

# CONSULTATION ON FINAL BASIC ASSESSMENT REPORT And

### ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 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).

NAME OF APPLICANT: CRILEON BELEGGINGS CC

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FILE REFERENCE NUMBER SAMRAD: NC 30/5/1/1/3/2/10968 MP

*Date:* 12<sup>th</sup> of July 2022

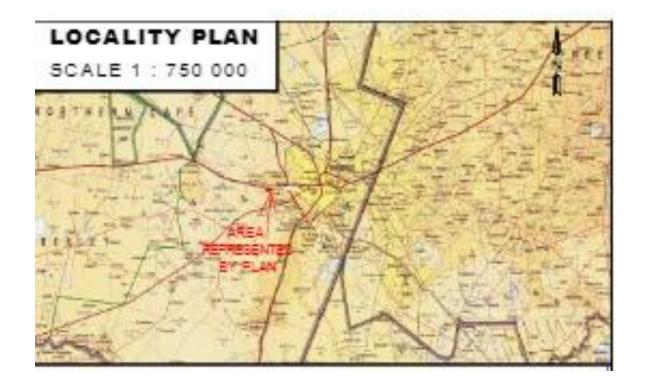
#### PART A

## SCOPE OF ASSSSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

# a) Description of the property.

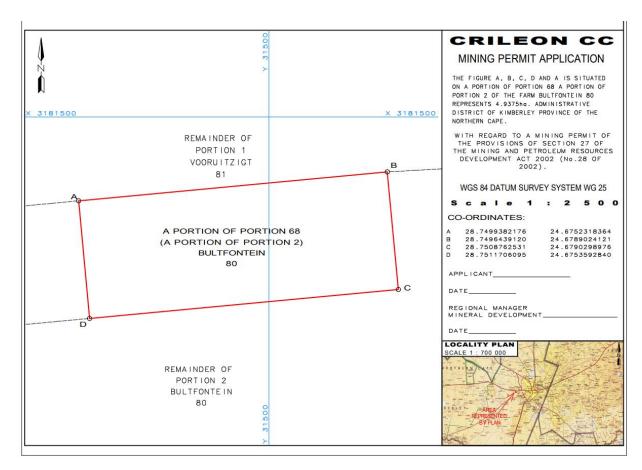
Farm Name:	Portion 68 (A Portion of Portion 2) of the farm Bultfontein no. 80
Application area (Ha)	4.9375 ha
Magisterial district:	Kimberley
Distance and direction from nearest town	The locality of the farm portion is located 8 km from the city of Kimberley on the Griekwastad road.
21-digit Surveyor General	C0370000000008000068
Code for each farm portion	
Locality map	Locality Map Attached
Description of the overall	Mining Permit
activity.	Mining – Mining of RM AGGREGATE I Industrial Minerals through
(Indicate Mining Right, Mining	an opencast method. This will be done through the employment
Permit, Mining right, Bulk Sampling, Production Right, Exploration Right, Reconnaisance permit, Technical co- operation permit, Additional listed activity)	of TMM's. The current open pit area would be properly benched
	to ensure safe access to the aggregate material. Mining would
	then be continued by means of excavating the pit further using
	excavators which will load onto dump trucks to the screening
	and crushing plant. The final product would be loaded with a
	front-end loader onto trucks for export to the clients.

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



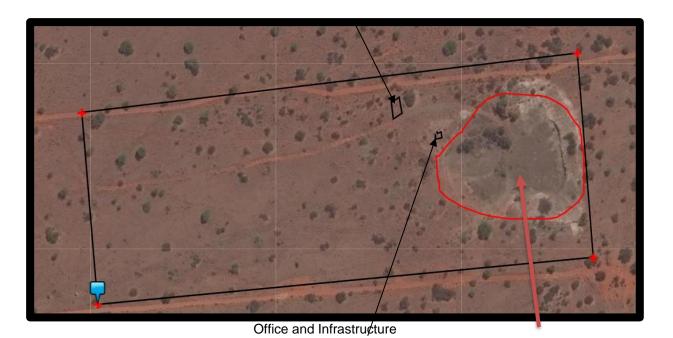
#### c) Description of the scope of the proposed overall activity.

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



DEVELOPMENT FOOTPRINT	
Plant Site	400m <sup>2</sup>
Workshop	200m²
Stockpiles	2000m <sup>2</sup>
Ablution Facilities	25m <sup>2</sup>
Chemical Storage	25m <sup>2</sup>
Diesel Storage	32m <sup>2</sup>
Site Office	25m²
Domestic Waste Facility	16m <sup>2</sup>

## LAYOUT PLAN



Crushing and Screening Plant Area

Open Pit

# (i) Listed and specified activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	NOTICE	MANAGEMENT AUTHORISATION
(E.g. For Mining - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etcetcetc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etcetc.)		(Mark with an X where applicable or affected).	or GNR 546)	(Indicate whether an authorisation is required in terms of the Waste Management Act).  (Mark with an X)
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Development Act, 2002 (Act No.28 of 2002), including- (a) associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource: or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing: but exclude the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies (Activity 21 of Listing Notice 1	4.9375 ha	X	GNR 327 LN1, Activity 21	
NOT LISTED Plant Site	400m <sup>2</sup>			
Workshop	200 <b>m</b> ²			
Stockpiles	500m <sup>2</sup>			
Ablution Facilities	25m <sup>2</sup>			
Chemical Storage	25m <sup>2</sup>			
Diesel Storage	32m <sup>2</sup>			
Site Office	25 <b>m</b> ²			
Domestic Waste Facility	16m²			

#### (ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be mined and for a linear activity, a description of the route of the activity)

#### Mining will be carried out in the following manner:

**Mineral: RM Aggregate Industrial Minerals** 

#### **Methodology and Technology**

CRILEON proposes to undertake Mining and related infrastructural activities on a Portion 68 (A Portion of Portion 2) of the farm Bultfontein no. 80, situated approximately 8Km to Kimberley in the Northern Cape, Province of South Africa. The mining activities will entail the following as detailed below:

Mining activities will be undertaken in 3 different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the Mining activities should be continued or abolished.

#### **Desktop Study**

It is more of a literature review and research on all the completed work on the area, it also include accruing results from the companies that has already worked on the area.

#### Field Mapping

This involves the geologist walking the area and making observations which are then recorded on a map.

#### Mining

The topsoil where required would be removed and placed in a dedicated stockpile area. Crileon would conduct its mining operation in the current existing mining pit.

Mining would be conducted through the single existing opencast pit. The material would be excavated, loaded onto tipper trucks to the screening and crushing plant. The material would then be separated into the different fractions and stored in a production stockpile area.

A front-end loader would be commissioned to load the final product onto tipper trucks for transport to the respective clients.

The mining area would be secured by means of a safety berm around the active mining pit. Faces would be limited to 100mX100m, and benching from one to the other level performed.

The general types of material that exist ranges from G5, G7, G8 and G9. The study area has been disturbed by previous mining activity.

The pit will be mapped as well as sampled.

#### Final Rehabilitation

Rehabilitation of excavations will be done immediately as each bench is completed. Once mining is completed, the processing site will also be rehabilitated. Rehabilitated sites will be monitored to ensure vegetation growth re-occurs.

- i) The Environmental attributes associated with the development footprint alternatives. (The environmental attributed described must include socio- economic, social, heritage, cultural, geographical, physical and biological aspects)
  - **Baseline Environment** 
    - (a) Type of environment affected by the proposed activity. (its current geographical, physical, biological, socio- economic and cultural character).

#### Type of environment affected by the proposed activity area.

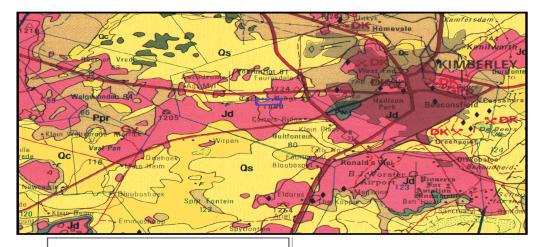
Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below.

#### **Topography**

The natural topography of the area is generally flat. General altitude of around 1200m above sea level.

#### Geology

The area is within the Ventersdorp Supergroup overlying the Dolominion Group and Basement complex. The rock mined is hypabyssal dolerite, medium to course grained, consisting essentially of augite and plagioclase. The overburden cover is mainly weathered dolerite with negligible red topsoil. The Dolerite varies in hardness and depth of the weathering is inconsistent.

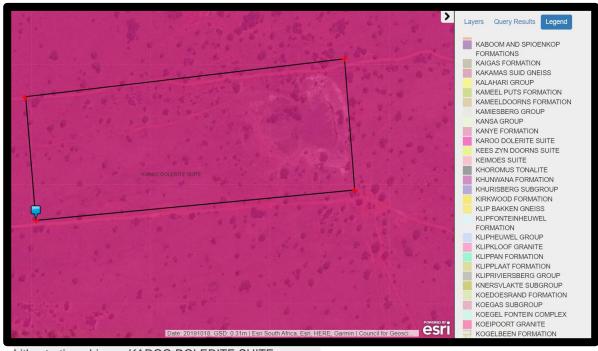


LEGEND GEOLOGICAL MAP (SCALE 1 : 250 000)
Qs - Sand

Calcrete T-Q

Karoo-aged dolerite Karoo shale Ventersdorp lava

Kimberlite pipe Kimberlite fissure



Lithostratigraphic: KAROO DOLERITE SUITE
Lithology: Dolerite, minor ultrabasic rocks

#### Geography

Kimberley is the capital and largest city of the Northern Cape province of South Africa. It is located **approximately 110 km east of the confluence of the Vaal and Orange Rivers** at an altitude of 1184m above sea level.

Soil

Description: Red soils with high base status.



Photo taken by EAP on site

#### **Biodiversity**

Biome:

Vegetation type: Kimberley Thornveld

Vegetation type code: SVk4



Picture taken by EAP on site - Adjacent to Open Pit Area-This area will not be affected

#### SVk 4 Kimberley Thornveld.

Important Taxa Tall Tree: Acacia erioloba (d). Small Trees: Acacia karroo (d), A. mellifera subsp. detinens (d), A. tortilis subsp. heteracantha (d), Rhus lancea. Tall Shrubs: Tarchonanthus camphoratus (d), Diospyros pallens, Ehretia rigida subsp. rigida, Euclea crispa subsp. ovata, Grewia flava, Lycium arenicola, L. hirsutum, Rhus tridactyla. Low Shrubs: Acacia hebeclada subsp. hebeclada (d), Anthospermum rigidum subsp. pumilum, Helichrysum zeyheri, Hermannia comosa, Lycium pilifolium, Melolobium microphyllum, Pavonia burchellii, Peliostomum leucorrhizum, Plinthus sericeus, Wahlenbergia nodosa. Succulent Shrubs: Aloe hereroensis var. hereroensis, Lycium cinereum. Graminoids: Eragrostis lehmanniana (d), Aristida canescens, A. congesta, A. mollissima subsp. argentea, Cymbopogon pospischilii, Digitaria argyrograpta, D. eriantha subsp. eriantha, Enneapogon cenchroides, E. scoparius, Eragrostis rigidior, Heteropogon contortus, Themeda triandra. Herbs: Barleria macrostegia, Dicoma schinzii, Harpagophytum procumbens subsp. procumbens, Helichrysum cerastioides, Hermbstaedtia odorata, Hibiscus marlothianus, Jamesbrittenia aurantiaca, Lippia scaberrima, Osteospermum muricatum, Vahlia capensis subsp. vulgaris. Succulent Herbs: Aloe grandidentata, Piaranthus decipiens. Biogeographically Important Taxa (GWGriqualand West endemic, KKalahari endemic)

Low Shrub: Blepharis marginataGW. Succulent Shrub: Euphorbia bergiiGW. Graminoid: Panicum kalaharenseK. Herbs: Helichrysum arenicolaK, Neuradopsis bechuanensisK. Succulent Herbs: Lithops aucampiae subsp. aucampiaeGW, Tridentea marientalensis subsp. marientalensisK.

The camel thorn tree, Acaia erioba, occurs in certain areas presently not earmarked for mining. Permits need to be obtained should the need arise for the removal of such trees.

Conservation Least threatened. Target 16%. Only 2% statutorily conserved in Vaalbos National Park as well as in Sandveld, Bloemhof Dam and S.A. Lombard Nature Reserves. Some 18% already transformed, mostly by cultivation. Erosion is very low. Area is mostly used for cattle farming or game ranching. Overgrazing leads to encroachment of Acacia mellifera subsp. detinens. References Bezuidenhout (1994, 1995), Smit (2000)

#### Critical biodiversity areas and broadscale processes

The study area site does not fall within a Critical Biodiversity Area.

#### **Fauna**

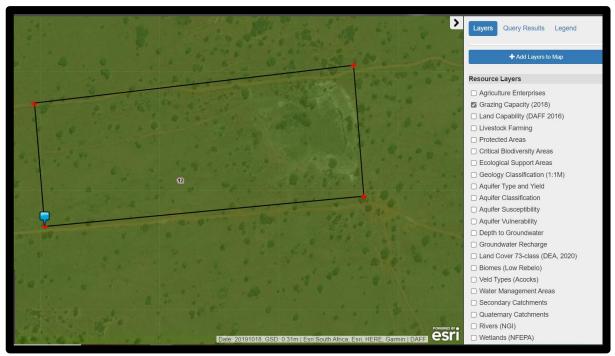
#### Fauna species expected to be present within the vicinity:

Mammalian species, mobile bat species, small rodents and Insectivores species, small carnivores. Animal species:

Aardvarkl (Orycteropus afer), Black-backed -jackal (Carnis mesomelas), Cape Hare (Lepus capensis, Scrub hare (Lepus saatilis), Steenbok (Raphicerus campestris), Suricate (Suricata suricatta), Aardwolf (Proteles cristatus), Grey Mongoose (Galerella pulverulenta), Turtiose (Testudinidae Geochelon e), Kudu (Tragelaphus strepsiceros), Common duiker (Grey duiker), Rock dassie (Procavia capensis), Steenbok (Raphicerus campestris)

#### **Grazing Capacity**

Grazing Capacity of 12 with a low to very low land capability.

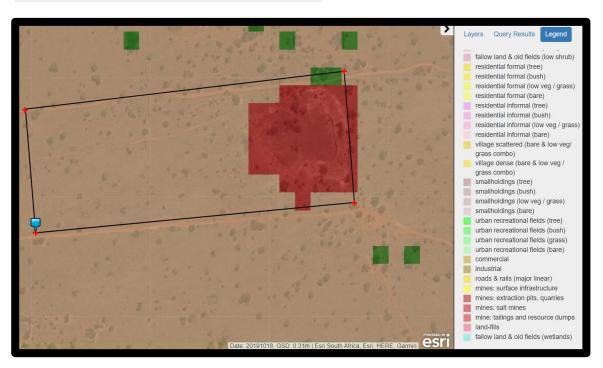


Source: CFM Agriculture GIS

#### Landcover (73 class DEA-2020)

Land cover refers to the surface cover on the ground, whether vegetation, urban infrastructure, water, bare soil or other. It provides a means to examine landscape patterns and characteristics, which are important in understanding: The extent, availability, and condition of lands. Ecological system extent, structure, and condition

Class: natural grassland
Classification Level 1: Grassland
Classification Level 2: Natural Grassland



Source: CFM Agriculture GIS

#### Water

NFEPA Water Management Area: Upper Orange (SANBI)

**Sub-Water Management Name: Rietmodder** 

**Quaternary Catchment:** C51L (CFG)

#### Groundwater

#### **Aquifer**

The aquifer is intergranular and fractures with a yield of 0.0-0.1l/s. The classification can be described as minor and a susceptibility classified as low with moderate vulnerability. Aquifer vulnerability is defined as the likelihood for contamination to reach a specified position in the groundwater system after being introduced at some point above the uppermost aquifer. The vulnerability is determined by evaluating seven parameters, namely:

- Depth to groundwater;
- · Recharge;
- · Aquifer media;
- · Soil media;
- Topography;
- · Impact on vadose zone; and
- Hydraulic conductivity.

Depth to groundwater is between 11-15m. Groundwater recharge is between 2-5.



Source: CFM Agriculture GIS

#### **River diversions:**

No alteration of any water courses or the natural drainage lines will take place on the site. No infrastructure development will be allowed within the 1:50 year floodline or within 20m of the drainage line (whichever is the greater).

#### Wetlands:

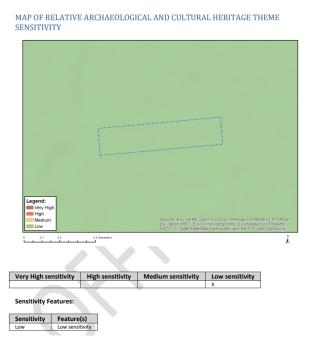
No wetlands occur on the study area.



Source: CFM Agriculture GIS

#### **Heritage and Culture**

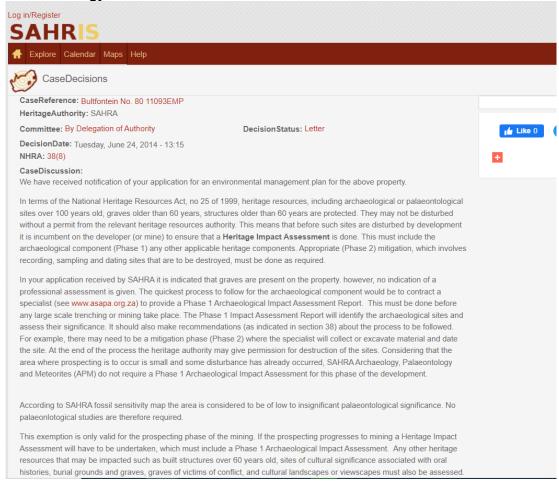
The applicant had a previous application for a Mining Permit and the area where graves was previously found is not part of this application. Historically the area has been mined for gravel and now constitutes an open pit of which any heritage and culture finds would have been found.



#### Dept Environment Screening Tool APPENDIX G

Source: Environment Screening Tool

#### **Palaeontology**



SAHRA comments of previous application of the applicant for a prospecting right. According to the SAHRA fossil sensitivity map the area is considered to be of low to insignificant paleontological significance. No studies are there for required.





Current open pit and mining area applied for

# ii) 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)

#### **POSITIVE IMPACTS**

**Employment Opportunities:** This operation will require the employment of yellow fleet and a crush and screen operator. It is anticipated that 18 people would be employed during the mining operation. The city of Kimberley is situated in close proximity to the operation, and this create employment to the local community.

Crileon will place emphasis on the employment of women, the youth and people with disability.

**SMME Support:** The mining operation will require consumables for the operation which can be sourced from SMME's.

<u>Training and Development:</u> It is a requirement from the DMRE-Mine Health and Safety Inspectorate that training should be provided to operators. This training should be conducted by accredited trainers and assessors. This allow operators to be semi-skilled and be employed in other sectors of the mining industry.

<u>Increase in the Disposable income for the area:</u> The employment will increase the disposable income for the area.

#### Revenue Generated to the State and Local authorities:

Crileon will have to pay taxes and levies to the State and the Local authorities.

#### **NEGATIVE IMPACTS**

<u>Generation of waste:</u> The mining activities will generate both the general and hazardous wastes. The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle.

<u>Land use alternative conflicts:</u> The site is not zoned for mining/industrial activities. This will create a parallel demand for land as successful mining activities will results in the establishment of a mine. A thorough consultation must be undertaken with all affected parties especially the local Chieftaincy allocating land for residential use.

<u>Introduction of Alien Invasive Plants on site:</u> Invasive plants flourish where there is disturbances and ecological imbalances. The clearing of vegetation to establish drill pads and benches has the potential to attract invasive alien plants.

<u>Criminal activities:</u> Crime in South Africa is a social challenge faced by almost everyone, the presence of mining machinery and equipment on site will attract criminals who would seek to steal and sell such equipment. The Kimberley area and the surrounding mines have been targeted for theft for numerous items especially diesel.

A lucrative commodity for thieves is the steal of diesel as it is easily sellable.

**Noise Generation:** The site is located just over 8 kilometers from Kimberley and the impact would be negligible. The operation of machinery and crushing and screening plant will create noise which would impact on the farm owner and the owners and occupants of neighbouring farms. The impact however would be minimal due to the distance and the fact that the operation would be conducted between 07:00 to 17:00.

<u>Dust Pollution:</u> During the whole mining period including, site establishment, construction, operation and closure numerous machines and equipment will create dust.

<u>Water Use Competition:</u> The area is known to have a limited source of water and is a scarce commodity. The dust suppression system on the screening plant and watering down of roads will be a major consumer of water which might give rise to conflict.

Loss of biodiversity: The mining activities will have an impact on the biodiversity.

<u>Soil Contamination and disturbance to Soil structure:</u> The mining method which will be employed will have an impact on the soil structure as it will have to be removed. Contamination can occur during the removal of the topsoil and successive soil layers and could further be contaminated by the oil, grease, diesel and hazardous substances spillage.

<u>Influx of labour to site:</u> The locals who are under severe economic conditions will flux to site seeking employment, this may also result in security threats to the operation. Influx of employment seekers from other areas of different culture might also frequent the site and the surrounding towns adding to cultural conflicts.

<u>Traffic:</u> The operation will contribute to the increase in traffic for the current road and transport infrastructure. This will be through the transport of the employees to the mining site and the logistics of the final product to the consumers.

# iii) 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).

**Noise:** The mining operation will be carried out during the day between 7:00 a.m. to 17:00; This must be eliminated through the engineering design of plant and equipment and the yellow machines fitted with silencer and planned maintenance performed.

<u>Influx of labour to site:</u> Labour will be sought form the city of Kimberley only.

<u>Clearing of vegetation</u>: Vegetation clearing must be limited to working areas only and a vegetation clearing method statement signed off by a qualified environmental professional must always be onsite and its specifications adhered to;

<u>Visual Impact:</u> The portable ablution facilities, water tanks and any other infrastructure should be acquired with consideration for colour, natural earth, green and mat black options which will blend in with the surrounding area must be favoured;

<u>Dust generation:</u> Wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other activities as and when needed:

<u>Waste management</u>: A system will be implemented, and sufficient waste bins will be provided for on-site. The respective waste bins should be clearly identifiable. An employee environmental site induction should conducted to address all controllable environmental impacts and create general awareness.

<u>Water:</u> Water requirement for the operation must be met through extraction from existing municipality connections ensuring that all by-laws are adhered to; No rivers or wetlands are within 6km of the operation.

<u>Wild life:</u> The working areas must be barricaded to prevent access by wild life, and no hunting will be allowed on site and animals found onsite must be rescued and relocated outside the working areas; No snares and traps will be allowed;

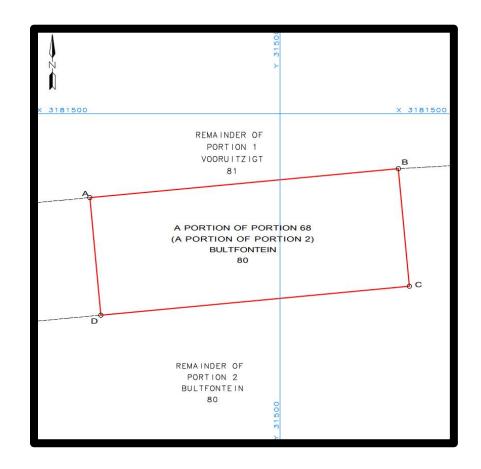
<u>Health and Safety:</u> All Health and Safety measures required by the DMRE should be enforced in the open pit and related mining areas. The pitting operations must comply with the safety measures as required by the DMRE in the Mine Health and Safety Act.

<u>Soil Impact Management:</u> When establishing stockpiles, it will be erected in demarcated areas to avoid contamination and erosion through wash off. The stockpiles will be shaped to divert stormwater around the working areas. Stockpiled topsoil will be used during rehabilitation activities.

<u>Traffic:</u> Limit construction activities to the daytime and use establishment routes as far as possible. Drivers obey all the rules of the road and ensure an open channel of communication with the surrounding road users to act proactivity on possible issues. Consult with the relevant roads agency to determine whether CRILEON must contribute to road maintenance or alterations due to increase traffic on the roads. Access to the operation must be through current roads and clear signage will be erected to warn road users of heavy vehicle presence.

#### (i) 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.



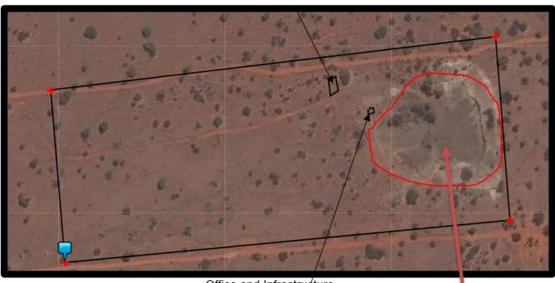


Figure 19: Fi

Office and Infrastructure

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

Confirmed by M A Goliath after consultation.

(b) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

#### Infrastructure Areas:

All Plant equipment, diesel bay and infrastructure, temporal infrastructure must be removed and rehabilitated to original ground level and vegetated On completion of the Mining operation, the various surfaces, including the access roads, the office area, storage areas, and the screening plant site, will be rehabilitated as follows:

All remaining material on the surface will be removed to the original topsoil level. This material will then be backfilled into the depressions. Any compacted area will then be ripped to a depth of 300mm, where possible the topsoil or growth medium returned and landscaped.

All infrastructure, equipment, screening plant, and other items used during the operational period will be removed from site.

On completion of operations, all buildings, structures or objects on the office site will be dealt with in accordance with Regulation 44 of the Minerals and Petroleum Resources Development Act, 2002, which states:

1. When a Mining right, mining right, retention permit or Mining permit lapses, is cancelled or is abandoned or when any Mining or Mining operation comes to an end, the holder of

such right or permit may not demolish or remove any building, structure or object —

- (a) which may not be demolished or removed in terms of any other law;
- (b) which has been identified in writing by the Minister for purposes of this section; or
- (c) which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.
- 2. The provision of subsection (1) does not apply to bona fide Mining equipment, which may be removed.

Topsoil and Stockpile Deposits: Disposal facilities

Waste material of all description inclusive of receptacles, scrap, rubble and tyres will be removed entirely from the Mining area and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.

#### On-going seepage, control of rainwater

No monitoring of ground or surface water will take place, except if so requested by the DWS.

#### Long term stability and safety

It will be the objective of the company management to ensure the longterm stability of all rehabilitated areas including the backfilled depressions. This will be done by the monitoring of all areas until a closure certificated has been issued.

Final rehabilitation in respect of erosion and dust control. Selfsustaining vegetation will result in the control of erosion and dust and no further rehabilitation are planned.

#### Final rehabilitation roads

After rehabilitation has been completed, all roads will be ripped or ploughed, fertilized and seeded.

#### Submission of information

Reports on rehabilitation and monitoring will be submitted annually to the Department of Mineral Resources and Energy— Kimberley.

#### Maintenance (Aftercare)

Maintenance after closure will mainly concern the regular inspection and monitoring and/or completion of the re-vegetation programme.

The aim of this Environmental Management Plan is for rehabilitation to be stable and self-sufficient, so that the least possible aftercare is required. The aim with the closure of the operation will be to create an acceptable post-Mining environment and land-use. Therefore, all agreed commitments will be implemented by the Company Management.

#### D. After-effects following closure:

Acid mine drainage

No potential for bad quality leach ate or acid mine drainage development exist after operation closure.

Long term impact on ground water No after effect on the groundwater yield or quality is expected.

Long-term stability of rehabilitated land
One of the main aims of any rehabilitated ground will be to
obtain a self-sustaining and stable end result.
Cleaning of all drill bits material concurrently and replacing of
topsoil where available.

Submissions of Information

Reports on rehabilitation and monitoring will be submitted annually to the Department Mineral Resources-Kimberley, as described in Regulation 55.