANBI website)	Vegetation	No vegetation will be disturbed
Municipality's SDF and IDP	Need and Desirability (Para 6.2)	End Use informant
National Water Act	Disturbance of water course	Water Use Licence applications if it were required
National Heritage Resources Act	Para 27.1.2	Lodged on SAHRIS to Heritage Authority
EIA Guideline and Information Document Series' "Guideline on Need and Desirability	Need and Desirability (Para 6.1)	Guideline for information utilized in this document
EIA Guideline 5 Assessing alternatives and impacts	Cumulative Impact Assessment (Para 6.2)	Guideline for information utilized in this document
NEMWA	Application	Application for Waste Licence

## 6 Need and desirability AND Cumulative Impact of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

### 6.1 Need and Desirability Analysis

The 2017 EIA Guideline and Information Document Series' "Guideline on Need and Desirability" has been used to consider this aspect.

Important: The need and desirability should not **only** focus on the actual investigation phase of this operation's short lifespan but also concentrate on the long term / permanent post operation proposal.

As background to the following paragraphs, the **proposed eventual land use for the site depends on the results of the investigation. Two options exist:**

- 1) If the dumps yield good quantity of copper it is most likely that they will be reworked in the future
- 2) If the dumps do not yield sufficient copper in the sampling, then no further action will take place in terms of this application and the dumps will be rehabilitated in terms of the provisions of existing EMPs and / or closure plans whichever is applicable.

Need refers to timing of a project whilst desirability refers to the placing of the activity. The first port of call in considering need and desirability is a determination of how the proposed project fits in with the Municipal Integrated Development Plan (IDP), Zoning Plan in this case and the Spatial Development Framework (SDF). The following is noted:

The SDF does contain a few references to mining and acknowledges the role mining plays in the economy:

Due to huge downscaling in the mining sector, the unemployment rate in this sector has increase over the past few years. A number of mines have however reached the end of their economic life resulting in them closing down and this has had a huge negative impact on the economy and social dislocation.

There is a concentration of minerals around the Springbok area, as well as in a broad band along the south of the Orange River. Although many of these sources as being depleted, there is still plenty occurrences that can be exploited and this should be considered for small scale mining. The various larger concentrations of mineral deposits that can be found in the area include Diamonds, Copper, Uranium, Potash, Zinc and Beryllium.

Furthermore, the SDF actively promotes mining in their preferred “Future Scenario”:

People in the region will benefit from local production and minerals in the area and everyone in the region will have a job and a good life.

This scenario further states that the opportunities presented by the coast line, the Orange River, the mineral deposits and the natural and agricultural land will be exploited in a meaningful and sustainable manner to benefit the local communities and future generations.

And under goals,

To promote land utilisation and development opportunities, land ownership and access to quality habitable and farm land, for local beneficiation in terms of farming, cultivation, eco- tourism and possible mining

The SDF does not have a specific zone for these dumps. However, the CBA mapping (2016) for the Northern Cape (Refer Figure 10) does show that none of the sites lie in either CBA 1 or CBA 2 or ESA. However, the eastern portion of the Carolusberg Fine Tailings Dumps does apparently lie within the formally protected area of Goegap Nature Reserve. This will be ratified and if necessary, the plan will be modified accordingly to ensure no work takes within the Provincial Nature Reserve place during this investigation.

The two vegetation biomes in which the investigations are planned are the Namaqualand Blomveld and the Namaqualand Klipkoppe Shrubland, neither of which are listed as Critically Endangered, Endangered or Vulnerable in terms of NEMBA. The sites are in any event devoid of any natural vegetation.

Furthermore, the sites do lie within the “Greater Richtersveld” Geographical Priority Area of SKEP, but the sites are completely devoid of natural vegetation.

The EIA Guideline and Information Document Series’ “Guideline on Need and Desirability” dated 2017 has been used to consider this aspect.

The following tables are from the published 2017 Guideline on Need and Desirability

Securing ecological sustainable development and use of natural resources

1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?		
1.1.	How were the following ecological integrity considerations taken into account:	
1.1.1.	Threatened Ecosystems	<p>The important point is that none of the dumps under investigation have an natural vegetation remnant. However in terms of regional planning and mapping the following is relevant and was considered / acknowledged:</p> <ul style="list-style-type: none"> <li>• The sites are not located within in any CBA or ESA</li> <li>• The original pre-dumping vegetation biomes are not classified as critically endangered, endangered or vulnerable</li> <li>• The site is located within the “Greater Richtersveld” SKEP Geographical Priority Area</li> <li>• The eastern portion of the Carolusberg Fine Tailings Dumps does apparently lie within the formally protected area of Goegap Nature Reserve. This will be ratified and if necessary, the plan will be modified accordingly to ensure no work takes within the Provincial Nature Reserve place during this investigation</li> </ul>
1.1.2.	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	
1.1.3.	Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”),	
1.1.4.	Conservation targets.	The vegetation type is <b>not</b> classified as Critically Endangered, Endangered or Vulnerable in terms of NEM: BA. It is classified as Least Threatened. Be that as it may, the conservation target for both the Namaqualand Klipkoppe Shrubland and for Namaqualand Blomveld is 28%. Formal conservation of these vegetation types takes place in the Goegap Nature Reserve, Namaqua National Park and Moedverloren Nature Reserve.
1.1.5.	Ecological drivers of the ecosystem.	The Shrubland contains hardly any alien vegetation and is not subject to agriculture with the main threats/ disturbances being the old mine dumps and disturbances
1.1.6.	Environmental Management Framework	No EMF could be sourced from the Municipality
1.1.7.	Spatial Development Framework, and	The SDF does not have a specific zone for these dumps. However, the CBA mapping (2016) for the Northern Cape (Refer Figure 10) does show that none of the sites lie in either CBA 1 or CBA 2 or ESA. However, the eastern portion of the Carolusberg Fine Tailings Dumps does apparently lie within the formally protected area of Goegap Nature Reserve. This will be ratified and if necessary, the plan will be modified accordingly to ensure no work takes within the Provincial Nature Reserve place during this investigation
1.1.8.	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	None relevant

1.2.	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts	This proposed investigation takes place on existing mine dumps and there is absolutely no threat in any biological sense.
1.3.	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The only real risk of pollution to the site and surrounds is through hydrocarbon pollution. All mitigation and monitoring efforts aimed at minimising or preventing any negative impacts are addressed in the EIA/EMP section of this document which contains full Hydrocarbon policy.
1.4.	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Minimal waste is generated at this site. The waste which is generated will be transported to the applicant head office site and disposed of in terms of their waste stream management. Care must be taken to ensure that no hazardous waste enters this stream.
1.5.	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	This proposed investigation takes place on existing mine dumps and there is absolutely no threat in any landscape or cultural heritage.
1.6.	<p>How will this development use and/or impact on non-renewable natural resources?</p> <p>What measures were explored to ensure responsible and equitable use of the resources?</p> <p>How have the consequences of the depletion of the non-renewable natural resources been considered?</p> <p>What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?</p> <p>What measures were explored to enhance positive impacts?</p>	<p>The planned investigation takes place on existing disused mine dumps and will have no impact on non-renewable resources.</p> <p>In terms of equitable use of the resource, the applicant has met all the legal requirements of the mining charter and in respect of responsible use of the resource, the application is subject to all Environmental legislation and the public participation associated therewith. The application will be subject to input from several commenting authorities.</p>

1.7.	<p>How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?</p> <p>Will the use of the resources and/or impact on the ecosystem jeopardize the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds?</p> <p>What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources?</p> <p>What measures were taken to ensure responsible and equitable use of the resources?</p> <p>What measures were explored to enhance positive impacts?</p>	<p>None.</p> <p>No.</p> <p>NA</p> <p>The applicant has / will continue to meet all the requirements of the Mining Charter.</p>
1.7.1.	<p>Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialized growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p>	<p>The investigation does not exacerbate the increased dependency on increased use of resources to maintain economic growth. This investigation is planned on an existing mine dump</p>
1.7.2.	<p>Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources against a proposed development alternative?)</p>	<p>No natural resources will be utilised or impacted upon.</p>
1.7.3.	<p>Do the proposed location, type and scale of development promote a reduced dependency on resources</p>	<p>No.</p>
1.8.	<p>How were a risk-averse and cautious approach applied in terms of ecological impacts</p>	
1.8.1.	<p>What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p>	<p>None known.</p>
1.8.2.	<p>What is the level of risk associated with the limits of current knowledge?</p>	<p>In respect of the proposed investigation methodology at this site, such risk has been eliminated by incorporation of rehabilitation methodology as an integral part of the process.</p>
1.8.3.	<p>Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>See line item 1.8.2 above.</p>
1.9.	<p>How will the ecological impacts resulting from this development impact on people's environmental right in terms following:</p>	



1.9.1.	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	The negative impacts have been identified in this document. Measures taken to avoid, minimise, manage and remedy negative impacts as well as monitoring are contained in the EIA/EMP section of this document.
1.9.2.	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Proposed measures taken to enhance positive impacts are contained in EIA/EMP section of this document.
1.10.	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socioeconomic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	The economic base in this area was mining. The proposed investigation will not result in any significant impact on the area's current economic base. However, should the investigation yield positive results then the subsequent re-processing of the dumps could result in additional job opportunities.
1.11.	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/ targets/ considerations of the area?	At this stage of the process, it is clear that if all rehabilitation takes place as proposed that there will be no residual impact at all. (In fact, even if rehabilitation does not take place properly, there is still no impact on any natural or built environment)
1.12.	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	It is highly unlikely that the investigation of the sites (within the prescriptions of the document) will result in an impact significant enough to consider the no go option. It is possible that investigation and possible subsequent re-processing could result in the "best practicable environmental option" in terms of ecological considerations but it must be remembered that there are other considerations in respect of the socio-economic environment which also have a bearing.
1.13.	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Cumulative impact is insignificant on all aspects of the ecology (as described in para 6.2).

### Promoting justifiable economic and social development

<b>2. Promoting justifiable economic and social development</b>		
2.1.	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:	
2.1.1.	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	The IDP targets economic growth and makes mention of the decline of mining in the area and the impacts that such decline has had. The IDP and SDF note that the region must diversify their economic base. The proposed development meets targets of the IDP in that it does facilitate development as well as creating jobs (albeit very few and temporary of nature).

2.1.2.	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	Not applicable
2.1.3.	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	This is an existing land use which could be put to better use in future if investigation yields positive results.
2.1.4.	Municipal Economic Development Strategy (“LED Strategy”).	The Municipality, along with many others, suffers from low employment rates and virtually any economic development has the potential for large multiplier effects.
2.2.	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	
2.2.1.	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	The small scale, simple nature of and temporary nature of the proposed development does not lend itself to significant economic development or skills development. So although these factors will occur they will be relatively small. This application is not for Mining Rights and as such does not require the compilation of a Social and Labour Plan, although future applications which come out of this investigation may well require SLP.
2.3.	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities	
2.4.	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	Any impact in this regard will be absolutely insignificant.
2.5.	In terms of location, describe how the placement of the proposed development will:	
2.5.1.	result in the creation of residential and employment opportunities in close proximity to or integrated with each other	NA
2.5.2.	reduce the need for transport of people and goods	NA
2.5.3.	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	NA
2.5.4.	compliment other uses in the area,	Provided rehabilitation occurs as per the EMP section in this document, then there will no negative impact
2.5.5.	be in line with the planning for the area,	Provided rehabilitation occurs as per the EMP section in this document, then there will no negative impact.
2.5.6.	for urban related development, make use of underutilised land available with the urban edge,	Not applicable
2.5.7.	optimise the use of existing resources and infrastructure	Yes

2.5.8.	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	Not applicable.
2.5.9.	discourage "urban sprawl" and contribute to compaction/densification,	Not applicable.
2.5.10.	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	Not applicable.
2.5.11.	encourage environmentally sustainable land development practices and processes	The mine dump is an existing dump and no other placement of activities could be considered.
2.5.12.	take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	The mine dump is an existing dump and no other placement of activities could be considered.
2.5.13.	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	The proposed investigation of the material within the dump does not provide any socio-economic impact (except perhaps to equipment rental company) BUT any future reprocessing of the dump certainly will lead to such socio-economic return.
2.5.14.	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	None.
2.5.15.	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	Not applicable.
2.6.	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1.	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	None Known.
2.6.2.	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	There is no risk to these socio-economic aspects through the proposed investigation at the site.
2.6.3.	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	Not applicable.
2.7.	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following	

2.7.1.	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts	The negative impacts have been identified in part 9 of this document. Measures taken to avoid, minimise, manage and remedy negative impacts are detailed in EIA/EMP section of this document.
2.7.2.	Positive impacts. What measures were taken to enhance positive impacts?	See line item 2.7.1 above
2.8.	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	The impact on natural resources is very low (none) and will be zero in the long term provided all rehabilitation measures are implemented.
2.9.	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations	Not applicable, given the very low negative (if any) impact of socio-economic considerations.
2.10.	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	There is no unfair discrimination against any person as a result of the proposed investigation.
2.11.	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	All legislation has been adhered to.
2.12.	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	All mines(this is within a mining area) are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMR.
2.13.	What measures were taken to:	
2.13.1.	Ensure the participation of all interested and affected parties.	Refer Part 8.2 for description of Public Participation
2.13.2.	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.	Refer Part 8.2 for description of Public Participation
2.13.3.	Ensure participation by vulnerable and disadvantaged persons.	The proposed project will be advertised in 2 x local newspaper and advertised on posters at the suitable locations.

2.13.4.	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	None.
2.13.5.	Ensure openness and transparency, and access to information in terms of the process.	Refer Part 8.2 for description of Public Participation
2.13.6.	Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and,	Refer Part 8.2 for description of Public Participation
2.13.7.	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted.	Refer Part 8.2 for description of Public Participation
2.14.	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	Not applicable to this kind of application
2.15.	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	All mines are subject to Health and Safety legislation (Mine Health and Safety Act 29 of 1996). Such prescriptions are not within the ambit of this document but are strictly monitored by DMR.
2.16.	Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1.	the number of temporary versus permanent jobs that will be created,	The operation will most likely be staffed by existing staff members or short term contractors and no new job positions will be developed. The eventual aim of the program is to possibly reprocess the dumps, where greater impact in this regard will occur.
2.16.2.	whether the labour in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	NA (but definitely yes)
2.16.3.	the distance from where labourers will have to travel,	Staff will be brought to site as required from their existing locations
2.16.4.	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	Very small scale impacts. Job opportunities are also limited.
2.16.5.	the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	The proposed project will not take any jobs away in any other sector (e.g. tourism).

2.17.	What measures were taken to ensure:	
2.17.1.	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Refer Part 8.2 for description of Public Participation which includes all relevant State Departments at all levels of governance
2.17.2.	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures	Not applicable
2.18.	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	Environmental impact has been assessed to be insignificant in all aspects of the environment (provided rehabilitation takes place as per the EIA/EMP). The proposed project is subject to extensive public participation to ensure all public are aware of and have input into the planning and approval process.
2.19.	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The rehabilitation measures proposed are based on decades of experience with this type of operation. The dumps are already in place and this investigation will not result in any residual impact to be managed.
2.20.	What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	In terms of operational control of environmental impact and pollution, the EMP prescribes measures to be put in place to monitor and then mitigate / manage or avoid any known or unexpected impact.
2.21.	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	The only feasible alternative applicable to this application is the no go option.
2.22.	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	The impact of this development is so small that no detailed cumulative impact assessment is deemed necessary. Such detailed analysis would most certainly show that there is no or negligible cumulative impact arising out of this application.

## 6.2 Cumulative Impact Assessment

The assessment of cumulative impacts on a site specific basis is often a complex operation. The aim of this impact analysis is ultimately to determine at which point the combined impacts from several operations (similar or dissimilar) in the area will affect the environment or part thereof to such a negative degree that the project should not be allowed to proceed.

The following is an amended procedure sourced from [http://www.eiatoolkit.ewt.org.za/documents/DEAT/guidelines/ AT EIA Guideline5 Assessing alternatives and impacts.doc](http://www.eiatoolkit.ewt.org.za/documents/DEAT/guidelines/AT_EIA_Guideline5_Assessing_alternatives_and_impacts.doc)

### Types of cumulative impacts

**Additive impact:** Impacts of the same nature from different operations (e.g. excessive groundwater abstraction from several operations in the same area result in a severe drawdown effect)

**Interactive impact:** where a cumulative impact is the result of a combination of different impacts to cause a new kind of impact. This kind of impact can be:

- Countervailing – the net adverse effect is less than the sum of the individual impacts (e.g. pumping clear water into a polluted water resource).
- Synergistic – when the impacts work together to develop a sum of different impacts results in an impact which is greater than the individual impacts.

### Methodology used in assessing cumulative impact/s

- Determine extent of cumulative impacts:
  - Identify potentially significant cumulative impacts associated with the proposed activity
  - Establish the geographic scope of the assessment
  - Establish the timeframe of the analysis
  - Identify other activities affecting the environmental resources of the area
- Describe the affected environment:
  - Characterise the resources identified above in terms of their response to change and ability to withstand stress
  - Define a baseline condition that provides a measuring point for the environmental resources that will be acted upon
- Assess the cumulative impacts:
  - Determine the magnitude or significance of cumulative impacts
- Recommend mitigation measures.

***There is no risk of any negative cumulative impact as a result of this proposed investigation of the materials in the existing dumps.***

## **7 Motivation for the overall preferred site, activities and technology alternative.**

### **7.1 Overall Preferred Site Alternative (Motivation)**

This proposed investigation is in respect of the possible future reprocessing of existing dumps. There can be no alternative sites for these placebound structures.

### **7.2 Technology Alternative selected (Motivation)**

The proposal is to use reverse circulation drilling and trial pitting by excavator. Both these systems allow for the taking of samples. The analysis of these samples is of critical importance to the investigation.

### **7.3 Activity Alternative (Motivation)**

Not applicable.

## **8 Full description of the process followed to reach the proposed preferred alternatives within the site.**

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

### **8.1 Details of the development footprint alternatives considered.**

#### **8.1.1 The location where it is proposed to undertake the activity**

The activities can only be restricted to the upper surface of the dumps.

#### **8.1.2 The type of activity to be undertaken;**

Other methods of investigation include core drilling (not feasible in this type of material) and auger drilling (also results in mixing of samples which could compromise the analysis of the material samples).

#### **8.1.3 The design or layout of the activity**

The selected design is based on a requirement for obtaining the most representative sampling of the material in the dump.

#### **8.1.4 The technology to be used in the activity**

This technology has remained the same for decades and no alternatives can be assessed.

#### **8.1.5 The operational aspects of the activity**

None.

#### **8.1.6 The option of not implementing the activity**

The aspect of no go project goes against the principle of optimization of resource as espoused in the MPRDA and given the absolute lack of impacts, such no go option cannot be considered.



## **8.2 Details of the Public Participation Process Followed**

The process was initiated with the identification of I&AP's using the list included in the DMR template below as a guide. Windeed and landowner knowledge of surrounding landowners was utilised to obtain surrounding landowners details as well as contact information. Other I&AP's were identified because of their position as State Departments, Local Authorities, NGO's or community representation.

All identified parties were initially contacted by telephone as an introduction, to ensure the correct contact details and preferred method of correspondence, whereupon all parties were sent a copy of the draft BAR/EMP with covering letter (see Appendix 2 ).

The broader community was alerted through newspaper advert in 2 newspapers (because it entails NEMWA application) and A2 notices placed near the dumps and in Carolusberg and Okiep - Refer Appendix 2 for copies of these. In addition, the local Ward Councillors were specifically consulted and such consultation will continue.

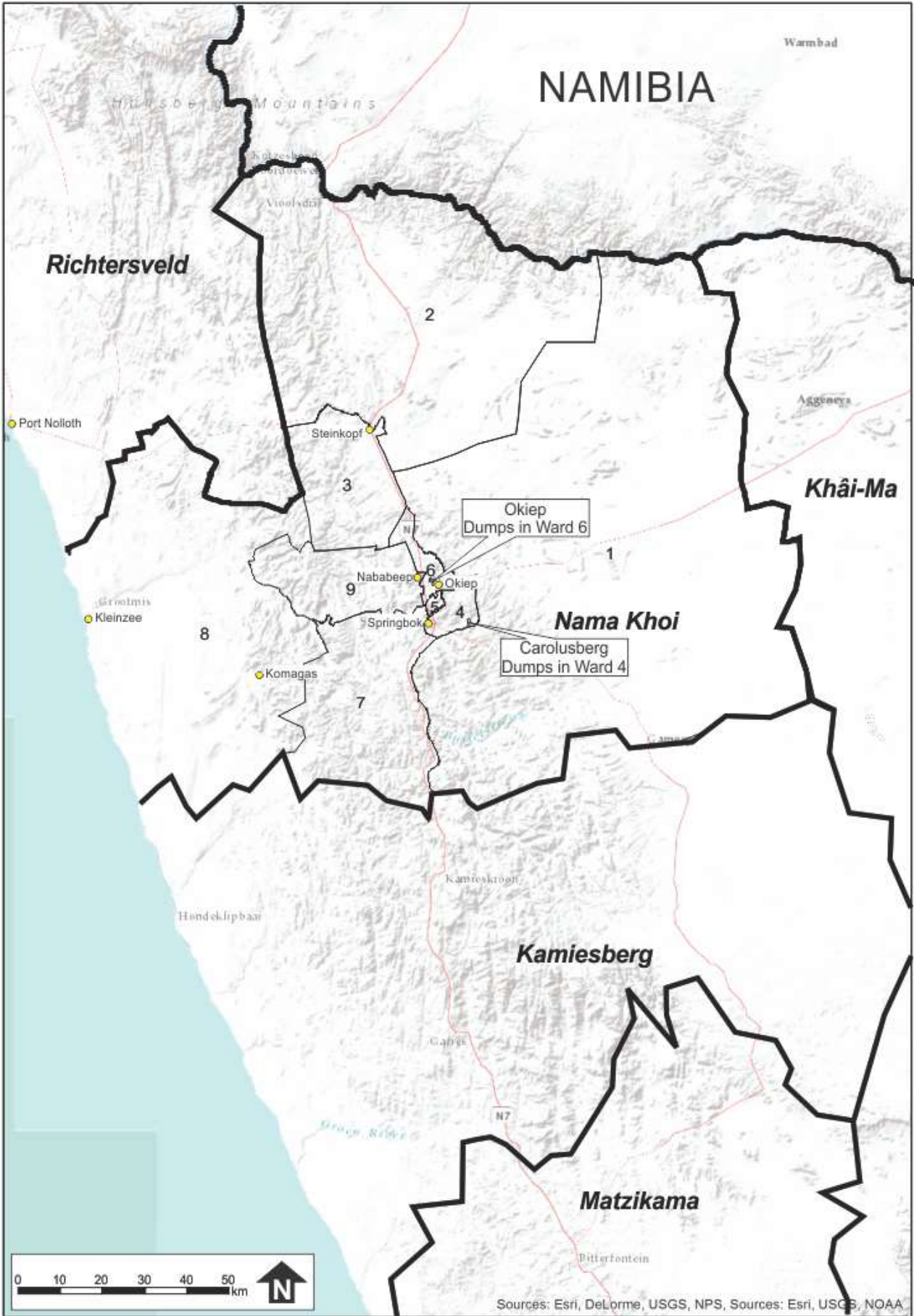


Figure 8: Municipal and Ward Context

### 8.3 Summary of issues raised by I&As

<b>Interested and Affected Parties:</b> List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		<b>Date Comments Received</b>	<b>Issues raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Para in this report where the issues / responses were incorporated.</b>
Landowner: OCC is the landowner and applicant					
Lawful occupier/s of the land	NA				
<b>Landowners or lawful occupiers on adjacent properties</b>					
Goegap Nature Reserve Email: <a href="mailto:maxiejonk@gmail.com">maxiejonk@gmail.com</a> Tel: 027 718 9906	Email				
<b>Municipal Representatives</b>					
Nama Khoi Municipal Manager: 4 Namakwa Street Springbok 8240 Phone: 027 718 8100 Fax: 027 712 1635 Email: <a href="mailto:municipal.manager@namakhoy.gov.za">municipal.manager@namakhoy.gov.za</a> Ms Samantha A Titus	Email				
Note: Nama Khoi Environmental Officer, Ward Councillor Ward 4 & Ward Councillor Ward 6 all care of the Municipal Manager (as per telephone call 4/4/2019)	Care of the MM				
<b>Organs of state and NGO's (Responsible for infrastructure that may be affected Roads, Eskom, Telkom, DWS etc.)</b>					
Department of Environment and Nature Conservation : Northern Cape Private Bag X6120, Kimberley, 8301 Tel 053 807 7300 Head of Department	Reg Mail				
Department of Environment and Nature Conservation : Northern Cape Private Bag X16 Springbok 8240 Tel 053 807 7300 Ms Onwabile Ndzumo	Reg Mail				

<b>Interested and Affected Parties:</b> List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Department of Water and Sanitation: Mr Abe Abrahams: Chief Director: Northern Cape Private Bag X6101 KIMBERLEY 8300 Tel: (053) 830 8800/6 7600 Cell: 082 883 6741 AbrahamsA@dws.gov.za	Reg Mail				
Orange CMA Moses Mahunonyane Louisvale Road Upington 8801 MahunonyaneM@dws.gov.za Cell: 082 805 7553	Reg mail and Email				
Dept. of Agriculture Forestry and Fisheries: Head of Department Mr Thebe Thebe 072 991 8114 tthebe@ncpg.gov.za	Email				
Department of Public Works Ruwayda Baulackay Private Bag X5002, Kimberley, 8300 Tel: 053 838 5202 Cell: 083 459 7602 Email: ruwayda.baulackay@dpw.gov.za	Reg Mail and Email				
<b>Communities</b>					
Community of Springbok and Okiep (Advertised in 2 papers)					
Commission On Restitution Of Land Rights: Regional Land Claims Commission: Northern Cape. Tel: (053) 807 5700 Ryan.oliver@drdlr.gov.za	Email				
<b>Traditional Leaders</b>					
None					
<b>Other Competent Authorities</b>					
SAHRA/HNC Lodgement on Heritage electronic lodging system: SAHRIS	Internet				
DMR: NC Springbok Office	Reg Mail				
<b>OTHER AFFECTED PARTIES</b>					
<b>INTERESTED PARTIES</b>					

## 9 Environmental attributes associated with the alternatives.

### 9.1 *Type of environment affected by the proposed activity.*

(its current geographical, physical, biological, socio- economic, and cultural character).

#### 9.1.1 **Geology**

The dumps are fine tailings dumps of the old copper mines in the case of Okiep and Carolusberg Fine Tailings (as well as in the case of the Carolusberg Leachate Dump). The aim of the study is to determine whether the copper content is sufficient quality/quantity to allow for the reprocessing of the material.

#### 9.1.2 **Topography**

The proposed investigation takes place on the surface of existing mine dumps. It is not natural topography and the surfaces of the two fine tailings dams are completely level whilst the leachate dump has been sloped in an attempt to rehabilitate the dump. The photos hereafter show the topography / shape of these dumps. There will be no impact on the natural topography as a result of this investigation and no impact on the dump topography.

#### 9.1.3 **Visual Impact**

The sites / surfaces of the dumps may be visible to some residences and to seldomly used roads, but the fact is that the visual impact of maximum 2 machines (drill and excavator) in operation on the dump surface represents a very insignificant impact.

#### 9.1.4 **Soil**

No natural soils are in place on the dump surfaces. The dump material will be homogenous in nature throughout the depths of all of these dumps.

#### 9.1.5 **Land Capability / Agricultural potential**

None.

#### 9.1.6 **Natural Vegetation**

Figure 9 shows that the original vegetation biome at the sites was either Namaqualand Klipkoppe Shrubland or Namaqualand Blomveld. Both of these are classified as Least Threatened by Mucina and Rutherford and in terms of NEM:BA.

The sites are not located in any Critical Biodiversity Area or Ecological Support Area.

It is acknowledged that the site lies within the "Greater Richtersveld" Geographical Priority area.

The important point is that the dump surfaces are almost completely devoid of any natural vegetation as can be seen in the photos which follow.

Absolutely no natural vegetation will be disturbed by the proposed activities.



**Photo 1: Middle distance view of the Okiep Fine Tailings Dump from the north**



**Photo 2: The Carolusberg leachate dump from higher lying area to the north. Note that this photo was taken in 2005 and the site looks better than this with less erosion and some revegetation in the foreground**



**Photo 3: Distant view of the Carolusberg Fine Tailings Dump from the hill to the north overlooking one of the concrete capped shafts in the foreground**



**Photo 4: View from atop the Carolusberg Fine Tailings Dump. Note the propagation of some vegetation. These will not be disturbed.**



**Photo 5: View looking NEW from the Goegap Reserve access road of the southern face of the dump**



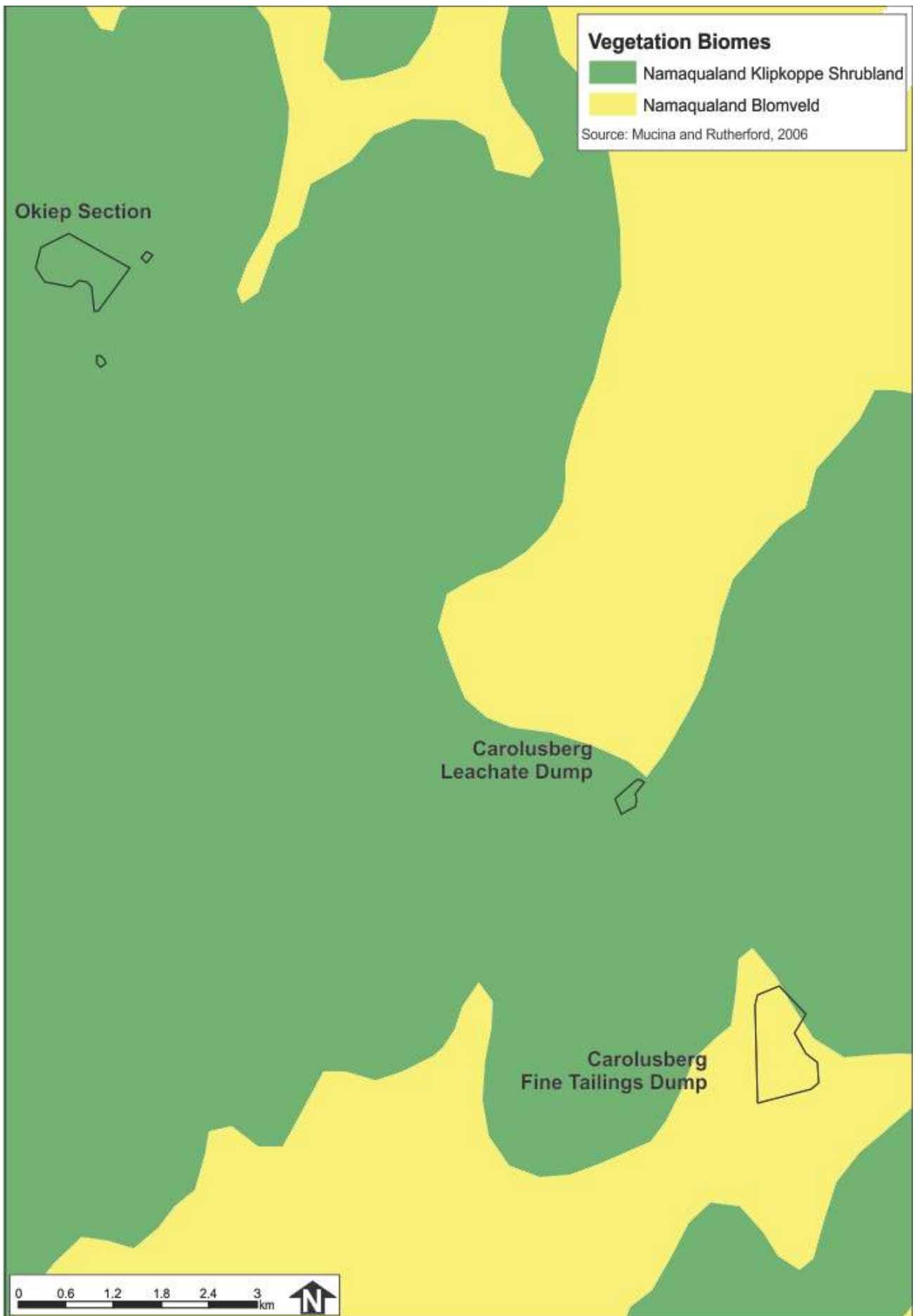


Figure 9: Vegetation biomes

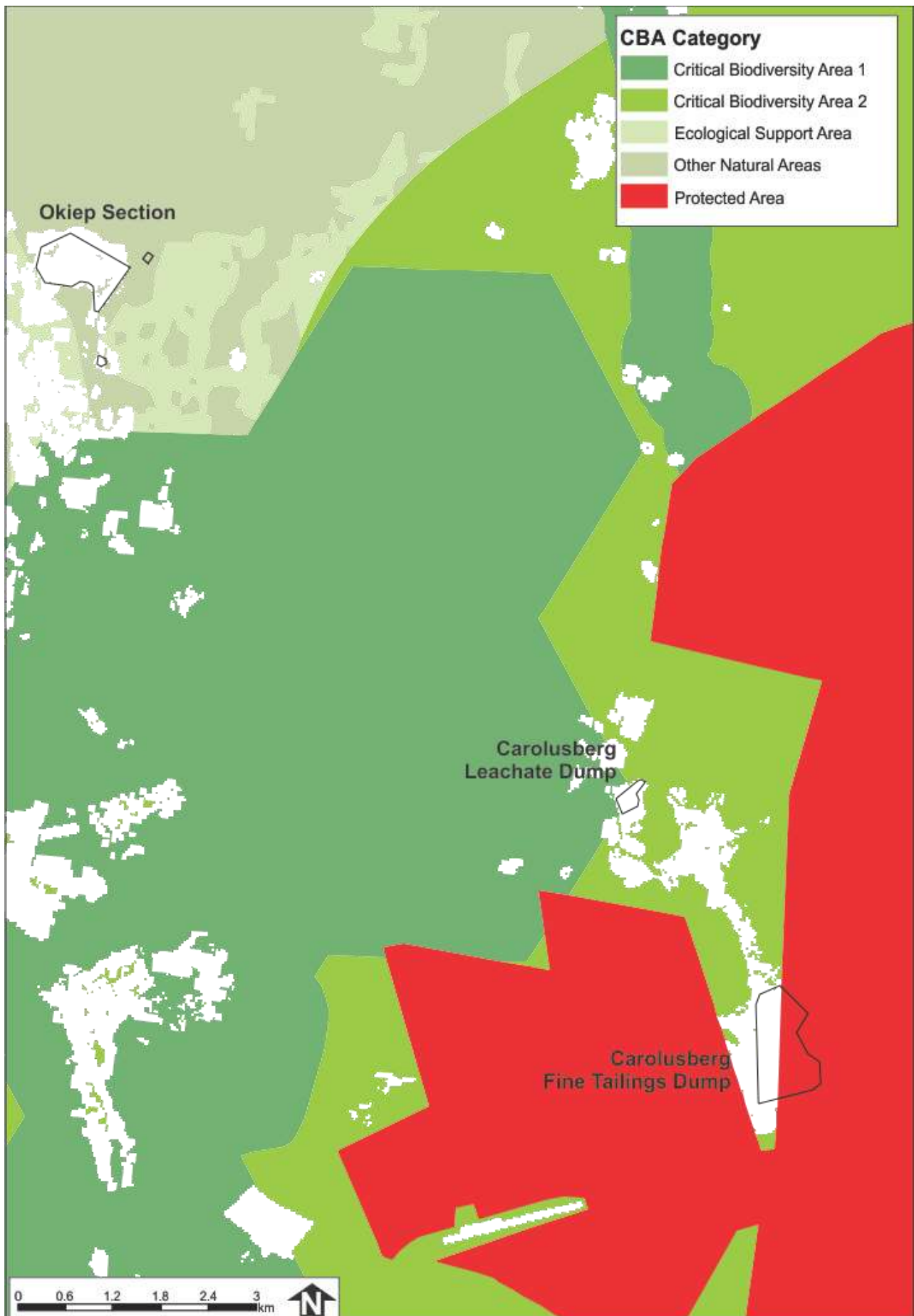


Figure 10: CBA Classification

### 9.1.7 Animal Life

It is possible that some fauna, in the shape of insects and reptiles, do frequent the surface of the dump. The dump however does not support any vegetation which could provide habitat to the naturally occurring species (as is the case surrounding the dumps).

### 9.1.8 Surface Water

No surface water resources will be impacted in any way by the proposed activities.

### 9.1.9 Ground Water

No drilling or digging below natural ground level will take place and as a result, no groundwater model is required.

### 9.1.10 Air Quality (Dust)

Attention is drawn to paragraph 4.8.4 of the extract from SANS regarding recognition that certain enterprises need to operate within “band 3” by virtue of “the practical operation of the enterprise...” provided that the best available control technology is applied for the duration”.

#### “DUST FALL STANDARDS SANS 1929:2004

#### 4.8 Dust Deposition

##### 4.8.1 General

The four-band scale to be used in the evaluation of dust deposition is given in 4.8.2 and target, alert and action levels indicated in 4.8.3. Permissible margins of tolerance are outlined in 4.8.4 and exceptions noted in 4.8.5.

##### 4.8.2 Evaluation Criteria for Dust Deposition

Dust deposition rates shall be expressed in units of  $\text{mg m}^{-2} \text{day}^{-1}$  over a 30-day averaging period. Dust deposition shall be evaluated against a four-band scale as presented in Table 9.

**Table 9 – Four-band scale evaluation criteria for dust deposition**

Band number	Band description	DUSTFALL RATE (D) ( $\text{mg} / \text{m}^2 / \text{day}^1$ 30-day average)	Comment
1	Residential	$D < 600$	Permissible for residential and light commercial.
2	Industrial	$600 < D < 1\ 200$	Permissible for heavy commercial and industrial.
3	Action	$1\ 200 < D < 2\ 400$	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	$2\ 400 < D$	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

#### 4.8.3 Target, Action and Alert Thresholds are given in Table 10

**Table 10 – Target, action and alert thresholds for dust deposition**

Level	DUSTFALL RATE (D) ( $\text{mg} / \text{m}^2 / \text{day}^1$ 30-day average)	Averaging period	Permitted frequency of exceedances
Target	300	Annual	
Action residential	500	30 days	Three within any year, no two sequential months
Action industrial	1 200	30 days	Three within any year, no two sequential months.
Alert threshold	2 400	30 days	None. First exceedance requires remediation and compulsory report to authorities.

#### 4.8.4 Margin of Tolerance

An enterprise may submit a request to the authorities to operate within Band 3 (ACTION Band), as specified in Table 9, for a limited period, providing that this is essential in terms of the practical operation of the enterprise (for example the final removal of a tailings deposit) and provided that the best available control technology is applied for the duration.

No margin of tolerance will be granted for operations that result in dustfall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

#### **4.8.5 Exceptions**

Dustfalls that exceed the specified rates but that can be shown to be the result of some extreme weather or geological event shall be discounted for the purpose of enforcement and control. Such event might typically result in excessive dustfall rates across an entire metropolitan region, and not be localised to a particular operation. Natural seasonal variations, such as dry windy period during the Highveld spring will not be considered extreme events for this definition”

Existing dust sources in this area results from:

- Vehicles on unsurfaced roadways.
- Mining / reprocessing of coarse tailings dumps at Carolusberg.

Potential dust sources at this site will be:

- Vehicle and earthmoving equipment accessing dump surfaces on unsurfaced roadways.
- Drilling is most likely a wet drilling system but may be dry, in which case dust suppression will be fitted to equipment.

#### **9.1.11 Noise**

Existing noise sources in this area results from:

- Traffic on surrounding roads
- General suburban noise (very limited from Okiep and Carolusberg)
- Mining (Reprocessing of coarse tailings dump at Carolusberg)

Potential noise sources arising from this operation:

- Vehicle and earthmoving equipment manoeuvring on surface of dump.
- Use of drill and excavator on surface of dump

## **9.2 Description of the current land uses.**

The current surface of the dumps are completely disused and devoid of natural vegetation. Photos 3-5 shows that some (very minor) revegetation of the dump at Carolusberg has taken place.

The dump surfaces cannot be used for agriculture / grazing.

In terms of surrounding land use, the following applies (Refer Figures 12-14 below).



Figure 11: Okiep Fine Tailings Dam Surrounding Land Use

The Okiep Fine Tailings Dam is located immediately north of the Okiep residential area with the closest residence being located 30m west of the western edge of the dump. Dump A is located too far from any surrounding land user to represent any impact but the Dump B is located just west and below the buildings of FET College and Sedibeng Water Board facility (both of these on OCC owned land). The scale of activities is however so small at this site that it will not represent any

impact of any significance on the users of those buildings. Access to the main dump is from the tar road to the east.

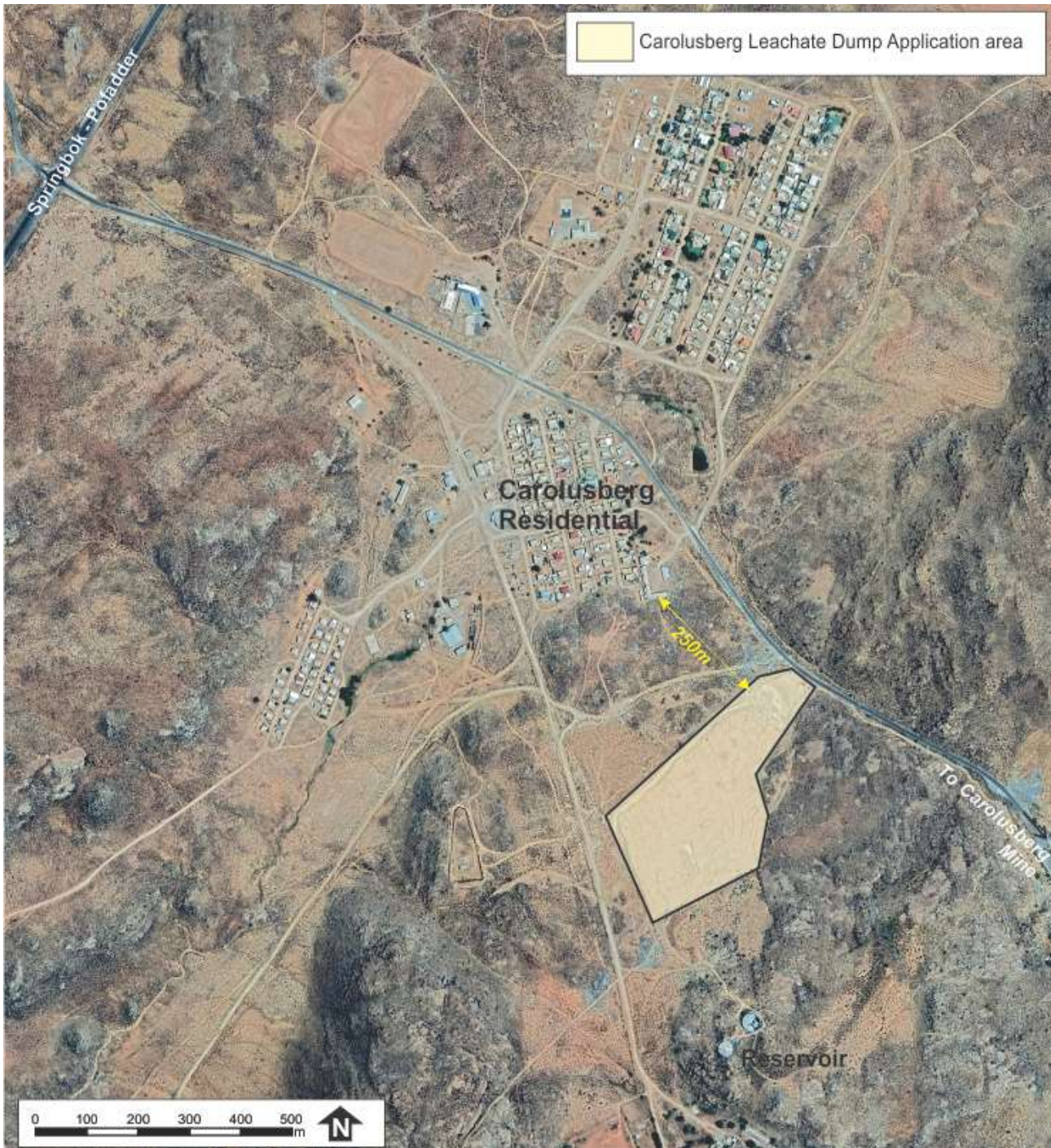


Figure 12: Carolusberg Leachate Dump Surrounding Land Use

The Carolusberg Leachate Dump is located south of the Carolusberg Residential area with the closest structure being the school at 250m north. There is a ridgeline between the school and the dump and there is no possibility of any significant impact in terms of noise, dust or visual intrusion because of the topographical barrier.

Access to this site is from the tar road to the east.

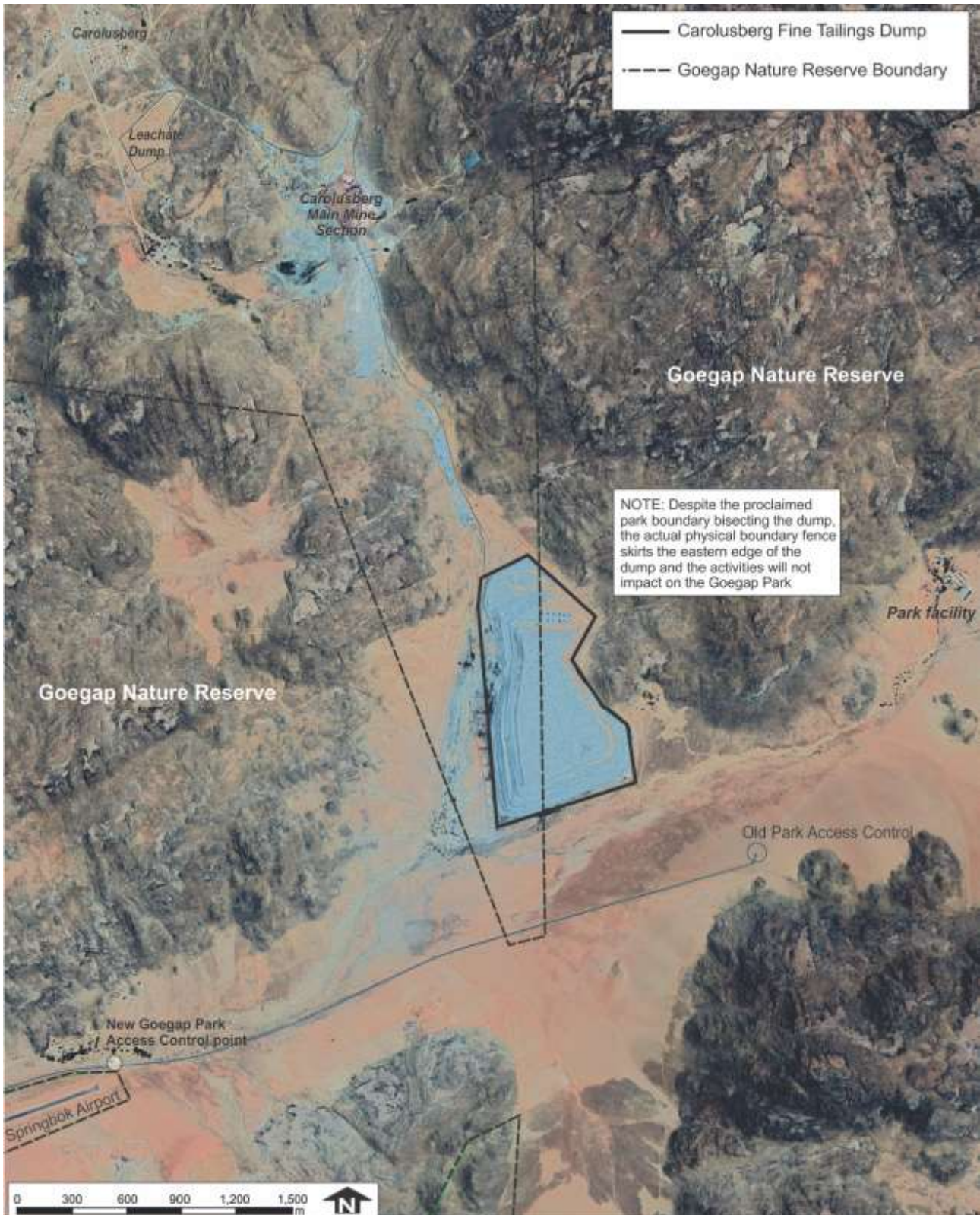


Figure 13: Carolusberg Fine Tailings Dump Surrounding Land Use

The Carolusberg Fine Tailings Dump is, according to published GIS information, located partially within the Goegap Nature Reserve. There is no access to the dump from the south and all access must be from the north. Surrounding land uses include the Park Access boom about 1km to the SE, other park facilities 2km east over a significant ridge and the Springbok airport some 3km to the WSW. The Carolusberg residential area is located approx. 4km to the north passed the current

reprocessing of coarse tailings occurring at the main Carolusberg mine in the valley. Access to this site is via tar road through Carolusberg town and into the main mine's centre whereafter the road surface becomes gravel.

### 9.3 Description of environmental features and infrastructure on the site.

In terms of infrastructure, there is no municipal infrastructure on site. There is good access to all the sites as these were important components of the historical mining and required proper access.

In terms of environmental features, refer Part 9.1 for description per aspect of the environment.

### 9.4 Environmental and current land use map.

Figures 12-14 show the current land use.

## 10 Impacts & risks identified (Nature, significance, consequence, extent, duration and probability of the impacts)

Note that in this draft Report, only the potential impacts identified are the typical impacts known for such activities. This will be subject to further public participation to identify additional / different impacts. Step one is to identify applicable impacts, as per table below. Second step is to ascribe significance and details as per table thereafter.

### 10.1 Impact Identification

Activity. This table identifies potential impacts and differentiates between negative or beneficial impacts.	Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Animal Life	Surface Water	Groundwater	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/ Cultural	Hydrocarbon	Traffic /Access
<b>1. ESTABLISHMENT ACTIVITIES</b>															
1.1. Provide chemical toilets for staff <sup>2</sup>															
1.2. Conduct Environmental Induction training to staff															
1.3. Collation of all available information & final planning															
1.4. Conclude final agreements with contractors															
<b>2. OPERATIONAL PHASE ACTIVITIES</b>															
2.1. Reverse Circulation drilling (wet or dry): <ul style="list-style-type: none"> <li>• Okiep: ± 22 sites.</li> <li>• Carolusberg Leachate Dump: ±9 sites</li> <li>• Carolusberg Tailings Dump: ± 24 sites</li> </ul> Max 25m <sup>2</sup> disturbance per site. <u>Preliminary</u> work flow as follows:															

<sup>2</sup> Chemical toilet chosen over toilet to septic tank given the fairly long distances covered during prospecting right period. The chemical toilet is fully mobile.



Activity. This table identifies potential impacts and differentiates between <b>negative</b> or <b>beneficial</b> impacts.	Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Animal Life	Surface Water	Groundwater	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/ Cultural	Hydrocarbon	Traffic /Access
2.1.1. Remove cover material from drilling site on dump															
2.1.2. Dig and line small reservoir in case of wet drilling (if contemplated)															
2.1.3. Conduct drilling															
2.1.4. Collect and bag samples															
2.1.5. Backfill small reservoir (if applicable) and re-spread cover material															
2.1.6. Note that access will simply entail use of existing roads and tracks to the dump surface and driving across dump surface.															
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbances per hole.															
2.2.1. Remove and stockpile cover material if applicable															
2.2.2. Dig trial pit															
2.2.3. Take sample for processing and testing off site															
2.2.4. Backfill with remaining material															
2.2.5. Shape and cover (if applicable)															
2.3. Grinding of sample material to required grading (in laboratory off site)															
2.4. Testing of material (off site) (probably through leaching)															
2.5. Refueling of equipment on site															
2.6. Use of <i>existing</i> access roads															
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>															
3.1. Remove all mobile equipment and toilet structures from site.															
3.2. Ensure any unrehabilitated disturbed areas are raked (by hand)															
<b>4. AFTERCARE PERIOD</b>															
4.1. Conduct final performance assessment															
4.2. No Closure application will be required															
4.3. Lodge closure Application															
4.4. DMR Grant Closure Application															

## 10.2 Impact rating

The table below does not include description of the beneficial impact of operational monitoring or decommissioning rehabilitation measures (as these should be fairly clear to the reader). The inclusion of these aspects results in an unnecessarily long report.

Activity	Nature of Impact	Extent	Duration	Probability	Post Mitigation Significance	Extent to which impact can cause or be:		
						Reversed	Irreplaceable loss of resource	Avoided, managed or mitigated
<b>1. ESTABLISHMENT ACTIVITIES</b>								
1.1. Provide chemical toilets for staff <sup>3</sup>								
1.1.1. Surface Water	Possible impact on surface water in case of leak	Local	Temporary	Highly unlikely	None	Yes	No	Avoid
1.1.2. Ground Water	Possible impact on groundwater quality in case of leak	Local	Temporary	Highly unlikely	None	Yes	No	Avoid
1.2. Conduct Environmental Induction training to staff								
1.3. Collation of all available information & final planning								
1.4. Conclude final agreements with contractors								
<b>2. OPERATIONAL PHASE ACTIVITIES</b>								
2.1. Reverse Circulation drilling (wet or dry):  <i>Preliminary</i> work flow as per following line items	Okiep: ± 22 sites. Carolusberg Leachate Dump: ±9 sites Carolusberg Tailings Dump: ± 24 sites Max 25m <sup>2</sup> disturbance per site.							
2.1.1. Soil	Despite being a dump, the cover material will still be removed prior to disturbance at the actual drill hole site and the reservoir, if contemplated	Max 25m <sup>2</sup> disturbance per site.	To be replaced immediately after drilling	Most likely	None	Yes	No	Managed

<sup>3</sup> Chemical toilet chosen over toilet to septic tank given the fairly long distances covered during prospecting right period. The chemical toilet is fully mobile.

Activity	Nature of Impact	Extent	Duration	Probability	Post Mitigation Significance	Extent to which impact can cause or be:		
						Reversed	Irreplaceable loss of resource	Avoided, managed or mitigated
2.1.2. Visual Impact	Mobile plant will possibly be visible to some local residents and to road users passing the sites	Local Area	On execution	Possible	Insignificant	Yes	No	Managed
2.1.3. Surface Water- Water source not yet identified  <b>OR</b>	Some water may be used if wet reverse circulation drilling considered	Approx 1m <sup>3</sup> will be required per drill site	On execution, short duration	Definite, if wet drilling is contemplated	None	Partially (with recycling)	No	Managed
2.1.4. Groundwater	Some water may be used if wet reverse circulation drilling considered	Approx 1m <sup>3</sup> will be required per drill site	On execution, short duration	Definite, if wet drilling is contemplated	None	Partially (with recycling)	No	Managed
2.1.5. Noise	Noise associated with heavy equipment and/or trucks/ vehicles	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.1.6. Dust	Dust generated by equipment / vehicles on roadways and dump surface	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.1.7. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Until clean up	Possible but unlikely	Insignificant	No	No	Avoided / Managed
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbances per hole.								
2.2.1. Soil	Despite being a dump, the cover material will still be removed prior to disturbance at the actual drill hole site and the reservoir, if contemplated	Max 40m <sup>2</sup> disturbance per site.	To be replaced immediately after backfilling	Most likely	None	Yes	No	Managed
2.2.2. Visual Impact	Mobile plant will possibly be visible to some local residents and to road users passing the sites	Local Area	On execution	Possible	Insignificant	Yes	No	Managed

Activity	Nature of Impact	Extent	Duration	Probability	Post Mitigation Significance	Extent to which impact can cause or be:		
						Reversed	Irreplaceable loss of resource	Avoided, managed or mitigated
2.2.3. Noise	Noise associated with heavy equipment and/or trucks/ vehicles	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.2.4. Dust	Dust generated by equipment / vehicles on roadways and dump surface	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.2.5. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Until clean up	Possible but unlikely	Insignificant	No	No	Avoided / Managed
2.3. Grinding of sample material to required grading (in laboratory off site)								
2.4. Testing of material (off site) (probably through leaching)								
2.5. Refueling of equipment on site								
2.5.1. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Until clean up	Possible but unlikely	Insignificant	No	No	Avoided / Managed
2.6. Use of <i>existing</i> access roads								
2.6.1. Noise	Noise associated with trucks/ vehicles on roads	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.6.2. Dust	Dust generated by trucks / vehicles on road	Local	Short duration (probably weeks per dump)	Definitely	Insignificant	No	No	Managed
2.6.3. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Until clean up	Possible but unlikely	Insignificant	No	No	Avoided / Managed
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>								

Activity	Nature of Impact	Extent	Duration	Probability	Post Mitigation Significance	Extent to which impact can cause or be:		
						Reversed	Irreplaceable loss of resource	Avoided, managed or mitigated
3.1. Remove all mobile equipment and toilet structures from site.								
3.2. Ensure any unrehabilitated disturbed areas are raked (by hand)								
<b>4. AFTERCARE PERIOD</b>								
4.1. Conduct final performance assessment								
4.2. No Closure application will be required								
4.3. Lodge closure Application								
4.4. DMR Grant Closure Application								

## 11 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

An initial table was compiled which described each activity (whether listed or not in terms of NEMA), potential impact, significance and duration. Such table is included in the draft reporting and made available to all identified Interested and Affected Parties. Any relevant responses received would then inform a revision of the site layout plan.

The impacts are rated according to nature, extent, duration, probability of occurring and significance.

a) The significance level is based on the following criteria:

<i>Significance</i>		<i>Criteria</i>
Negative	Significant (S)	<ul style="list-style-type: none"> <li>Recommended level always exceeded with associated widespread community action</li> <li>Disturbance to areas that are pristine, have conservation value, are important resource to humans and will be lost forever</li> <li>Complete loss of land capability</li> <li>Destruction of rare or endangered specimens</li> <li>May affect the viability of the project</li> </ul>
	Moderate (M)	<ul style="list-style-type: none"> <li>Moderate measurable deterioration and discomfort</li> <li>Recommended level occasionally violated – still widespread complaints</li> <li>Partial loss of land capability</li> <li>Complete change in species variety or prevalence</li> <li>May be managed</li> <li>Is insignificant if managed according to EMP provisions</li> </ul>
	Minor/ (I) Insignificant	<ul style="list-style-type: none"> <li>Minor deterioration. Change not measurable</li> <li>Recommended level will rarely if ever be violated</li> <li>Sporadic community complaints</li> <li>Minor deterioration in land capability</li> <li>Minor changes in species variety or prevalence</li> </ul>
	Negligible	<ul style="list-style-type: none"> <li>An impact will occur but it is barely discernible and not worthy of further investigation</li> </ul>
Positive	Minor	<ul style="list-style-type: none"> <li>Improvements in local socio-economics</li> </ul>
	Significant	<ul style="list-style-type: none"> <li>Major improvements in local socio-economics with some regional benefits</li> </ul>

b) The **duration** is classified as:

- Permanent (post-closure)
- Life of Mine (LOM)
- Temporary

c) The **probability** is ranked as:

- Definite/Certain
- Possible
- Unlikely

## 12 The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

The proposed investigation will have the following **negative impacts** on the environment and community. The impacts are so minor and in most aspects of the environment, there is no impact, for example there will be no impact on natural topsoil, vegetation, land capability, surface water & groundwater (except for use of water if wet drilling is contemplated), topography and archaeology (as well as Socio-economic impacts).

The impacts which may arise will be very insignificant as described below:

### Visual Impact:

Visual impact is absolutely insignificant and restricted to short term impact generated by drill or excavator and associated vehicles operating on the dump surface. The visual receptors may be a few residences and road users.

### Noise and dust:

Very limited impact and is highly unlikely (almost impossible except perhaps under strongest winds) to result in any impact on any surrounding land use or user.

### Hydrocarbon Impact:

It is conceivable that oil/fuel leaks may occur from equipment on site as well during fuel transfers which may be required. The EMP will/does contain measures to firstly avoid , and then mitigate such impacts, should it occur.

The only **positive impact** would be the information obtained in respect of the copper content of the dumps and slight socio-economic impact to the parties involved.

## 13 The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Impact	Possible Mitigation	Level of risk
Topsoil / Soil: No natural topsoil will be impacted upon but it is recommended that the upper 15cm soil on the dump be removed prior to activity	Topsoil must be removed prior to any new development.	Level of risk: Low Reason: Usually If topsoil is not replaced, then revegetation will be extremely limited. Other impacts would arise or be extended, such as loss of vegetation, visual impact, loss of land capability, etc BUT in this case, there is no natural topsoil and no natural vegetation
	Such topsoil must be stockpiled adjacent to the operation for use to cover disturbed area after activities have taken place	

Impact	Possible Mitigation	Level of risk
Dust impact from the operation	Could conceivably be controlled with use of water or other dust allaying agents, but is highly unlikely to be required.	Minimal risk given isolation of site. Must be controlled in terms of employee health regulations
	Limit speed on internal roads as well as access roads to the site	
	If dust result in any complaints from surrounding parties (highly unlikely), then activities must cease until weather conditions are more favourable.	
Noise	The impacts of noise must limited more because of employee health reasons than for any impact on surrounding land users or land use	Minimal risk given isolation of site. Must be controlled in terms of employee health regulations
	All vehicles must be equipped with working silencers	
Waste / Hydrocarbon impact	Any transfer of fuel must take place using suitable funnels and pumping equipment	Risk is low given small scale of the activities.
	Staff to be trained in respect of hydrocarbon pollution and contamination clearing methodologies to be employed	
	Separate waste streams and handle accordingly	

#### 14 Motivation where no alternative sites were considered.

The location of these sites were based on location of existing dumps and as such, the sites location cannot be altered.

#### 15 Statement motivating the alternative development location within the overall site.

(Provide a statement motivating the final site layout that is proposed)

The proposed geostatistically generated layout is based on the least number of disturbances possible to provide representative samples for analysis of the dump content. It is also an attempt to reduce the costs of the operation.

#### 16 Full description of process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site through the life of the activity.

(Including (i) a description of all environmental issues and risks that are identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.



Refer para 10.2.

## 17 Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties)

Refer also table in para 10.2 which lists each impact associated with the proposed activities.

## 18 Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT.	REFERENCE WHERE SPECIALIST REQUIREMENTS HAVE BEEN INCLUDED.
None required			

## 19 Environmental impact statement

### 19.1 Summary of the key findings of the environmental impact assessment

Provided rehabilitation measures and other mitigation measures are put in place then the impact of the proposed operation will be low to none. Without mitigation, the most significant impacts will be the residual disturbance generated on the surface of the waste dump, but even that impact is insignificant.

The risk of such lack of rehabilitation is low given the applicant's experience in the rehabilitation of similar sites, in natural topsoil.

### 19.2 Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.

Refer Figures 5-7 in the text.

### 19.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

Given that no feasible alternatives have been identified at this stage, the positive and negative impacts of the proposed activity as described in this document is described below:

Negative impacts / risk to the environment:

- 1) Visual impact: There will be no residual visual impact provided the proposed rehabilitation contemplated in this document is adhered to.
- 2) Dust and noise impact from earthmoving equipment on site. Impact will be negligible if any
- 3) Potential for Hydrocarbon pollution

Positive impacts include:

- 1) Employment for staff (although limited)
- 2) Employment for contractor staff (very limited)

## **20 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;**

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

### Impact Management Objectives<sup>4</sup>:

The overall objective is to limit the impact of activities in the short and long term, despite the fact that the site is on the surface of an existing mine dump.

The objective is to return the site so that it is indistinguishable from the rest of the surface of the dump. In addition, it is an objective that the disturbance area is kept to an absolute minimum and no access to areas outside of the dump surface disturbance area will be permitted.

A further objective is to limit the dust and noise impact.

The impact management outcomes to be included in the EMP, therefore:.

- Immediate rehabilitation of disturbed areas as the operation progresses.
- Access to no go areas must be prevented through environmental education of all staff members. No demarcation is required
- Limiting of dust impact on surrounding users

## **21 Aspects for inclusion as conditions of Authorisation.**

- 1) All prescriptions of the EMP must be adhered to by the applicant

## **22 Description of any assumptions, uncertainties & gaps in knowledge.**

None known.

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<sup>4</sup> Something that one's efforts or actions are intended to attain or accomplish; refers to purpose, goals and targets. In the strategy "objectives" are used referring to wider objectives while "targets" are used when more detailed information is available to set more specific detailed targets based on identified indicators. The strategy proposes a progression from objectives to indicators, and indicators to detailed targets as more detailed information becomes available.

## **23 Reasoned opinion as to whether the proposed activity should or should not be authorised**

### **23.1 *Reasons why the activity should be authorized or not.***

The site constitutes a mining waste residue surface which is completely barren of vegetation or natural topsoil. The proposed investigation results in absolutely no impact.

The impacts of noise and dust are so minor as to be negligible, distant and temporary.

As such this EAP does not believe there is any reason why the activity should not be authorised.

### **23.2 *Conditions that must be included in the authorisation***

- 1) All prescriptions of the EMP must be adhered to by the applicant

## **24 Period for which the Environmental Authorisation is required.**

4 years excluding decommissioning and aftercare phase.

## **25 Undertaking**

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

Confirmed.

## **26 Financial Provision**

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation. In terms of decommissioning rehabilitation (or the so called Rehabilitation Quantum) the amount to be provided by Bank Guarantee is R20 000.

### **26.1 *Explain how the aforesaid amount was derived.***

The value of the fund may seem limited, but the extent of rehabilitation which would be required should the applicant abscond would be absolutely minimal and consist of a few days with a team of men to shape, cover and rake the affected area.

### **26.2 *Confirm this amount can be provided for from operating expenditure.***

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The applicant confirms herewith that the amount can be (and will be) provided from operating expenditure.

## 27 Specific Information required by the competent Authority

### 27.1 Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-

#### 27.1.1 Impact on the socio-economic conditions of any directly affected person.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix** .

Socio-economic impact occurs as a result of the following parties' socio-economic status being altered:

- Applicant Company employees: Limited income for duration of the project.
- Contractors used: Limited income for duration of the project.

#### 27.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix** and confirm that the applicable mitigation is reflected herein).

None. This draft document will be submitted to SAHRIS online portal.

## 28 Other matters required in terms of sections 24(4)(a) & (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist.

NA. No alternative sites were considered.

# PART B

## ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

### 29 Draft environmental management programme.

#### 29.1 *Details of the EAP,*

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

Yes. Refer Para 1.1.

#### 29.2 *Description of the Aspects of the Activity*

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

Yes. Refer Para 4.1 and 4.2.

#### 29.3 *Composite Map*

(Provide a map (**Attached as an Appendix**) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers)

There is no composite map given all the environmental variables considered. The following maps in this text do however apply:

- Figure 1: Locality Plan
- Figure 2: Detail locality of Okiep dumps under application
- Figure 3: Detail locality of Carolusberg Leachate Dump
- Figure 4: Detail Locality of Carolusberg Tailings Dump
- Figure 5: Okiep Dumps Site Layout Plan
- Figure 6: Carolusberg Leachate Dump Site Layout Plan
- Figure 7: Carolusberg Tailings Site Layout Plan
- Figure 8: Municipal and Ward Context
- Figure 9: Vegetation biomes
- Figure 10: CBA Classification
- Figure 12: Okiep Fine Tailings Dam Surrounding Land Use
- Figure 13: Carolusberg Leachate Dump Surrounding Land Use
- Figure 14: Carolusberg Fine Tailings Dump Surrounding Land Use

#### 29.4 *Description of impact management objectives including management statements*

##### 29.4.1 **Determination of closure objectives.**

(Ensure that the closure objectives are informed by the type of environment described)

The objective is to return the site so that it is indistinguishable from the rest of the surface of the dump. In addition, it is an objective that the disturbance area is kept

to an absolute minimum and no access to areas outside of the dump surface disturbance area will be permitted.

**29.4.2 Volumes and rate of water use required for the operation.**

Water **may** be used in the suppression of dust generation if wet reverse circulation drilling is contemplated. It is estimated that 1m<sup>3</sup> of water will be required per drill hole (if wet drilling is indeed contemplated).

Such water will be sourced from the Okiep Copper Company head office site in Okiep.

**29.4.3 Has a water use licence has been applied for?**

None required.

### 30 Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed actions

Activity	Size and Scale of disturbance	Mitigation Measures	Compliance with Standards	Time period for implementation	
<b>1. ESTABLISHMENT ACTIVITIES</b>					
1.1. Provide chemical toilets for staff <sup>5</sup>					
1.1.1. Surface Water	Possible impact on surface water in case of leak	Local	Prevention through contractor maintenance	Contract	Life of operation
1.1.2. Ground Water	Possible impact on groundwater quality in case of leak	Local	Prevention through contractor maintenance	Contract	Life of operation
1.2. Conduct Environmental Induction training to staff					
1.3. Collation of all available information & final planning					
1.4. Conclude final agreements with contractors					
<b>2. OPERATIONAL PHASE ACTIVITIES</b>					
2.1. Reverse Circulation drilling (wet or dry):  <i>Preliminary</i> work flow as per following line items	Okiep: ± 22 sites. Carolusberg Leachate Dump: ±9 sites Carolusberg Tailings Dump: ± 24 sites Max 25m <sup>2</sup> disturbance per site.				
2.1.1. Soil	Despite being a dump, the cover material will still be removed prior to disturbance at the actual drill hole site and the reservoir, if contemplated	Max 25m <sup>2</sup> disturbance per site.	Topsoil management plan and programme	EMP Prescriptions.	Life of operation. Refer para 32.2.
2.1.2. Visual Impact	Mobile plant will possibly be visible to some local residents and to road users passing the sites	Local Area	None required except to work as efficiently as possible to reduce time on dump	None	NA

<sup>5</sup> Chemical toilet chosen over toilet to septic tank given the fairly long distances covered during prospecting right period. The chemical toilet is fully mobile.

Activity	Size and Scale of disturbance		Mitigation Measures	Compliance with Standards	Time period for implementation
2.1.3. Surface Water- Water source not yet identified  <b>OR</b>	Some water may be used if wet reverse circulation drilling considered	Approx 1m <sup>3</sup> will be required per drill site	Minimising use through recycling of water (if wet drilling contemplated)	None	On execution of wet drilling if contemplated
2.1.4. Groundwater	Some water may be used if wet reverse circulation drilling considered	Approx 1m <sup>3</sup> will be required per drill site	Minimising use through recycling of water (if wet drilling contemplated)	None	On execution of wet drilling if contemplated
2.1.5. Noise	Noise associated with heavy equipment and/or trucks/ vehicles	Local	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Life of operation
2.1.6. Dust	Dust generated by equipment / vehicles on roadways and dump surface	Local	None required	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure	NA
2.1.7. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Monitoring. Hydrocarbon Management methods	As per para 32.3	On occurrence
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbances per hole.					
2.2.1. Soil	Despite being a dump, the cover material will still be removed prior to disturbance at the actual drill hole site and the reservoir, if contemplated	Max 40m <sup>2</sup> disturbance per site.	Topsoil management plan and programme	EMP Prescriptions.	Life of operation. Refer para 32.2.
2.2.2. Visual Impact	Mobile plant will possibly be visible to some local residents and to road users passing the sites	Local Area	None required except to work as efficiently as possible to reduce time on dump	None	NA
2.2.3. Noise	Noise associated with heavy equipment and/or trucks/ vehicles	Local	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Life of operation
2.2.4. Dust	Dust generated by equipment / vehicles on roadways and dump surface	Local	None required	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure	NA
2.2.5. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Monitoring. Hydrocarbon Management methods	As per para 32.3	On occurrence
2.3. Grinding of sample material to required grading (in laboratory off site)					



Activity	Size and Scale of disturbance		Mitigation Measures	Compliance with Standards	Time period for implementation
2.4. Testing of material (off site) (probably through leaching)					
2.5. Refueling of equipment on site					
2.5.1. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Monitoring. Hydrocarbon Management methods	As per para 32.3	On occurrence
2.6. Use of <i>existing</i> access roads					
2.6.1. Noise	Noise associated with trucks/ vehicles on roads	Local	The only feasible noise reduction measure is to ensure that all vehicle silencers are operational	NOISE: SANS 0103-1983 & MHSA in respect of Personnel Exposure	Life of operation
2.6.2. Dust	Dust generated by trucks / vehicles on road	Local	None required	DUST FALL STANDARDS: SANS 1929:2004 & MHSA in respect of Personnel Exposure	NA
2.6.3. Hydrocarbon impact	Potential impact through oil/fuel leaks	Very Local	Monitoring. Hydrocarbon Management methods	As per para 32.3	On occurrence
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>					
3.1. Remove all mobile equipment and toilet structures from site.					
3.2. Ensure any non-rehabilitated disturbed areas are raked (by hand)					
<b>4. AFTERCARE PERIOD</b>					
4.1. Conduct final performance assessment					
4.2. No Closure application will be required					
4.3. Lodge closure Application					
4.4. DMR Grant Closure Application					

## 31 Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated above)

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
<b>1. ESTABLISHMENT ACTIVITIES</b>		
1.1. Provide chemical toilets for staff		
1.1.1. Surface Water	Prevent through contract clearing	Impact Avoided
1.1.2. Ground Water	Prevent through contract clearing	Impact Avoided
1.2. Conduct Environmental Induction training to staff		
1.3. Collation of all available information & final planning		
1.4. Conclude final agreements with contractors		
<b>2. OPERATIONAL PHASE ACTIVITIES</b>		
2.1. Reverse Circulation drilling (wet or dry): <i>Preliminary</i> work flow as per following line items		
2.1.1. Soil	Remedy through rehabilitation. Topsoil management measures	<ul style="list-style-type: none"> <li>- Rehabilitation standard (as imposed by EMP)</li> <li>- End use objective: To return pre-activity condition of affected area</li> </ul>
2.1.2. Visual Impact	Remedy through rehabilitation. Topsoil management measures	<ul style="list-style-type: none"> <li>- Rehabilitation standard (as imposed by EMP)</li> <li>- End use objective: To return pre-activity condition of affected area</li> <li>-</li> </ul>
2.1.3. Surface Water- Water source not yet identified <b>OR</b>	Control through recycling	Water use minimised
2.1.4. Groundwater	Control through recycling	Water use minimised
2.1.5. Noise	Remedy through noise control measures	Noise level standards not breached
2.1.6. Dust	Monitor and control through dust control measures if required	Dust level standards not breached
2.1.7. Hydrocarbon impact	Monitor and control through hydrocarbon management protocol	Impact avoided
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbances per hole.		

ACTIVITY whether listed or not listed and Potential Impact	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
2.2.1. Soil	Remedy through rehabilitation. Topsoil management measures	- Rehabilitation standard (as imposed by EMP) End use objective: To return pre-activity condition of affected area
2.2.2. Visual Impact	Remedy through rehabilitation. Topsoil management measures	- Rehabilitation standard (as imposed by EMP) - End use objective: To return pre-activity condition of affected area
2.2.3. Noise	Remedy through noise control measures	Noise level standards not breached
2.2.4. Dust	Monitor and control through dust control measures if required	Dust level standards not breached
2.2.5. Hydrocarbon impact	Monitor and control through hydrocarbon management protocol	Impact avoided
2.3. Grinding of sample material to required grading (in laboratory off site)		
2.4. Testing of material (off site) (probably through leaching)		
2.5. Refueling of equipment on site		
2.5.1. Hydrocarbon impact	Monitor and control through hydrocarbon management protocol	Impact avoided
2.6. Use of <i>existing</i> access roads		
2.6.1. Noise	Remedy through noise control measures	Noise level standards not breached
2.6.2. Dust	Monitor and control through dust control measures if required	Dust level standards not breached
2.6.3. Hydrocarbon impact	Monitor and control through hydrocarbon management protocol	Impact avoided
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>		
3.1. Remove all mobile equipment and toilet structures from site.		
3.2. Ensure any non-rehabilitated disturbed areas are raked (by hand)		
<b>4. AFTERCARE PERIOD</b>		
4.1. Conduct final performance assessment		
4.2. No Closure application will be required		
4.3. Lodge closure Application		
4.4. DMR Grant Closure Application		

## 32 Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved).

The management of environmental damage as a result of this undertaking consists of the following with detail description below:

- 1) Demarcation of location of activities as per para 32.1 below
- 2) "Topsoil" handling as per para 32.2 below (Topsoil handling methodology)
- 3) Hydrocarbon pollution prevention must take place in accordance with the Hydrocarbon pollution prevention protocol in para 32.5 below.

### **32.1 Demarcation of Activity areas: Demarcation of No-Go areas and No-Go area Management**

It is required that surveyor and applicant representative visit each of the dumps and demarcate and name / number the location of each of the centres of activity, as well as record the exact location so that proper future geostatistical analysis can be completed.

The no go areas (i.e. areas outside of the dump surface) must form part of the Environmental Induction Training (which forms part of the Environmental Awareness Programme).

### **32.2 Topsoil Handling Methodology**

Usually, the management of topsoil is of utmost importance. Without topsoil management, the disturbed area is subject to several other potential long term impacts such as lack of revegetation or extended revegetation time, dust generated off denuded areas and potential visual scarring. It is of utmost importance that all topsoil return is maximized to enable the eventual rehabilitation /restoration of all areas.

However in this case, in situ topsoil is not in place. However, the upper 15cm must be treated as topsoil as it may have trapped some seeds. This simply entails the removal of 15cm topsoil ahead of any disturbance and stockpiling for use in the rehabilitation of the site. The volumes to be moved are insignificant and can be performed by spade in the case of the drill (and recycling reservoir , if contemplated) and by the excavator in the case of the trial pits.

### **32.3 Domestic and Industrial Waste and Hydrocarbon Management Protocol**

Note that there will be minimal volumes of domestic and industrial waste emanating from this operation; however the following must to be implemented.

The waste streams that could potentially emanate from this site:

Domestic Waste: Only small quantities of domestic waste will emanate from this site and this will typically be in the form of lunch wrapper, cool-drink bottles, etc. The waste will be retained in the cab of the vehicle and disposed of at the Head Office facility at the end of the working day.

Industrial Waste: Although no servicing of any vehicles is permitted in the proposed area, it is possible that emergency repairs may be required. If so, then adequate drip trays and funnels must be utilised to catch dirty oils from draining or from leaks – see para entitled Emergency Repairs on Site, below.

So, the Hydrocarbon Management protocol for the site:

Fuel receipt, storage and dispensing:

There will be no fuel storage facility on this site (for diesel). Diesel (if required) will be brought in as required using small towed bowser and refuelling will take place in field . It is required that suitable funnels connections and drip trays are in place to limit the potential for leaks during such refuelling. The fuel delivery bowser driver must be cautioned to adhere to safe driving speeds and drive cautiously at the mine and along the access road

Emergency repairs on site:

In the event of a breakdown with repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the dump surface) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent oil contamination. In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in a black bag or plastic drum for return to the head office facility for disposal in terms of their company industrial waste handling methodology. Used filters are not to be buried at the site of repair (nor discarded in the excavation to be backfilled).
- In the event of soil contamination, the oil and contaminated soils are to be placed in black disposal bags and transported to suitable facility (such as Vissershok Waste Disposal Facility). There are contractors who provide this service.

Staff Training and Awareness

All staff involved in mobile plant operation and maintenance must be made aware of these oil and lubricant procedures. Staff will require instruction in the:

- Deleterious effects of oil / fuel on the environment
- Handling method and reporting procedure (also in terms of emergency plan readiness in case of large oil spill

General Provisions

- All operators are to check their equipment for leaks and report such leaks on a daily basis. All equipment and vehicles will be maintained in good working order.
- No used oils are to be used as dust suppressants on maneuvering areas.
- All heavy vehicles will have drip trays.
- If spills do occur on the sand, absorbent material such as Drizit or wood shavings are to be placed on top of the spill and removed to waste drums and then to the head office yard; this must be disposed of at a suitable hazardous waste facility.
- All contaminated soil/material must also be removed and disposed of or treated with a suitable treatment process.
- Protective gear must be used during clean-up of spills.

- Suitable in-situ water treatment options like microbiological degradation must be implemented.
- There will be an incident management system, including procedures and training, for dealing with incidents.

### 33 Financial Provision

**33.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.**

The objective is to return the site so that it is indistinguishable from the rest of the surface of the dump. In addition, it is an objective that the disturbance area is kept to an absolute minimum and no access to areas outside of the dump surface disturbance area will be permitted.

These objectives perfectly match the current site use.

**33.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and I&AP's.**

This draft document will be consulted.

**33.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main activities, including the anticipated area at the time of closure.**

The scale of these proposed activities is very small. The drill site will have a footprint no bigger than 25m<sup>2</sup> whilst the trial pit sites will have disturb a maximum area of 40m<sup>2</sup> with the actual trial pit being no bigger than 1 bucket width of excavator by no longer than 5-6m. The remainder of the disturbance will be caused by the excavator tracks on surface of the dump.

If wet drilling is contemplated for use then those sites will have an additional disturbance of a small reservoir (1m<sup>3</sup>) dug into the dump surface which will be temporarily lined and used to recycle water for the drilling exercise.

Rehabilitation simply entails the backfilling of all holes, cover with any top material removed and raking by hand to level the site.

**33.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

The rehabilitated surface will match the remainder of the dump surface (as per closure objective).

**33.5 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment.**

In terms of decommissioning rehabilitation (or the so called Rehabilitation Quantum) the amount to be provided by Bank Guarantee is R20 000.

The value of the fund may seem limited, but the extent of rehabilitation which would be required should the applicant abscond would be absolutely minimal and consist of a few days with a team of men to shape, cover and rake the affected area.

**33.6 *Confirm that the financial provision will be provided as determined.***

The quantum must be approved by the DMR after which the applicant will provide for the quantum by way of bank guarantee.

### 34 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions and Mechanism for monitoring compliance

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
<b>1. ESTABLISHMENT ACTIVITIES</b>			
1.1. Provide chemical toilets for staff			
1.1.1. Surface Water	Ensure contractors clear toilets as required	Site foreman	Daily monitoring.
1.1.2. Ground Water	Ensure contractors clear toilets as required	Site foreman	Daily monitoring.
1.2. Conduct Environmental Induction training to staff	Ensure staff sign attendance register	Site Foreman	At occurrence
1.3. Collation of all available information & final planning			
1.4. Conclude final agreements with contractors			
<b>2. OPERATIONAL PHASE ACTIVITIES</b>			
2.1. Reverse Circulation drilling (wet or dry): <i>Preliminary</i> work flow as per following line items			
2.1.1. Soil	Ensure upper layer of soil is removed and placed to side of disturbance area (not vehicle parking area, only recycling reservoir in case of wet drilling (if contemplated) and excavation in respect of trial pit.  Ensure reservoir backfilled and raked	Site foreman	At occurrence
2.1.2. Visual Impact	None required		
2.1.3. Surface Water- Water source (if required) not yet identified <b>OR</b>	Ensure water is recycled through reservoir	Site foreman	At occurrence
2.1.4. Groundwater	Ensure water is recycled through reservoir	Site foreman	At occurrence
2.1.5. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.



Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.1.6. Dust	Visual monitoring of dust direction (and volume) If complaint is received from any quarter, then cease operations until weather more suitable (unlikely)	Operator, supervisor. To report to site foreman.	Any dust source identified must be treated accordingly.
2.1.7. Hydrocarbon impact	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Equipment operators	Daily. Implement specification in Para 32.3 if shortcomings identified.
2.2. Trial pitting: Assume 15 holes. Max 40m <sup>2</sup> disturbance per hole.			
2.2.1. Soil	Ensure upper layer of soil is removed and placed to side of disturbance area (not vehicle parking area, only recycling reservoir in case of wet drilling (if contemplated) and excavation in respect of trial pit.  Ensure pit is backfilled and raked (after sampling)	Site foreman	At occurrence
2.2.2. Visual Impact	None required		
2.2.3. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.2.4. Dust	Visual monitoring of dust direction (and volume) If complaint is received from any quarter, then cease operations until weather more suitable (unlikely)	Operator, supervisor. To report to site foreman.	Any dust source identified must be treated accordingly.
2.2.5. Hydrocarbon impact	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Equipment operators	Daily. Implement specification in Para 32.3 if shortcomings identified.
2.3. Grinding of sample material to required grading (in laboratory off site)			
2.4. Testing of material (off site) (probably through leaching)			
2.5. Refueling of equipment on site			
2.5.1. Hydrocarbon impact	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Equipment operators	Daily. Implement specification in Para 32.3 if shortcomings identified.
2.6. Use of <i>existing</i> access roads			

Source activity and aspect requiring monitoring	Functional requirements for monitoring	Roles and responsibilities for the execution of the monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
2.6.1. Noise	Ensure vehicle silencers are in place. No work or heavy vehicle movement after working hours and on weekends	Manager, Operator	Continuously. If shortcomings are noted, then operators and supervisors to be informed and appropriate action to be taken immediately.
2.6.2. Dust	Visual monitoring of dust direction (and volume) If complaint is received from any quarter, then cease operations until weather more suitable (unlikely)	Operator, supervisor. To report to site foreman.	Any dust source identified must be treated accordingly.
2.6.3. Hydrocarbon impact	Ensure no vehicle or equipment leaks. Ensure that all fuel transfer equipment is correct and present.	Equipment operators	Daily. Implement specification in Para 32.3 if shortcomings identified.
<b>3. DECOMMISSIONING PHASE ACTIVITIES</b>			
3.1. Remove all mobile equipment and toilet structures from site.			
3.2. Ensure any non-rehabilitated disturbed areas are raked (by hand)			
<b>4. AFTERCARE PERIOD</b>			
4.1. Conduct final performance assessment			
4.2. No Closure application will be required			
4.3. Lodge closure Application			
4.4. DMR Grant Closure Application			

### **35 Indicate the frequency of the submission of the performance assessment/ environmental audit report.**

Environmental audit report to be submitted on following milestones:

- As part of closure application

### **36 Environmental Awareness Plan**

#### ***36.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.***

The Applicant will develop an Environmental Awareness “course” as part of the Environmental Management System to be presented to staff at induction. Provisional course content is included in Appendix 4

#### ***36.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.***

Refer proposed course documentation in Appendix 4.

### **37 Specific information required by the Competent Authority**

The following reporting must take place:

- 1) Performance Assessment Report as per Para 35

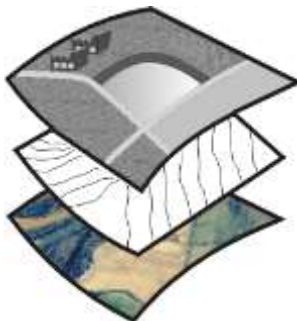
## 38 UNDERTAKING

The EAP herewith confirms

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.



Signature of the environmental assessment practitioner



**SITE PLAN CONSULTING**

Name of company

1 April 2019

Date

## **Appendix 1:**

### **CV of EAP and Declaration**

**Name:** CRAIG DONALD

**Date of Birth:** 26 February 1967

**Parent Firm:** Site Plan Consulting

**Position in Firm:** Member

**Years with the Firm:** Since 1989

**Nationality:** South African

**Qualifications:**

Year	Qualification	Institution
1984	Senior Certificate Matriculation	Plumstead High School
1992	National Higher Diploma: Town & Regional Planning ( <i>cum Laude</i> )	Cape Technikon
1995	Minerals and Metals Extraction short course	Continuing Engineering Education, University of Witwatersrand
1997	National Diploma: Surface Mine Management	Technikon SA
1999	Principles for Environmental Management short course	Environmental Evaluation Unit of University of Cape Town
2003	Masters of Business Administration	University of Cape Town

**Languages :** English (first language)  
Afrikaans (second language)

**Key Qualifications:**

I have many years practical experience in diverse spatial and mine planning projects after completing a National Higher Diploma in Town and Regional Planning.

After joining Setplan (in 1989), my main involvement was the preparation of environmental management programmes (mainly in surface mining related field) and geographic information systems. In order to obtain a deeper understanding of the relevant issues, I completed a

Surface Mine Management course as well as short courses such as the Environmental Evaluation course run by the EEU of UCT. I completed a part-time MBA at UCT in 2003 and became a member of Site Plan Consulting CC in 2006.

In that time I have developed experience in use of Word, Excel, CorelDraw and ArcView GIS and expanded my tasks as follows.

**Main tasks:**

The main focus of work experience has been in the licencing, physical and environmental planning, monitoring and closure of surface mining operations. The mines have varied in:

- Size from small sand mines to the largest aggregate or diamond producers,
- Products from clay to diamonds,
- Location from the Alexander Bay to East London/KZN coastal areas as well as inland in Free State and Limpopo
- Scale and type of environmental impact.

In respect of the licencing and physical planning of surface mines, the work entails *inter alia* the compilation of:

- Mining and Prospecting Work Programmes: a detailed mine / prospect plan and project description including cash flow forecast / budget to determine mine's economic viability and cost of prospecting
- Social and Labour Plan: Legislated document required to describe how the mine will maximise its socio-economic impact through enforced education, training and corporate social responsibility programmes for the staff and surrounding community.

In respect of the environmental planning, the work has entailed the compilation of Environmental Management Plans and Programmes in accordance with the requirements of the Mineral and Petroleum Resources Development Act with due regard for National Environmental Management Act (before the amalgamation of these 2 pieces of legislation in December 2014). Such EMP's have been conducted with full public participation and liaison with and full input from specialists as required. Such documents also required the calculation of the financial quantum required for closure / decommissioning activities. This quantum is recalculated on an annual basis once the project is operational.

In respect of monitoring the work involves conducting of environmental audits to measure the level of compliance of actual site conditions against the prescriptions of the EMP. The auditing task also served to highlight any shortcomings in the EMP.

Closure of surface mining operations has entailed the conducting of all public participation and the lodging of all documentation required.

In addition, the work also entails annual updates of Rehabilitation Quantum calculations for almost all of the approved Mining Rights in the list below. These calculations were conducted using both the Guideline of the DMR and as Itemised costs in certain relevant operations.

**Relevant Project Experience:**

Prospecting Rights (including public participation and compilation of EMPlans (inclusive of EIAs)):

- For Salt on Papendorp Pan as community initiative
- EMPs only for 7 Heavy Mineral Prospects of the West Coast
- Firlands (Gordons Bay) for aggregate
- Zoet and Zuur Diamond pipe (Boshof, Free State)
- Several Alluvial Diamond prospects on West Coast and inland West Coast (Western and Northern Cape)
- Phosphate prospect (Saldanha)
- Aggregate prospect near Oyster Bay in Eastern Cape
- Cobalt, Copper, Molybdenum, Nickel, Lead, Zinc, Silver, Gold & Platinum Group Minerals on 13 farms in the Kenhardt Magisterial District
- Nickel and related minerals on 8 farms near Kliprand
- Kaolin at Langklip (near Saldanha)
- Base minerals around Oena Mine in Northern Cape
- 6 sites for Uranium in the Karoo
- Nickel prospect at Oup near Pofadder
- Commissioners Pan Salt Prospect
- Gypsum prospects near Kimberley, Vanrhysdorp and in the Bushmanland
- Sand sources for Atlantis Foundries (Western Cape)

Mining Permits and Rights (including full Public Participation and compilation of EMPs inclusive of EIAs)

- Caledon Manganese Mining Permit
- Pentlands Granite Quarry Mining Right near Empangeni (KZN)
- Gamohaam Aggregate Quarry near Kuruman
- Cawood Salt Mine at Sout River mouth (Amendment of existing Right)
- Kuipersbult Aggregate Mining Right near Lephalale (Limpopo) as source for Medupi Power station construction
- Dikpens Gypsum Mine Extension (Bushmanland)
- Yserfontein Pan Gypsum mine - update of EMP
- Gypsum Mine for PPC near Vanrhynsdorp
- Transand Aggregate mine near Hartenbosch
- Aggregate and sand mine on municipal owned land in Gansbaai (Permit and Right)
- Sand mining permit near Salmonsdam Nature Reserve, Stanford
- Limestone Mining Right north of Klawer
- Sand Mining permits near Gouritz River / Vlees Bay
- Gecko Fert Phosphate Mining Right near Langebaanweg
- Oyster Bay Mining Right application for Aggregate
- Moddergat Sand Mining Right (between Worcester and Villiersdorp)
- Mining Right for Manganese near Swellendam
- Involvement to a greater or lesser degree in at least 50 other Mining Permit and Mining Right applications
- EMP updates / amendments (some of which did not require public participation) for several operations (at least 20).



Environmental Performance /Audit Assessments (monitoring) of the following sites on one off or regular basis. First compiled in terms of MPRDA prescriptions and since December 2014 guided by NEMA requirements:

- Crammix Clay Mine (Brakenfel)
- Botriver Sand mine (Steyns)
- Cawood Salt Mine (Sout River)
- Swellendam Manganese Mine
- Buffelsbank Diamond Mine
- Gecko Fert Phosphate Prospects
- Cape Lime Limestone Mine near Vredendal
- Denron operations (Sand and Aggregate) Knysna / Plettenberg Bay area
- Dimension Stone Mines of Verde Bitterfontein (Namaqualand)
- Limestone quarries in Bredasdorp and Vredendal
- Cawood Salt Mine on West Coast
- 3 x Salt Mines north of Upington
- PPC Gypsum Mine near Vanrhynsdorp
- Lafarge Western Cape operations including Tygerberg, Dorstberg, Peak and Saldanha Quarries
- Various Afrimat aggregate operations throughout the country

Closure Applications (for mining and prospecting operations):

- Gecko Fert Phosphate Prospecting Rights and Mining Permit
- Knysna Whitebridge Quarry
- Denron Funda and Helderwater Quarry – Plettenberg Bay
- Crammix Clay Mine
- Vaale Valley Sand Mine (Mossel Bay)
- Various Dimension Stone bulk samples for Verde Bitterfontein (Namaqualand)
- Bergsig / Farm 292 Closure (Hartenbos)
- Klipfontein Sand Mine (Vlees Bay)
- Welbedagt Gravel Permit (Herbertsdale / Mossel Bay)

“One Environmental System” applications (Post 8 December 2014) all conducted in terms of NEMA process:

- Cape Lime Sand Mine (Schaap Kraal operation) – Afrimat
- Atlantis Foundries Sand Mine – ZLLD Sand Mining (Pty) Ltd
- De Hoek Sand Mining Right – Buy-Line Trading (Pty) Ltd
- Denver Quarry Section 102 (MPRDA)– Afrimat
- Desert Rose Dimension Stone Mine – Application only
- Naroogna Pan Salt Mine – United Salt (Pty) Ltd
- Stanford Quarry Extension – Afrimat
- Bester Calcrete Mining Permit – West Coast Calcrete
- Commissioner Pan Salt Mine – Dwaggas Salt Works (Pty) Ltd
- Lezmin Sand Mine (Gouritz Area) – Lezmin 2021 CC
- Yzerfontein Gypsum Mine (Section 102) – St Gobain Construction Materials (SA)
- Skietkuil Quarry Mining Permit – Skietkuil Quarries CC
- Honingklip Gravel Mining Permit – Western Cape Construction Materials (Pty) Ltd

- Johnsons Clay Brick (Section 102)
- Okiep Dumps Reprocessing Application – O’okiep Copper Company Ltd
- Karoo One / Bo Plaas Sand and Gravel Mining Permit
- Bosluispan Diamond Mine (Section 102 Application) – Kori Diamonds (Pty) Ltd
- Oena Diamond Mine (Section 102 Application) – African Star Minerals

Section 24G Applications:

- Makulu Quarry – Denron
- Swellendam Manganese Mine – Sikhova Environmentally Friendly Building Solutions
- Illegal Waste Disposal Site – Die Kop – Plettenberg Bay

**DECLARATION OF THE EAP**

I, CRAIG DONALD declare that —

General declaration:

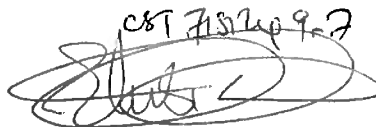
- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- ~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

Signature of the environmental assessment practitioner:



*EST 7151249-7*  


Name of company: Site Plan Consulting

Date: 26 / 07 / 2015

