mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND PROSPECTING.

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).

NAME OF APPLICANT: **Coptra-SA (PTY) LTD**
TEL NO: **(082) 773 6905**
CEL NO: **(082) 773 6905**
POSTAL ADDRESS: **Postnet Suite 50;**
Private Bag X0001;
Ballito;
4420
PHYSICAL ADDRESS: **Grootderm 10**
Namaqualand
1206

FILE REFERENCE NUMBER SAMRAD: **(NC) 30/5/1/2/2/10190 MR**

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 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 SCOPING PROCESS

1. The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;
(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
(d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
(e) identify the key issues to be addressed in the assessment phase;
(f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
(g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

2) Contact Person and Correspondence Address

a) Details of:

i) The EAP who prepared the report:

Name of the Practitioner: Roelien Oosthuizen

Tel No.: 084 208 9088

Fax No.: 086 510 7120

e-mail address: roosthuizen950@gmail.com

Physical Address: Farm Oberon, Kimberley, 8301

Postal Address: P O Box 110823,
Hadisonpark,
8306

ii) Appointed by:

Coptra-SA (PTY) LTD

iii) Expertise of the EAP

(1) **The qualifications of the EAP**

Registered Environmental Assessment Practitioner: Number 2019/1467 at EAPASA
Masters in Environmental Management (UFS)
B-Comm in Human and Industrial- Psychology (NWU)

(With evidence attached as **Appendix 1**)

(2) **Summary of the EAP's past experience**

Relevant past experiences in carrying out the Environmental Impact Assessment Procedures include Environmental Impact Assessments, Environmental Management Plans/Programmes/ Reports, Performance assessments, Rehabilitation progress assessments, Environmental Liability assessments, Environmental compliance monitoring, Scoping Reports, etc. *See attached CV.* (Attach the EAP's curriculum vitae as **Appendix 2**)

b) Description of the property

Farm Name:	**Property:** A Portion of the Remainder and Portion 3 (Beauvallon) of the farm Grootderm 10 (2775.2691 Ha) **District:** Namaqualand **Province:** Northern Cape **Extent:** 2775.2691 ha
Application area (Ha)	2775.2691 ha (Two thousand seven hundred and seventy-five comma two six nine one hectares.)
Magisterial district:	Namaqualand
Distance and direction from nearest town	The Farm area is situated 23 km north east of Alexander Bay situated in the Namaqualand District which is in the Northern Cape Province of South Africa.
21-digit Surveyor General Code for each farm portion	**C05300000000001000003** **C05300000000001000000**

c) Locality map

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

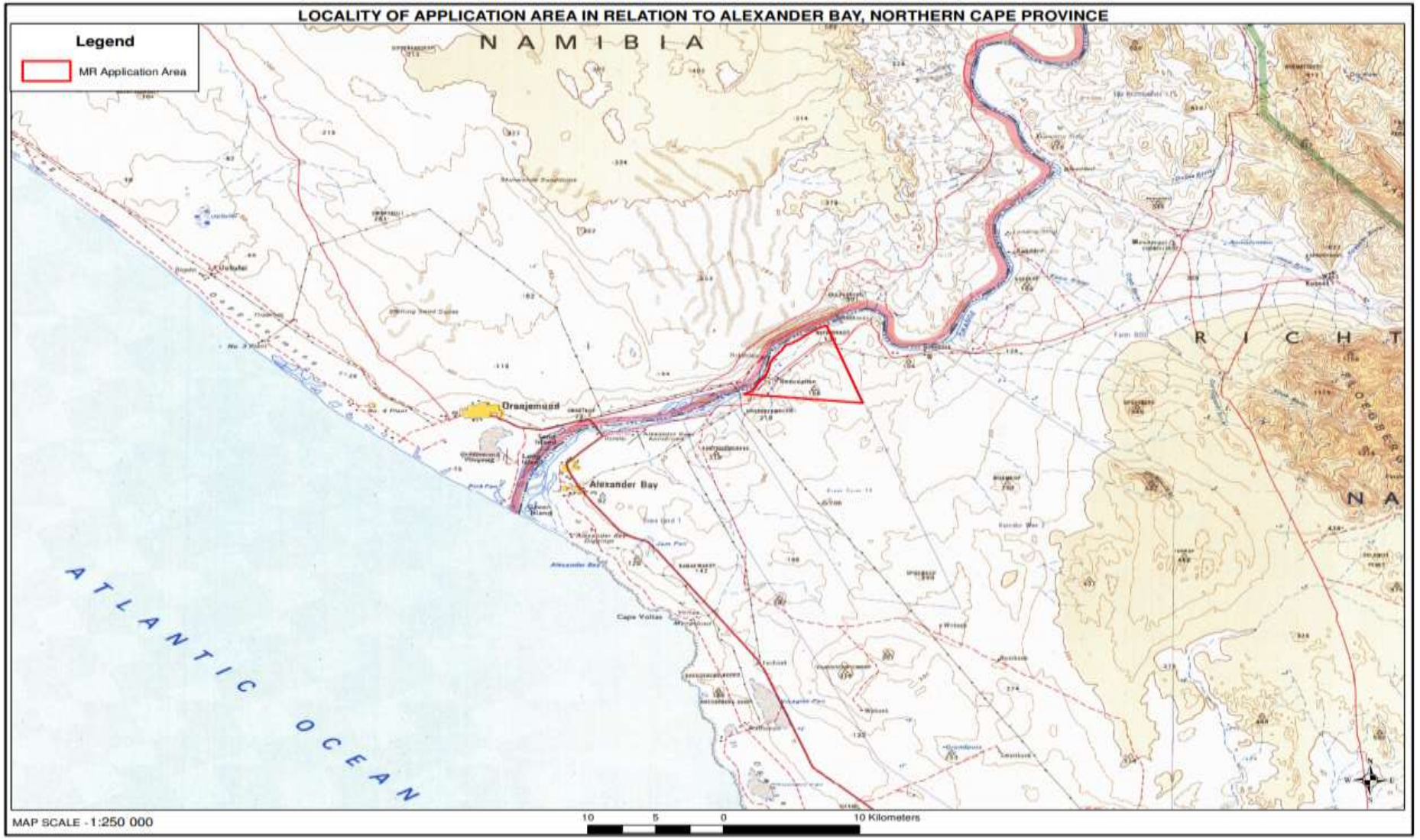


Figure 1. Locality of application area in relation to Alexander Bay, with the application area indicated with red.

d) Description of the scope of the proposed overall activity

i) Listed and specified activities

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.

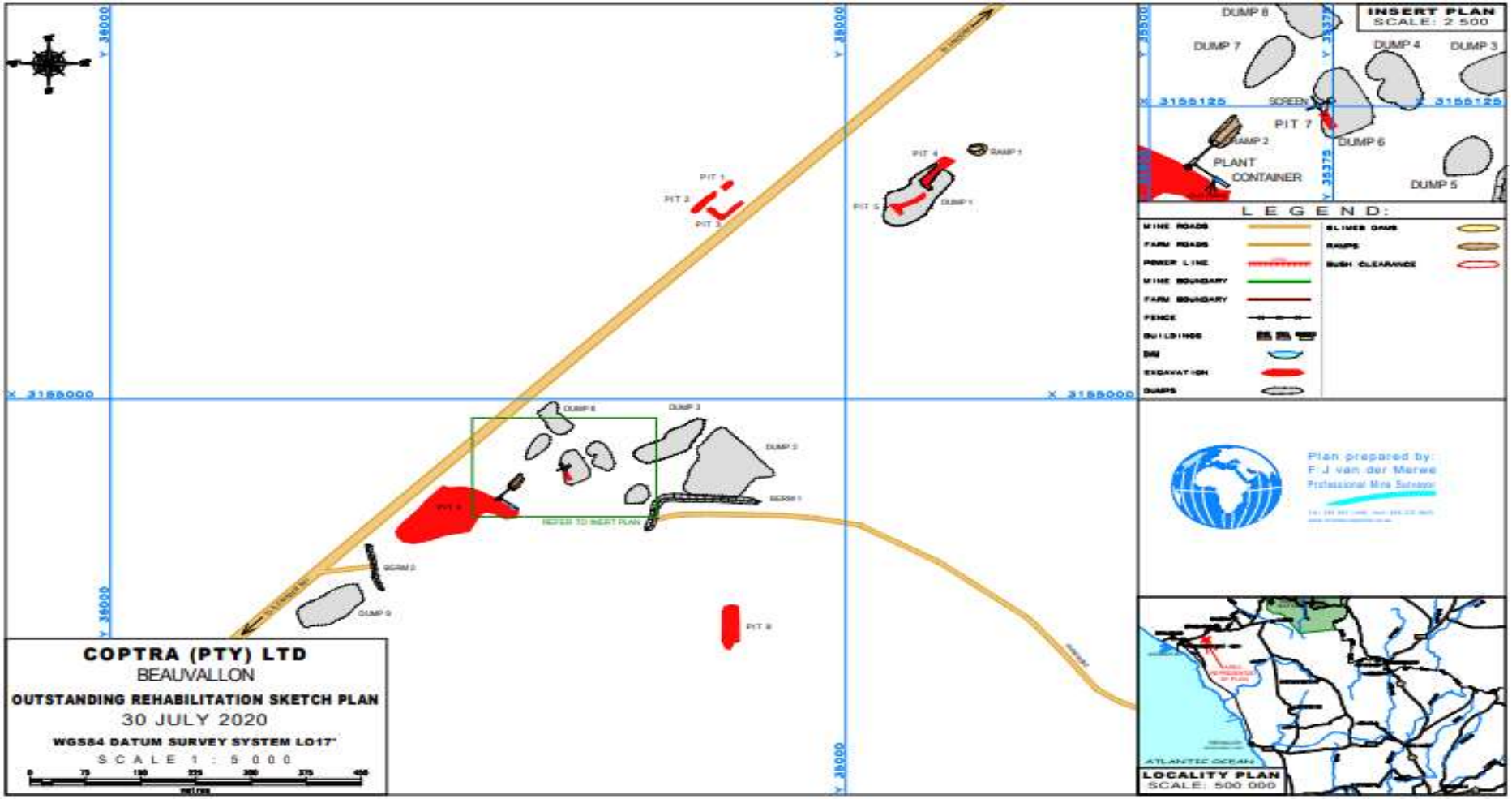


Figure 2. A plan indicating the overall location and extent of listed activities and main infrastructure on the mining site (SURVEYED MAP JULY 2020 DURING BULK SAMPLING

Table 1: Listed and specified activities

Name of activity (e.g. 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, etc…etc…etc.)	Aerial extent of the activity (Ha or m²)	Listed Activity (mark with an X where applicable or affected)	Applicable Listing Notice (GNR544, GNR545 or GNR546 / Not listed GNR983, GNR984, GNR985/ Not listed)
Activity 9: "The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- (vii) with an internal diameter of 0.36 metres or more; or (viii) with a peak throughput of 120 litres per second or more;	Water distribution Pipelines	X	NEMA: LN1 (GNR327)
Activity 12: "The development of— The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse"** Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities)	Clean and dirty water system It is anticipated that the operation will establish storm water control berms and trenches to separate clean and dirty water on the mining site.	X	NEMA: LN1 (GNR327)
Activity 13: The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic meters or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014	Possible storage dam and tanks	X	NEMA: LN1 (GNR327)
Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, **excavation, removal or moving** of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;	Possible excavation within the 1:100-year flood line if approval is received from DWS	X	NEMA: LN1 (GNR327)

Activity 24: The development of a road- (ii) a road with a reserve wider than 13,5 meters or where no reserve exists where the road is wider than 8 metres.	Access and haul roads 10 000m²	X	NEMA: LN1 (GNR327)
Activity 17: Any activity including the operation of that activity which requires a **mining right** as contemplated in section 22 of the Mineral and Petroleum Resources 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, crushing, screening or washing; But excluding 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. The Coptra -SA operation directly relates to mining of a mineral resource (diamonds) and requires a mining right.	2775.2691 ha	X	NEMA: LN2 (GNR325)
Activity 14: The development and related operation of facilities or infrastructure for the storage and handling of dangerous goods (fuel), where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic meters.	2 X 23 000l diesel tanks = 46 000l with capacity for storing of old oils and new oils to be calculated	X	NEMA: LN1 (GNR327)
Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	±500 ha	X	NEMA: LN2 (GNR325)
Activity 11: The establishment of residue deposits resulting from activities which require a mining right.	0.3ha		NEMWA: Category B (GNR 633)

Activity 12 (g): The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.	i. Within any critically endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans;	X	NEMA;LN3 (GNR324)
Office complexes Temporary workshop facilities Storage facilities Concrete bund walls and diesel depots Ablution facilities Topsoil stockpiles Overburden stockpiles • Water tanks	± 200 m2 ± 300 m2 ± 2 000 m2 ± 250 m2 ± 30 m2 ± 500 m2 5 000 m2 3m x 3m = 9m² each		Not Listed

ii) 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)

Basic overview of the mining method

The following is a description of a typical South African alluvial diamond mining operation, which is also being utilized at Coptra -SA Co. The mining method being employed is a strip-mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation.

Gravels are excavated, loaded onto a vibrating grizzley or scalping screen and the +32 mm oversize material is discarded back into the open pit (about 55% reduction). The screen will be moved adjacent to each pit. Once the pit is complete it will be moved to the next pit.

The remaining –32 mm fraction is, loaded and transported to the nearby treatment facility using articulated dump trucks.
Where pans are used the screened material is loaded into a series of 16 sixteen-foot rotary pans, each typically with a treatment capacity of 80 tph. Tracer tests are done regularly to ensure that the pans are operating at the correct density. Concentrate is tapped continuously from each of the pans every three hours into three ton holding bins and transported with enclosed trucks to a final recovery unit which is designed to use both X-ray and grease diamond recovery methods or any other facility which is chosen by Coptra -SA Pty Ltd.

Topsoil will be removed from the first block, where after it will be stored separately on the high ground of the proposed mining area. Stored topsoil will be kept separate from overburden and will not be used for the building or maintenance of access roads. Stored topsoil will be adequately protected from being eroded or blown away.

Screened material smaller than 100 mm will be transported to a stockpiling area at the treatment plant, via front-end loader or tipper. From here it will be transported to a conveyor belt, which will feed it onto a Findlay type screen or if wet, then to scrubber or wet rotary screen and then directly onto 2 X 16 feet washing pans per site.

The following procedure will be followed in terms of backfilling and rehabilitation:

- The coarse gravel sifted at the grizzly screen will be dumped back into excavations in process of rehabilitation. Dry tailing from the pans and fine concentrate will be transported back to and dumped into open Block 1. During this process of backfilling, variation in the dumping sequence of different sized materials will

be followed to ensure better compaction and stability of the reclaimed gravel. Wet tailings or slimes will be appropriately treated for inclusion in rehabilitation. Compaction will be achieved through the movement of heavy vehicles over the area during the backfilling stage.

- The mining sequence will be followed until the last block is reached. Topsoil stored at the beginning of the mining operation will now be utilized for the final rehabilitation of the last block on the land portion.

Workshop equipment and tools to be used consist of secured container stores containing grease pumps, rigger chains, hydraulic jacks, air compressors, electric testers, welders, grinders, socket sets, gas sets, magnetic drills, hydraulic test instruments, tools, spanners and toolboxes. Approximately 18 000 litres of process water will be required by the proposed mining operation per hour per pan however modern technology in de-sanding may reduce water consumption in some areas. The use of closed-circuit water recovery systems on the pans can result in further savings of more than 50% on water requirement.

Process water is sourced from the Orange River. Other sources of water include pumping water from mining excavations or the tailings or slimes disposal facilities and recycling ponds. The production rate of the proposed operation will be approximately 80 tph per pan.

Waste Management

Proper sanitation facilities will be provided for employees. No person will pollute the workings with faeces or urine, misuse the facilities provided or inappropriately foul the surrounding environment with faeces or urine. Acceptable hygienic and aesthetic practices will be adhered to. Non-biodegradable refuse such as glass bottles, plastic bags, etc. will be sorted and stored in separate lockable containers at a central point. It will be disposed of at a recognised disposal facility twice a month. Biodegradable refuse will either be handled as indicated, or be buried in a pit excavated for that purpose and covered with layers of soil when almost full. A final 0,5m thick layer of topsoil will be incorporated where practicable. Provision will be made for the future subsidence of the covering. Refuse will not be dumped in the vicinity of the mining area. Waste material with regard to vehicle repairs will be kept in 200 litres steel containers in the maintenance/farmstead area. This material will be disposed of at a recognised disposal facility once a month.

Access Roads

The Farm area is situated 23 km north east of Alexander Bay situated in the Namaqualand District. The farm borders on the Orange River to the North West.

Activities associated with the Mine that is expected to make use of the R382 road include:-

- The transportation of mining personnel to and from the site;
- Delivery of supplies and materials;

These transport operations will make use of passenger vehicles, light delivery vehicles and very limited heavy vehicles.

Haul Roads

There will be one Haul Road to the plant area and one haul road to the mining site. No other haul roads will be constructed. Main haul roads will have a minimum width of 5m. No roads will be wider than 15m. Existing roads will be used as far as practically possible. Haulage will be minimised by screening out as much as possible oversize and undersize at the excavation site for direct return dumping in excavations for rehabilitation. Overburden and topsoil will also not be hauled.

e) Policy and Legislative Context

Table 2: 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	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).
Conservation of Agricultural Resources Act (Act 43 of 1983) and Regulations (CARA)	- Section 5: Implementation of control measures for alien and invasive plant species; - Section 6: Control measures. - Regulation GN R1048, published on 25 May 1984, in terms of CARA	- Control measures are to be implemented upon the approval of the EMPR.
Constitution of South Africa (Act 108 of 1996)	- Section 24: Environmental right - Section 25: Rights in Property - Section 27: Water and sanitation right	- To be implemented upon the approval of the EMPR.
Environment Conservation Act (Act 73 of 1989) and Regulations (ECA)	- Sections 21, 22, 25, 26 and 28: EIA Regulations, including listed activities that still relate to the existing section of ECA. - Section 28A: Exemptions.	- To be implemented upon the approval of the EMPR.
Fencing Act (Act 31 of 1963)	- Section 17: States that any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5m on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in	- Control measures are to be implemented upon the approval of the EMPR.

	conjunction with the environmental legal provisions relevant to protection of flora.	
Hazardous Substances Act (Act 15 of 1973) and Regulations read together with NEMA and NEMWA	- Definition, classification, use, operation, modification, disposal or dumping of hazardous substances.	- Noted and Considered measures are to be implemented upon the approval of the EMPR.
Intergovernmental Relations Act (Act 13 of 2005)	- This Act establishes a framework for the National, Provincial and Local Governments to promote and facilitate intergovernmental relations.	
Mine, Health and Safety Act (Act 29 of 1996) and Regulations	- Entire Act.	- Control measures are to be implemented upon the approval of the EMPR.
Mineral and Petroleum Resources Development Act (Act 28 of 2002) and Regulations as amended	- Entire Act. - Regulations GN R527	- A Mining Right has been applied for (NC) 30/5/1/2/2/10190 MR. - Rights and obligations to be adhered to.
National Environmental Management Act (Act 107 of 1998) and Regulations as amended	- Section 2: Strategic environmental management principles, goals and objectives. - Section 24: Foundation for Environmental Management frameworks. - Section 24N: - Section 24O: - Section 28: The developer has a general duty to care for the environment and to institute such measures to demonstrate such care. - Regulations GN R547, more specifically Chapters 5 and 7, where applicable (the remainder was repealed) published on 18 June 2010 in terms of NEMA (Environmental Management Framework Regulations) - Regulations GN R982 to R985, published on 4 December 2014 in terms of NEMA (Listed Activities)	- Control measures are to be implemented upon the approval of the EMPR.

	- Regulations GN R993, published on 8 December 2014 in terms of NEMA (Appeal) - Regulations GN R994, published on 8 December 2014 in terms of NEMA (exemption) - Regulations GN R205, published on 12 March 2015 in terms of NEMA (National appeal Amendment Regulations) - Regulations GN R1147, published on 20 November 2015 in terms of NEMA (Financial Provision)	
National Environmental Management: Air Quality Act (Act 39 of 2004)	- Section 32: Control of dust - Section 34: Control of noise - Section 35: Control of offensive odours - Regulation GN R551, published on 12 June 2015 (amended Categories 1 to 5 of GN 983) in terms of NEM:AQA (Atmospheric emission which have a significant detrimental effect on the environment) - Regulation GN R283, published on 2 April 2015 in terms of NEM:AQA (National Atmospheric Emissions Reporting Regulations) (Group C-Mines)	- Control measures are to be implemented upon the approval of the EMPR. - This is also legislated by Mine Health and Safety from DMR and is to be adhered to.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	- Section 52 of The National Environmental Management Act: Biodiversity Act (NEMBA) (Act 10 of 2004) states that the MEC/Minister is to list ecosystems that are threatened and in need of protection. - Section 53 states that the Minister may identify any process or activity in such a listed ecosystem as a threatening process. - A list of threatened and protected species has been published in terms of Section 56(1) GG 29657 GNR 151 and GNR 152, Threatened or Protected Species Regulations.	- A permit application regarding protected plant species needs to be lodged with DENC if any protected species is encountered. Control measures are to be implemented upon the approval of the EMPR.

	Commencement of Threatened or Protected Species Regulations 2007: 1 June 2007 GNR 150/GG 29657/23-02-2007 Publication of lists of critically endangered, vulnerable and protected species GNR 151/GG 29657/23-02-2007 * Threatened or Protected Species Regulations GNR 152/GG 296547/23-02-2007 * - Sections 65 – 69: These sections deal with restricted activities involving alien species; restricted activities involving certain alien species totally prohibited; and duty of care relating to alien species. - Sections 71 and 73: These sections deal with restricted activities involving listed invasive species and duty of care relating to listed invasive species. - Regulation GN R151, published on 23 February 2007 (List of Critically Endangered, Vulnerable and Protected Species, 2007) in terms of NEM: BA - Regulation GN R152, published on 23 February 2007 (TOPS) in terms of NEM:BA - Regulations GN R507 to 509 of 2013 and GN 599 of 2014 in terms of NEM:BA (Alien Species)	
The National Environmental Management Act: Protected Areas Act (NEMPAA) (Act 57 of 2003) provides for the protection of ecologically viable areas that are representative of South Africa's natural biodiversity and its landscapes and seascapes.	- Chapter 2 lists all protected areas.	- This will be established with a specialist study. It is not anticipated that the prospecting operation fall within any protected area which is known.

National Environmental Management: Waste Management Act (Act 59 of 2008)	- Chapter 4: Waste management activities - Regulations GN R634 published on 23 August 2013 in terms of NEM:WA (Waste Classification and Management Regulations) - Regulations GN R921 published on 29 November 2013 in terms of NEM:WA (Categories A to C – Listed activities) - National Norms and Standards for the Remediation of contaminated Land and Soil Quality published on 2 May 2014 in terms of NEM:WA (Contaminated land regulations) - Regulations GN R634 published on 23 August 2013 in terms of NEM: WA (Waste Classification and Management Regulations) - Regulations GN R632 published on 24 July 2015 in terms of NEM: WA (Planning and Management of Mineral Residue Deposits and Mineral Residue Stockpiles) - Regulations GN R633 published on 24 July 2015 in terms of NEM: WA (Amendments to the waste management activities list published under GN921)	- To be implemented upon the approval of the EMPR.
National Forest Act (Act 84 of 1998) and Regulations	- Section 15: No person may cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister.	- A permit application regarding protected tree species needs to be lodged with DAFF if necessary. - Control measures are to be implemented upon the approval of the EMPR.
National Heritage Resources Act (Act 25 of 1999) and Regulations	- Section 34: No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority. - Section 35: No person may, without a permit issued by the responsible heritage resources	- Control measures are to be implemented upon the approval of the EMPR. Fossil finds procedure will be attached to the PIA.

	authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site. - Section 36: No person may, without a permit issued by SAHRA or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a forma cemetery administered by a local authority. - Section 38: This section provides for HIA which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during HIA process. - Regulation GN R548 published on 2 June 2000 in terms of NHRA	
National Water Act (Act 36 of 1998) and regulations as amended, *inter alia* Government Notice No. 704 of 1999	- Section 4: Use of water and licensing. - Section 19: Prevention and remedying the effects of pollution. - Section 20: Control of emergency incidents. - Section 21: Water uses In terms of Section 21 a licence is required for: (a) taking water from a water resource; (b) storing water; (c) impeding or diverting the flow of water in a watercourse; (f) Waste discharge related water use; (g) disposing of waste in a manner which may detrimentally impact on a water resource; (i) altering the bed, banks, course or characteristics of a watercourse;	- A water use application must be submitted. - Control measures are to be implemented upon the approval of the EMPR.

	(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and; - Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities) - Regulation GN R1352, published on 12 November 1999 in terms of the National Water Act (Water use to be registered) - Regulation GN R139, published on 24 February 2012 in terms of the National Water Act (Safety of Dams) - Regulation GN R398, published on 26 March 2004 in terms of the National Water Act (Section 21 (j)) - Regulation GN R399, published on 26 March 2004 in terms of the National Water Act (Section 21 (a) and (b)) - Regulation GN R1198, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i) – rehabilitation of wetlands) - Regulations GN R1199, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i)) - Regulations GN R665, published on 6 September 2013 in terms of the National Water Act (Amended GN 398 and 399 – Section 21 (e), (f), (h), (g), (j))	
Nature Conservation Ordinance (Ord 19 of 1974)	- Chapters 2, 3, 4 and 6: Nature reserves, miscellaneous conservation measures, protection of wild animals other than fish, protection of Flora.	- Control measures are to be implemented upon the approval of the EMPR.
Occupational Health and Safety Act (Act 85 of 1993) and Regulations	- Section 8: General duties of employers to their employees.	- Control measures are to be implemented upon the approval of the EMPR.

	- Section 9: General duties of employers and self-employed persons to persons other than their employees.	
Road Traffic Act (Act 93 of 1997) and Regulations	- Entire Act.	- Control measures are to be implemented upon the approval of the EMPR.
Water Services Amendment Act (Act 30 of 2007)	- It serves to provide the right to basic water and sanitation to the citizens of South Africa (giving effect to section 27 of the Constitution).	- Control measures are to be implemented upon the approval of the EMPR.
National Land Transport Act, (Act 5 of 1998)		- To take note.
Spatial Planning and Land Use Management (Act 16 of 2013 (SPLUMA) and regulations	- To provide a framework for spatial planning and land use management in the Republic; - To specify the relationship between the spatial planning and the land use management, amongst others - Regulations GN R239 published on 23 March 2015 in terms of SPLUMA	- To be implemented upon the approval of the EMPR.
Subdivision of Agricultural Land Act, 70 of 1970 and regulations	- Regulations GN R373 published on 9 March 1979 in terms of Subdivision of Agricultural Land	- To take note.
Basic Conditions of Employment Act (Act 3 of 1997)) as amended	- To regulate employment aspects	- To be implemented upon the approval of the EMPR
Community Development (Act 3 of 1966)	- To promote community development	- To be implemented upon the approval of the EMPR
Development Facilitation (Act 67 of 1995) and regulations	- To provide for planning and development	- To take note.
Development Facilitation (GNR1, GG20775, 07/01/2000)	- Regulations re application rules S26, S46, S59	- To take note.
Development Facilitation (GN732, GG14765, 30/04/2004)	- Determines amount, see S7(b)(ii)	- To take note.

Land Survey Act (Act 8 of 1997)) and regulations, more specifically GN R1130	- To control land surveying, beacons etc. and the like; - Agriculture, land survey S10	- To take note.
National Veld and Forest Fire Act (Act 101 of 1998)) and regulations, more specifically GN R1775	- To regulate law on veld and forest fires - (Draft regulations s21)	- To be implemented upon approval of the EMPR

f) Need and desirability 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).

The Coptra--SA Project is in line with the 'Beneficiation Strategy for the Minerals Industry of South Africa' (DMR, 2011) in terms of aiming to beneficiate diamonds for sale/export. The benefits of this will fall directly to the Northern Cape Province and, specifically, the Namaqualand District.

In addition, the South African National Development Plan aims to eliminate poverty and reduce inequality by 2030. South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society. The Coptra-SA Project will contribute to achieving this plan in terms of direct and indirect employment of people from the local and district municipalities as well as investment in the region and on a national scale.

Coptra-sa was granted a prospecting right by the DMR to prospect for alluvial diamonds on Grootderm 3 (Beauvallon) and a portion of Grootderm 10 situated 23 km north-east of Alexander Bay, Northern Cape. The prospecting phase involved the sinking of a number of drill holes in order to establish the presence of ancient paleo channels, plunge pools or scours in the bedrock. This drilling program has been completed and a resource was proven.

In order to advance the project and to prove the presence of a minable resource of diamonds Coptra-sa undertook a bulk-sampling program and a reserve was proven.

Diamond mining, will contribute to South Africa's status in world diamond production and Coptra-sa's vision is to be an active participant in the industry. Importantly it is a product that is exported and earns foreign exchange.

Should this proven reserve be mined, it would provide a significant contribution to the local community and the economy of the country. The Richtersveld Community holds a 26% shareholding in Coptra-sa (Pty) limited and as such will form an integral part of the vision. Directly the community will benefit from job creation and revenue generated by a successful sampling program.

Need

Analysis of the Diamond Industry – ALROSA(website)

The Information on the analysis of the diamond industry was obtained from the ALROSA website who is one of the biggest diamond producers in the world.

The world diamond market is represented by diamond mining and trade in rough diamonds. The bulk of the world diamond mining is concentrated in nine countries, with their share in the global production in physical terms as high as 99%.

The world's largest producers of natural diamonds are Russia, the Democratic Republic of Congo (DRC) and Botswana, all together accounting over 60% of the global diamond production.

Top Countries in the Global Diamond Production 2016: 134.1 mln. Carats

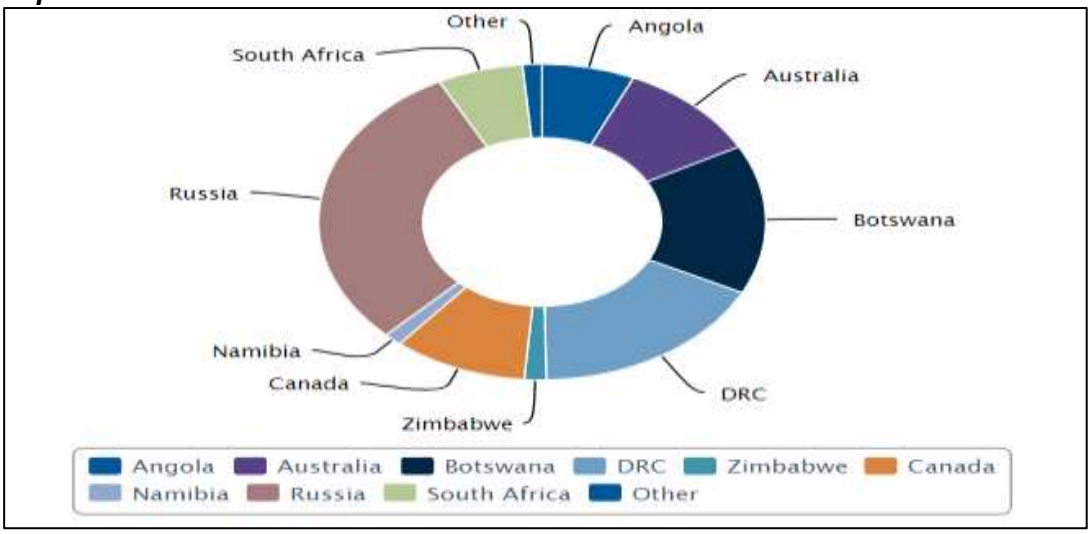


Figure 3. Kimberley Process companies' data Global Diamond Production 2011-16 (thousands of carats)

World diamond production based on the costs of produced rough diamonds are dominated by Russia, Botswana and Canada with a combined production of more than 60% of the total worldwide production

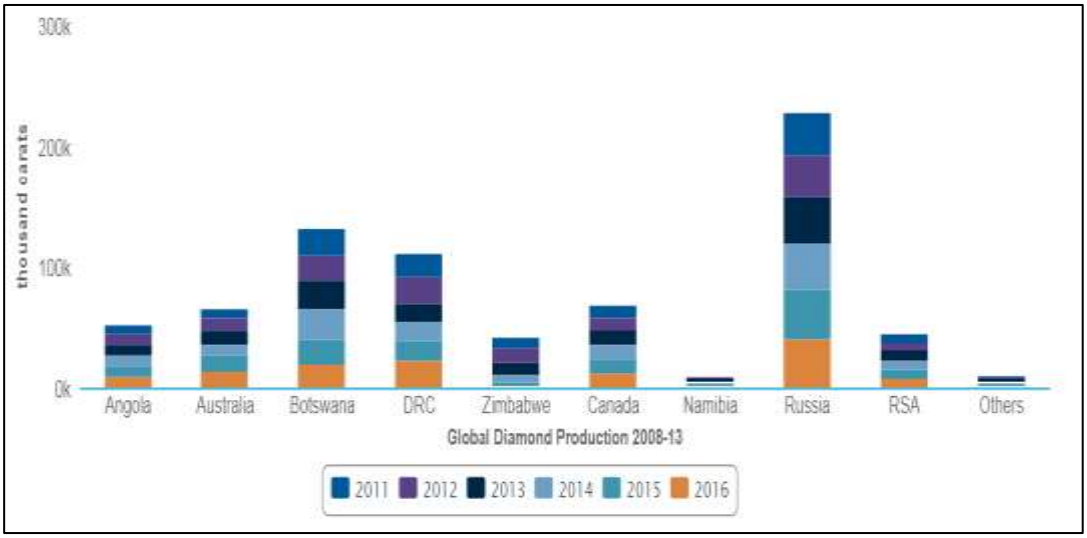


Figure 4. Global Diamond Production 2011-16 (thousands of carats) Kimberley Process companies' data

Russia ranks first in the world's diamond production. ALROSA Group accounts for 93% of the total diamond production in the Russian Federation in physical terms, and it is the leader of the global diamond mining industry. Major mining companies are engaged in mining in the main diamond-producing countries, the exception being Zimbabwe and the DRC, where diamond deposits are developed by small companies and prospectors. The graph below represents the geography of the companies' activities including exploration.

Diamond Production by Leading Companies, 2016(* - *including Ekati; Companies' data)*

The world's diamond mining is concentrated in the major primary deposits accounting for about 60% of the global diamond production. The remaining production is concentrated in placer deposits, the principal of them located in the DRC (Mbiji-Mayii) and Zimbabwe (Marange).

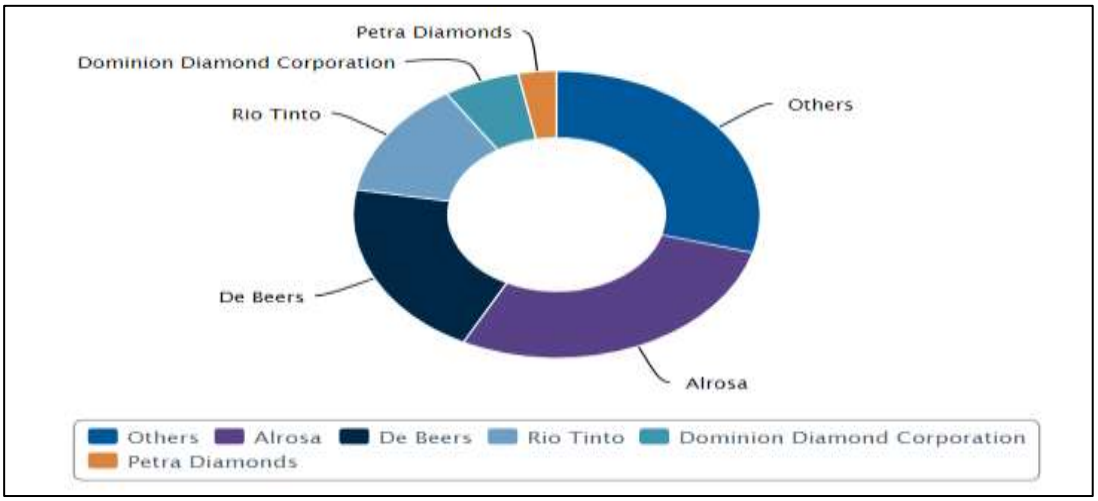


Figure 5. Diamond Production by Leading Companies, 2016(* - including Ekati; Companies' data)

Figure 6. Production Output of the World's Major Diamond Deposits, 2016 (thousand carats) Kimberley Process and companies' data; * - Ekati includes open-pit and underground mining; ** - output, including further development of the open-pit.

By their attributes diamonds from deposits fall into two categories: gem quality and industrial grade diamonds. The former is used in diamond jewellery production, while the latter is used for industrial purposes (manufacture of drills, saws, and abrasive powders). Gem quality rough diamonds are sorted by size, colour, quality and shape, and then are sold to buyers in conformity with the sales policy adopted in a rough diamond production company. Depending on the quality of the mined rough diamonds, the current state of the market, the adopted marketing policy, companies use different approaches to diamond sales: sights, tenders, auctions, spot transactions and long-term contracts.

The world's largest trading centres, which concentrate the bulk of trade in natural rough diamonds, are India, Belgium, the UAE, the USA, Hong Kong and Israel. Being sold from mines, natural rough diamonds arrive at cutting and polishing plants to become polished

diamonds that will be used in jewellery making.

(The information above was sourced from the ALROSA website. ALROSA is a world leader in the world diamond mining industry, a Russian partially state-owned diamond mining company)

The Diamond Pipeline

The Diamond Pipeline can be defined as the route the diamond takes from mine to end consumer. The diamond pipeline, typically, comprises**.**

Figure 7. The Diamond Pipeline

***Exploration/Prospecting*;** involves geologists finding diamond deposits in different areas. Prospecting is vital to the future survival of any diamond business as there is a predicted supply-demand gap.

Mining and Recovery*;** once diamonds have been discovered and surveys shown that it is financially viable to mine them; they are now recovered from the ground. The manner in which they are mined and recovered depends on their source, thus, where they are found. ***Sorting and valuing; process of sorting and valuing of diamonds, categorizing them according to size, quality, model and colour.

***Cutting and polishing*;** refers to manufacturing of diamonds; the process of turning rough diamonds into polished.

***Polished Market*;** this is referred to as the 'diamond exchange bourse', a place where diamonds are traded. These are located in some of the world's major diamond manufacturing centres, e.g. Belgium.

Retailing; polished diamonds find their way to Jewellers and Consumers through Wholesalers and Retailers.

International Diamond Market Trends

Although global financial stability has proven quite volatile over the past 4-5 years, the diamond industry appears to have stabilised somewhat, with moderate increases in diamond prices forecast for the immediate future.

Figure 8. Inventory movements support diamond prices (USDM, Mct)

Desirability:

No	Description	Yes/No
1	Does the proposed land use / development fit the surrounding area?	Yes
2	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	Yes
3	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	Yes
4	Will the proposed land use / development impact on the sense of place?	Yes
5	Will the proposed land use / development set a precedent?	No
6	Will any person's rights be affected by the proposed land use / development?	Yes
7	Will the proposed land use / development compromise the "urban edge"?	No

- **Benefits:**

No	Description	Yes/No
1	Will the land use / development have any benefits for society in general?	Yes
2	Will the land use / development have any benefits for the local communities where it will be located?	Yes

g) Period for which the environmental authorisation is required

20 years dependant on the granting of the Mining Right.

h) Description of the process followed to reach the proposed preferred site

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

- The location of the mine, and specific mining activity within this site, is determined by the geological location of the mineral resource. The application area has been disturbed by previous mining and is not a pristine site.

- The scattered un-rehabilitated historic disturbances (not connected in any way with Coptra-SA) will now have the chance to be rehabilitated and to return back to original land use as a positive by product of this proposed new mining.

i) Details of all alternatives considered

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:
(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

(a) The registered description of the land to which the mining right application relates:

Property:	Portion of the Remainder and Portion 3 (Beauvallon) of the farm Grootderm 10.
District:	Namaqualand
Province:	Northern Cape
Extent:	2775.2691 ha

Alternatives considered: -

No planned alternative to proposed mining is envisaged. Most of the area where mineable gravel ore has been identified is unusable/ unsuited to agricultural or other use. The entire area under application is situated in a desert region, and except for limited irrigable alluvial areas alongside the river, therefore practically unusable or of limited productive capacity.

Large areas targeted for mining have no remaining topsoil, or are excessively rocky, as evidenced by many scattered heaps of stones (never rehabilitated) removed and piled up from land for irrigation. The proposed site layout and opencast mining with concurrent rehabilitation ~~where possible~~ as practical, will minimise footprint and impact. Any alternative methodology may have greater impact.

Once rehabilitated much of the area will be in an improved state.

(b) The type of activity to be undertaken:

The planned mining technique is that of a typical South African opencast block alluvial diamond operation. The planned mining method is Opencast mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation. Gravels are excavated, over- and under-sized screened out at excavation, and selected, treatable ore loaded and transported to the nearby treatment facility using articulated dump trucks.

Alternatives considered: -

The mining blocks are within the target area known to carry diamonds and therefore no alternative to the application area can be considered. The only alternative land use, on the area that will be selected for the processing plant, is grazing (with very low carrying capacity) although limited capability could be for agriculture; however, the applicant's main economic activity is mining and for this reason does not propose any other alternative land use until mining is complete on a section -by- section basis and rehabilitated.

(c) The design or layout of the activity:

The site infrastructure will need to be strategically placed by incorporating mining project demands and environmental sensitivities identified during the Environmental Impact Assessment process. Thus, the site layout will primarily be based on proximity to the nearby access roads, proximity to the areas earmarked for mining as well as limited additional impact on the environmental (non-perennial drainage lines and wind direction), heritage resources and discussions with the relevant Departments.

Provisionally, the following infrastructure will be established and will be associated with the prospecting operation:

- Processing Plant: 2 - 6 x 16 feet rotary pans
- Ablution Facilities: In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.
- Clean & Dirty water system: Berms
  It is anticipated that the operation will establish stormwater control berms and trenches to separate clean and dirty water on the mining site.
- Fuel Storage facility (Concrete Bund walls and Diesel tanks):
  It is anticipated that the operation will utilize 2 x 23 000 litre diesel tanks. This tank must be placed in bund walls, with a capacity of 1.5 times the volume of the diesel tank. A concrete floor must be established where the re-fuelling will take place.
- Mining Area: Area applied for is an open cast mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation.

- Processing plant: At the plant the diamondiferous gravel will be sorted by means of a grizzly screen grid and all material larger than 32 mm will be separated from the rest. This material will be used in the backfilling stage.

- Roads (both access and haulage road on the mine site):
  Although it is recommended that the operation utilize existing roads as far as possible, it is anticipated that the mining operation will create an additional 1.5 km of roads, with a width of 8 meters where no reserve exists and where the reserve exists 15 meters. The current access road is deemed adequate for a service road into the mining site.

- Salvage yard (Storage and laydown area).

- Product Stockpile area.

- Waste disposal site
  The operation will establish a dedicated, fenced waste disposal site with a concrete floor and bund wall. The following types of waste will be disposed of in this area:

  - Small amounts of low-level hazardous waste in suitable receptacles;
  - Domestic waste;
  - Industrial waste.

- Temporary Workshop Facilities and Wash bay.

- Water distribution Pipeline.

- Water tank: It is anticipated that the operation will establish 1 x 10 000 litre water tanks with purifiers for potable water.

Alternatives considered: -

Alternatives for fuel storage include surface storage, underground storage and the storage of fuel in mobile tanks with a metal bund wall. Underground storage has an adverse negative pollution potential because it is not easy to monitor leakages. Remediation measures are also not as effective as compared to surface storage tanks. Mobile tanks are viable option for infield screening activities, but the best viable long terms option is the instalment of fuel tanks within a concrete bund wall. The final location of the fuel storage tanks will be determined based on proximity to mining operations.

In terms of water use alternatives; the operation is located next to the Orange River which are a perennial river as the best water source for the operation. Plastic pipelines are considered to be the best long-term option for transferring water, due to their temporary nature which causes minimum environmental disturbances. A pipeline route will be designed based on the principle of minimum impacts to the environment.

If mining proves positive a diamond rotary plant will be established which uses (2 – 6 X 16 feet rotary pans). Water use for a 16 feet rotary pan is in the order of 18 000 litres per hour. The operation will only work in daytime hours which will constitute about 8 hours per day which will bring water consumption to 144 000 litres per day and 720 000 litres per week 2 880 000 litres per month per pan. A 16 feet pan can on capacity work about 65 tons per hour which constitutes about 36 m³ per hour.

The locality of the mine residue dam will be selected based on the following considerations, this dam will be very small due to the limited material being processed and the limited water needed:

- The locality is already disturbed or mined out.
- It is within reach of (1 000m) of the treatment plant.
- It is situated near the access road to the mining activities.
- No underlying ore bodies or geological discontinuities.
- No geomorphological impacts.
- No structures, dwellings or other points of risk on down-stream side.
- Convenient material nearby for construction of dam.
- Top soil from the treatment process will be available for final rehabilitation.

A standard slimes dam design will be established in order to maximise the capacity of the slimes dam and to minimise the risks in terms of general safety and the DWS regulation.

In terms of power generation, the options available was for Generators or ESKOM power. Coptra SA Co has a 100KVA Eskom electricity supply transformer at the processing plant. All additional or remote electricity needs for the operations will be provided through diesel driven generators.

In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.

(d) The technology to be used in the activity:

- Technique

  The operational phase of the mining operation will include the mining of alluvial diamonds by means of open cast mining with machinery.

  Topsoil will be removed from the first excavation, where after it will be stored separately on the high ground of the proposed mining area. Stored topsoil will be kept separate from overburden and will not be used for the building or maintenance of access roads. Stored topsoil will be adequately protected from being eroded or blown away.

  Exposed diamondiferous gravel of Excavation 1 will then be removed by means of a back actor and loaded onto a tipper truck, which will transport it to the central mineral processing plant. At the plant the diamondiferous gravel will be sorted by

means of a grizzly screen grid and all material larger than 100 mm will be separated from the rest. This material will be used in the backfilling stage

- Technology

The mining method being employed is an Open cast mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation. Gravels are excavated, loaded, and transported to the nearby treatment facility using articulated dump trucks. Gravels are then loaded onto a vibrating grizzley and the +32 mm oversize material is discarded back into the open pit (about 55% reduction). The remaining –32 mm fraction is loaded into a series of 2 – 6 X 16-foot rotary pans, each with a treatment capacity of 65 tph. Tracer tests are done regularly to ensure that the pans are operating at the correct density. Concentrate is tapped continuously from each of the pans every three hours into three ton holding bins and transported with enclosed trucks to a final recovery unit, which is designed to use both X-ray and grease diamond recovery methods or any other facility which is chosen by Coptra-SA.

Alternatives considered: -

The planned mining activities include excavation with an excavator up to bedrock (approximate depth between 6 to 15 metres) . The operation is also associated with processing techniques that make use of modern technologies. These are the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative mining method for the recovery of alluvial diamonds.

(e) The operational aspects of the activity:

The gravels will be loaded with an excavator on to dump trucks for conveyance to the Processing Plant. At the Processing Plant the run of mine gravels will be fed onto a grizzly for screening out oversize material. The material will be processed through a screening section for delivery to a recovery plant. Concentrate from the recovery plant will be processed through an X-Ray/Sortex plant to extract the diamonds. An area will be used for all processing and dumping operations outside the 1:100-year flood line. The expected lifespan of the mine 20 years.

Mining activities will primarily make use of existing roads created by previous mining activities, but there is a possibility for additional roads that could be created.

Alternatives considered: -

The conventional opencast load-haul-bulk sampling method has been proven to be the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative mining method for the mining and extraction of possible diamonds.

(f) The option of not implementing the activity:

Potential land use includes grazing and mining, with a limited area with potential for agriculture. The majority of the area is classified to have very low potential for grazing land, therefore, mining activities are believed to be the most economically beneficial option for the area to establish any potential for mineral resources.

Socio-Economy

The operation will make provision for up to 40 job after 2 years opportunities. This will be lost if the mining project does not proceed. Substantial tax benefits to the State and Local Government will also be lost.

Biodiversity

There are some parts of the application area that is covered by vegetation, a specialist biodiversity study will be done on the area to establish if any of the flora or fauna is protected.

Heritage and Cultural Resources

No information is available on any heritage features on the area of application and the necessary specialist studies will be done to be included into the EIA/EMP documents.

Should any other heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. If the mining operation is approved, the heritage resources if any other had been encountered will be protected through the demarcation of no-go zones and fencing off.

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

A copy of the draft Scoping Report (burned to disc) was send to all interested and affected parties. All Government Departments identified were also notified by registered letters. The surface owner also received a registered letter and personal communication was done- confirmation letter. Letters was also sent to various neighbouring people with adjacent farms or further away.

A notice was also placed on the gates at the entrance of the proposed site to invite any other interested parties to come forward and to register. Other notices was brought up at relevant public places to inform the communities in the surrounding area of the proposed mining operation.

Furthermore, an advert will be placed in the Gemsbok Newspaper which will invite any other interested or affected party to come forward and register.

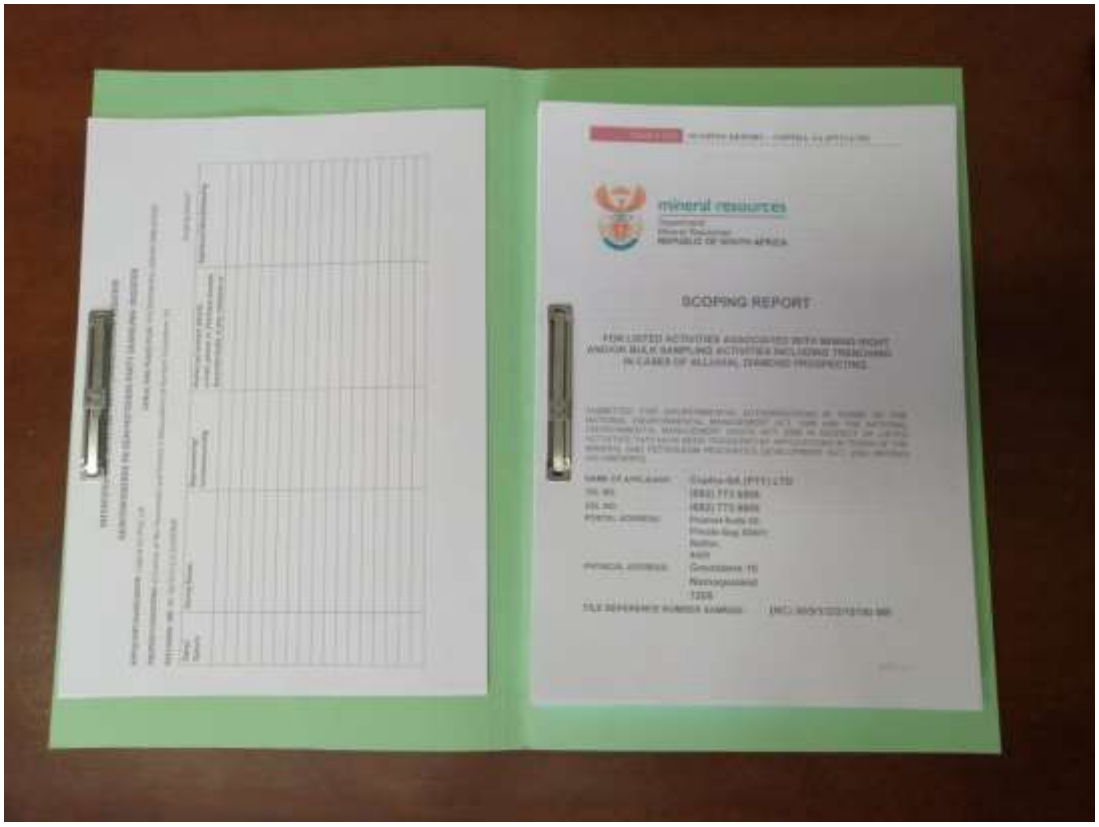


Photo 1: Scoping Report and register at Alexander Bay Library.

Photo 2: Notice at the entrance to the mine area.

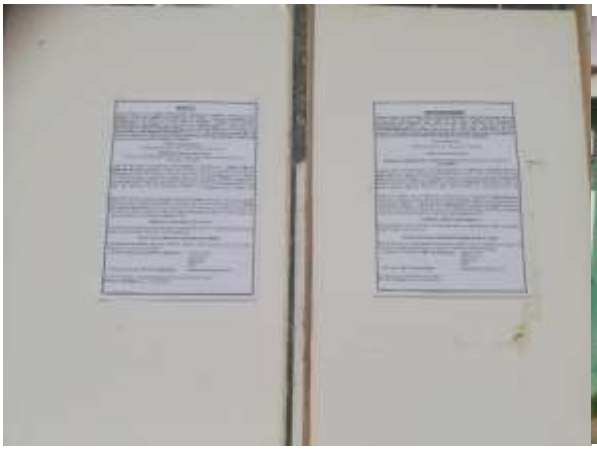


Photo 3: Notice brought up at the Beauvallon Supermarket.

Photo 4: Notices brought up at the Alexander Bay Public Library.

iii) Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 3: Summary of issues raised by I & AP's

Interested and Affected Parties 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	Consultation Status (consensus dispute, not finalised, etc.)
AFFECTED PARTIES				
Landowner/s X				
Remaining Extent Grootderm Pico Eco Farm CC PO Box 15 Springbok 8240	**Registered letter and copy of Scoping Report send on 7 June 2017**	**07 July 2021** **Applicant failed to consult and reach an agreement with registered owner for a mining right on the property.**		
Portion 3 Grootderm Richtersveld Sida Hub Communal Property Association (CPA 01328A) 7 Frikkie Snyman Richtersveld GEV/CPA Avenue Alexanderbay 8290	**Registered letter and copy of Scoping Report send on 7 June 2017**			
Richtersveld Sida Hub Communal Property Association Donovan Majiedt PO Box 29 Bloemfontein 9300	**Registered letter and copy of Scoping Report send on 7 June 2017**			
Lawful occupier/s of the land				

Richtersveld Growers Att: Mr Mike Rice beauvallonfarm@gmail.com	Letter and copy of Scoping Report sent via email on 7 June 2021			
Landowners or lawful occupiers on adjacent properties				
Municipal councillor X				
Municipality X				
The Mayor and Municipal Manager NAMA Khoi Local Municipality PO Box 17 Springbok 8240	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Namakwa District Municipality Private Bag X 20 Springbok 8240	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e				
ESKOM SOC Limited NC Land Development Operating Unit P O Box 606 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**	**24 May 2021** **To whom it may concern** **RE: NOTICE OF THE PUBLIC PARICIPATION PROCESS FOR AN APPLICATION FOR A MINING RIGHT FOR DIAMOND (ALLUVIAL, GENERAL) – SCOPING REPORT** This notice affects the existing Eskom Distribution's power lines, Beesbank/ Beauvallon 1 22kV Overhead Line and Oranjemond/Beesbank 1 66kV Overhead Line which traverses the proposed mining area. The approximate positions of these services are indicated on the attached locality Map. Eskom Distribution will raise no objection to the proposed Mining operations on the above		

		mentioned properties provided Eskom's rights and services are acknowledged and respected at all times. Eskom's rights are protected by Wayleave Agreements and Servitudes. The approximate positions of these services are indicated on the attached sketches. Further to the above the following conditions must be adhered to and accepted in writing before any development and or construction: **A.1 Access and egress** Eskom shall at all times retain unobstructed access to and egress from its servitudes and services. **A.2 Approvals** **A.2.1** Eskom's consent doesn't relieve the applicant from obtaining the necessary statutory, land owner or municipal approvals. **A.2.2** The applicant will adhere to all relevant environmental legislation. Any cost incurred by Eskom as a result of non-compliance will be charged to the applicant. **A.3 Eskom Cables** Eskom's underground cables affected must be placed in sleeves encased in concrete across the width of the servitude, at the applicant's expense. Materials to be used and relevant dimensions shall be determined as required. **A.4 Dimensions** No construction or excavation work shall be executed within 11 metres from any Eskom power line structure, and/or within 11 metres from any stay wire. **A.5 Earthing** All work within Eskom's servitude areas shall comply with the relevant Eskom standards in force at the time. **A.6 Expenditure** If Eskom has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the applicant's activities or because of the presence of his		

		equipment or installation within the servitude or wayleave area, the applicant shall pay such costs to Eskom on demand. **A.7 Ground level variations** Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom's requirements. **A.8 Indemnity** Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the applicant, his/her agent, contractors, employees, successors in title, and assigns. The applicant indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom's services or apparatus or otherwise. Eskom will not be held responsible for damage to the applicant's equipment. The applicant's attention is drawn to the Electricity Act, 1987, (Act 41 of 1987, as amended in 1994), Section 27(3), which stipulates that the applicant can be fined and/or imprisoned as a result of damage to Eskom's apparatus. **A.9 Machinery** No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work The Eskom's authorised area representative for the Springbok CNC: Roelanie Damon 027 712 8262/072 117 9439, email address: CloeteRO@eskom.co.za. This allows time for		

		arrangements to be made for supervision and/or precautionary instructions to be issued. **A.10 Permission to do work** **A.10.1** No work shall commence unless Eskom has received the applicant's written acceptance of the conditions specified in the letter of consent and/or permit. **A.10.2** Eskom's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. Note: Where an electrical outage is required, at least fourteen work days is required to arrange same. **A.11 Remedial action** Under no circumstances shall rubble, earth or other material be dumped within the servitude or Way Leave restriction area. The applicant shall maintain the area concerned to Eskom's satisfaction. The applicant shall be liable to Eskom for the cost of any remedial action which has to be carried out by Eskom. **A.12 Safety** **A.12.1** The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). **A.12.2** Equipment shall be regarded electrically live and therefore dangerous at all times. **A. 12.3** In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as additional safety precaution, Eskom will not approve the erection of Houses, or structures occupied or frequented by human beings under the power lines and only after consideration of all alternatives, within the servitude area. **A. 12.4** Eskom may stipulate any additional requirements to illuminate any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant.		

		A. 12.5 It is required of the applicant to familiarize him/herself with all safety hazards related to Electrical plant. **B.1 Blasting, opencast mining and undermining** **B.1.1** A specific document of permission in respect of the blasting or mining activity as issued by the Inspector of Mines must be submitted to Eskom before commencement of operations. [refer to the Minerals Act, 1991 (Act 50 of 1991) Regulation 9.33.5 – Permission to fire more than one shot hole at a time within 500m from surface structures] **B.1.2** Blasting in close proximity to Eskom's overhead power lines or substations is prohibited unless the following precautions are met [refer to the Mine Health and Safety Act, 1996 (Act 29 of 1996) Regulation 17.6(a) - 100m and above • a blasting plan submitted with the document of permission referred to in B.1.1 above, • a Peak Particle Velocity (PPV) to be kept below 75 mm/s, for lines and 50 mm/s for buildings, • a seismic control device is set up to record the readings, ensure fly rock and air blast control by means of adequate matting, in the interest of air blast control, only single shot blasting shall be allowed. • Permission for blasting will be strictly as stipulated in the Blasting Design by the Blasting Consultants and blasting should be done away from the power lines. **B.1.3** The applicant will be held liable for damage to Eskom's towers or substation equipment, as a result of blasting activities. **B.1.4** Costs incurred by Eskom to comply with statutory requirements in terms of an applicant's (or his contractors) works, equipment or plant in the servitude area, shall be paid to Eskom on demand. **B.1.5** Eskom may charge the applicant appropriately for time on site during blasting operations.		

		B.1.6 Eskom reserves the right to withdraw its consent if the blasting process becomes hazardous and likely to result in power interruptions. **B.1.7** If and whenever the applicant apply and if permission for the blasting process is granted the applicant must give at least fourteen work days prior notice of the commencement of blasting to The Eskom's authorised area representative for Springbok CNC: Roelanie Damon 027 712 8262/072 117 9439, email address: CloeteRO@eskom.co.za. This allows time for arrangements to be made for supervision of and/or precautionary instructions to be issued in terms of the blasting operation. **B.1.8 General Conditions** **B.1.8.1** Firing near the power lines should be along a free face, facing away from the power lines, as the Mine has suggested. **B.1.8.2** The Mine should prepare a proper analysis of the rock structure and any geological anomalies prior to blasting. **B.1.8.3** The "safe distance of 25m" from Eskom pylons should be indicated on the blasting plan. Existing geological faults, decomposed zones and fractured rock structures could have destabilising effects on founding material as a result of the firing, especially when developing an open face next foundations and below founding level. These conditions should be taken into account when deciding on the method and plan of blasting near the Eskom power line pylons. **B.1.8.4** Eskom retains the right to appoint any specialist at any time on behalf of the Mine, to inspect Eskom structures for deformation. **B.1.8.5** The mining depth near Eskom pylons should carefully be controlled for stability and adjustments being made when so instructed by Eskom. **B.1.8.6 Upon receiving the letter of consent from the inspector of the mine to blast below 100m, the applicant must present to Eskom Technical Evaluation Forum L3 the blasting philosophy for final approval.**		

		Should the applicant or his contractor damage any of Eskom services during commencement of any work whatsoever, then Eskom's 24 hour Contact Centre Tel: 08600 37566 must be dialled immediately to report the incident. Any relocation of Eskom's services, due to this undermining, will be for the account of the Applicant. The Applicant will also be responsible for granting Eskom an alternative route for the power line. The Eskom Customer Contact Centre at 08600 37566 must be contacted in connection with any line deviation and costs. We thank you and hope you will find the above in order. Yours faithfully K M Makale		
Eskom Environmental Division PO Box 356 Bloemfontein 9300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Transnet PO Box 72501 Parkview 2122	**Registered letter and copy of Scoping Report send on 3 May 2021**			
SANRAL P O Box 415 Pretoria 0001	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Communities				
Portion 3 Grootderm Richtersveld Sida Hub Communal Property Association (CPA 01328A)	**Letter and copy of Scoping Report send on 7 June 2021**			
Dept. Land Affairs				

Department of Rural Development and Land Reform PO Box 5026 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Department of Land Affairs and Rural Development Private Bag X 5018 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Department of Agriculture & Land Reform, Rural Development Private Bag X5018 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Traditional Leaders				
CPA	**Letter and copy of Scoping Report send on 7 June 2021**			
Other Competent Authorities affected				
Department of Mineral Resources and Energy Private Bag X6093 Kimberley 8300	**Letter and copy of Scoping Report send on 7 June 2021**			
Department of Cooperative Governance, Human Settlements and Traditional Affairs Head of Department Private Bag X5005 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Department of Environment & Nature Conservation Private Bag X6102 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			

Department of Agriculture, Forestry & Fisheries P O Box 2782 Upington 8800	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Department of Water & Sanitation NC Private Bag X6101 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
National Department of Public Works Private Bag X5002 Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
Northern Cape Department of Roads and Public Works Head of Department PO Box 3132 Squarehill Park Kimberley 8300	**Registered letter and copy of Scoping Report send on 3 May 2021**			
South African Heritage Resource Agency PO Box 4637 Cape Town 8000	**Registered letter and copy of Scoping Report send on 3 May 2021**			
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				

iv) The Environmental attributes associated with the sites

(1) Baseline Environment

(a) Type of Environment affected by the proposed activity
(its current geographical, physical, biological, socio-economic, and cultural character).

1.1 Geology

Cenozoic sediments occur along the lower portions of the Orange River valley and adjacent coastal regions, the older Proto (Late Oligocene to mid and late Miocene) gravels are known to be highly mineralised with diamond in bedrock irregularities such as scours, potholes, depressions, plunge pools and paleo channels in the softer phyllite, schist or metabasaltic greenstone bedrock, typically against harder outcropping rocks such as silicified dolomite hills and other trap sites.

The younger mid to late Pleiocene/Pleistocene gravel deposits are ground on the lower terraces and are sometimes underlain by proto gravels in paleo channels and scours or independently in situations where river meanders and incision left remnant terraces and scours at higher elevations. The area under consideration has outcropping silicified dolomite hills surrounded by Metabasaltic greenstone and or phyllite /schist bedrock against which ideal situations for scours and deeply incised channels occur, acting as diamond traps and therefore offering very prospective exploration tenure or mining.

The site-specific geology described below was gathered from the Geological Prospecting Report composed by Mr Robert Baxter Brown on prospecting on the Farm Beauvallon (portion 3 of Groot Derm No. 10).

Sample 1 (BS1):

This was a small-scale gravel test-pit excavated from an identified palaeo-river channel. On treatment of the gravel, it yielded a more than satisfactory grade, including a diamond of 8.44 carats. This diamond confirms the presence at Beauvallon of large diamond.

Sample 2 (BS2):

The pit – 30m x 55m – was beaconed off, but only half was excavated i.e. 15m x 55m. The average depth to bedrock (Kheis schist) was 2.22 metres. The schist bedrock is well scoured and riffled with a fold-trend N-S that is almost opposite to that of the NE to SW flow direction of the palaeo-Orange River, thereby offering ideal trap-sites for diamond enrichment.

The pit's geology consists of an overlying calcified and gypsum-rich horizon of red desert sand, scree rubble and occasional cobble and pebble. The thickness of this horizon averages 0.7 metres and is followed by 0.55 metres of red oxide-stained layer of pebble and cobble gravel in a mix of coarse felspathic sand and grit. This directly overlies basal boulder, cobble and pebble gravel, with an average thickness of 1 metre. The gravel is lightly compacted and readily excavated. This fraction is dominated by well-polished red and yellow jasper and banded ironstone pebbles, characteristic of the Middle Orange River and westwards to the coast.

This formation is here referred to, and elsewhere on Grootderm-Beauvallon (GDBV), as the Upper Channel Gravel. Other and younger Orange River channel deposits occur at lower levels than this and are most often preserved beneath the distinctive Upper, Middle and Lower terrace deposit that characterise the post-Miocene sediments of the Lower Orange River from Grasdrif to Alexander Bay. While the channel gravels are seen to be degradational in character that of the terraces are aggradational and probably estuarine induced. These sedimentary sequences cover a long-time span, from late Miocene (when a significant river capture occurred upstream of Grasdrif) to the present. These gravel sequences are generally very low grade, however, large, high quality, well-shaped crystals of diamond pertain.

Sample 3 (BS3):

BS3 was set out about 160 metres east of BS2. The choice of site followed from the excavation of trench Gate A-N-S.

From GateA to GateN the trench exposed 1.5m of sand, scree, cobbles and pebbles, all lightly calcretised and resting on schist bedrock. From GateN to GateS the bedrock dropped steadily from 1.6m to 4.2m, revealing a wide, bedrock-scoured channel. BS3 pit was set out over the apparent river channel and excavated.

The bedrock is well gullied, the gullies trending east-west, and filled with a large boulder gravel, lightly compacted. Narrow gullies and small scour-pockets (marmité) within the main gullies are filled with tightly packed and cemented (calcified clay) pebbles and cobbles; these are yellow in colour and thought to be remnant gravel of a late Miocene river channel. This feature was common to the BS1 gully deposit. BS3 therefore suggests a Miocene-cut river channel, occupied by a younger Plio-Pleistocene Orange River, resulting in a much-diluted diamond grade.

Sample 4 (BS4):

In an attempt to increase our knowledge of the river channel at BS3, containing Upper Gravel mixed with small remnants of presumed Miocene conglomerate, a series of Pit-Trenches were excavated 300m NE of BS3 (Fig. 1). The trench sections revealed shallow but scoured schist bedrock overlain by 3.5m of sediment, of which 1.0m is Upper Gravel and 2.5m scree and gypsum-rich clay.

BS4 proved to be far more deeply scoured than anticipated and surprisingly the excavation, with limited cut-backs, reached 13.5m without reaching bedrock, ending on an intractable boulder conglomerate. By this depth, the pit had so reduced in size that the excavator was unable to work in the confined space and further pitting was placed in abeyance. The size at the bottom of pit BS4 was further reduced by a massive boulder and yellow gravel sequence cemented to the south wall's schist bedrock. This unusual conglomerate is made up of +2m slabs of Kheis Schist ripped from the river channel's side-walls, mixed with well-rounded and polished pebbles and cobbles in a yellow clay matrix, the latter now calcretised and forming a rock-hard cement. The excavator was unable to break off chunks of this coarse conglomerate.

The sedimentary sequence can be seen in Figure 9 below. Scree and gypsum-clay overlie Upper Gravel that equates in elevation to that at BS2 and BS3. In this instance it will be noted that this horizon rests on loose layers of yellow riverine sand (light green when damp), cross-bedded with poorly consolidated lenses of yellow stained cobbles and pebbles. This sequence, measuring 3.5m, is interpreted as one of many rises (oscillations) in sea-level known to have occurred in the geological history of the West Coast of Southern Africa. This aggradational phase is followed by the boulder conglomerate that proved, for the moment, to be impenetrable. An incised river channel must therefore occur below the conglomerate, and this represents a prime exploration target.

Drilling Programme (BS4)

A narrow palaeo-Orange River channel is clearly defined along with a pronounced plunge-pool or deep scour. This is an example of a mini-Octha "Glory Hole" where the "climb-out" from the plungepool generally concentrates diamond and other heavy minerals. It is therefore essential that BS4 be expanded to a meaningful size (say 50m E-W from the existing north wall of BS4 by 100m to the SW, towards Drill Line X). A pit of this size will incorporate the plunge pool and "climb-out". At the same time, a large sample of Upper Gravel will also be made available for further grade evaluation.

1.2 Climate

The area is characterised as a dry region with weather that is typical of desert and semi-desert areas. Summer temperatures usually reach between 30 and 35°C degrees during the month of January and can sometimes exceed 40°C. Winter temperatures are mild during the day reaching between 20 and 25°C. Nights can be extremely cold with night temperatures often below 0°C.

According to the Northern Cape Tourism Board (2007), the highest temperature to date of 47.8°C was recorded in 1939 at Goodhouse on the Orange River. Sutherland, in the Hantam Karoo, is one of the coldest towns in South Africa and often experiences snow and its average minimum temperature in June is - 6°C.

The rainfall is low and unreliable. The annual rainfall is between 50 mm to 400mm. Potential annual evapotranspiration is between 12-15 times the mean annual precipitations. The Atlantic Ocean influences the climatic conditions within the District by producing coastal fog and dew during winter months.

Arid and warm areas with an average annual temperature of more than 18° C include Kuboes, Alexander Bay, Lekkersing, Komaggas, Voolsdrift, Aggeneys as well as areas south of Namakwaland and areas north and south of Nieuwoudtville. The arid areas that receive most of the rainfall in summer are Onseepkans, Pofadder and Pella.

The areas that are characterised by winter rainfall are Kleinzee, Koiingnaas, Garies and areas west and south of Lekkersing. The semiarid areas with annual rainfall and cool average annual temperatures of less than 18°C include Sutherland and areas northwest and southeast of Sutherland. (Taken from the EIA EMP by Peter Roux July 2019)

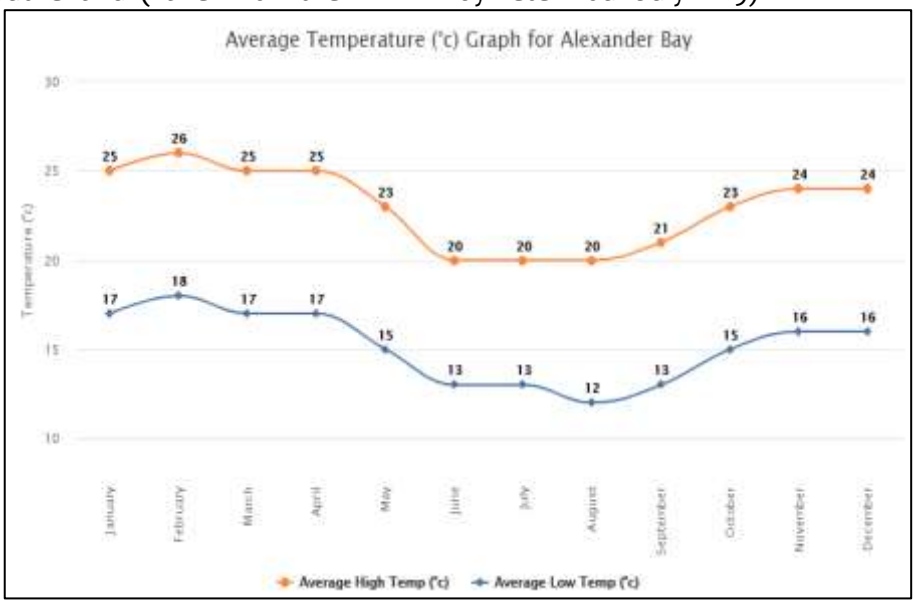


Figure 16. Average maximum and minimum temperatures measured for Alexander Bay.

Rainfall

The rainfall is low and unreliable with the annual rainfall measured between 50 mm to 400 mm. Potential annual evapotranspiration is between 12-15 times the mean annual precipitations. The Atlantic Ocean influences the climatic conditions within the District by producing coastal fog and dew during winter months.

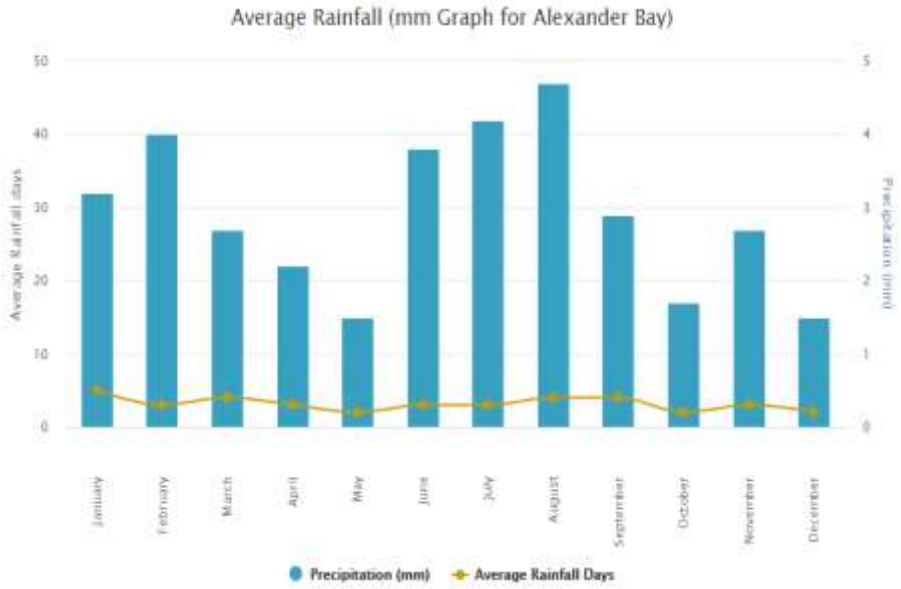


Figure 17. Average Rainfall measured for Alexander Bay.

Wind

Alexander Bay experiences high wind speeds, mainly from the south, which can generate sandstorms with a very strong mechanical impact on plants, topsoils and rocks. Further inland dust devils are frequently formed in summer. Wind rose and wind speed distribution for Alexander Bay at 62 m a.g.l. The data shown represent a 3-year period from October 2010 to September 2013.

1.3 Topography

The proposed mining area is situated in a region of gently undulating hills on the edge of the Karoo, an area of sparse, arid semi desert that occupies much of central South Africa. The area comprises elevated palaeo- river terraces at elevations of between 1,100m and 1,000m above mean sea level ("amsl"), some 60-70m above the present Orange River. The terraces are cut by a number of small ephemeral streams dry for most of the year they flow through the application area before they confluence and enter the Orange River. The surrounding terrain is a flat semi-desert environment with sparse grass and occasional shrubs, thorn bushes and succulents in a sandy soil. Bigger trees often line the banks of the Orange River. This extreme topography and soil characteristics indicate that soil erosion is an important factor that limits development options.

Since no exploration or mining activities will be undertaken in the present river channel, bank-full discharge conditions will have no effect on operations. Even during floods, the effect on operations will be negligible, since the modern-day floodplains are not exploration targets.

1.4 Soils

The area has considerable variation in the types of soils and is characterised as semi-arid to arid and this indicates that the soil moisture deficit is high. The soil characteristics over most of the area are a function of insitu weathering. The coastal areas are characterized by a dune landscape with deep red sandy soils.

Generally poor-quality soils due to scarce or no water retaining capabilities characterizes the Namaqua District Municipality (NDM). Due to the sandy nature of the soils within the region, many areas in the District are prone to wind erosion when the natural vegetation cover is disturbed. The erosion levels within an area depend on slopes' steepness, rainfall patterns and land-use activities in the area. Soils on steep gradients are subject to geological erosion. Extreme topography and soil characteristics indicate that soil erosion is an important factor that limits development options (Taken out of the EIA / EMP by Peter Roux, July 2019).

1.5 Pre-mining Land Capability

The Beauvallon property is used primarily for irrigation purposes. Six mechanised irrigation pivots with additional hand-moved irrigation pipes are used to irrigate cash crops. Small scale prospecting and mining has historically taken place on the vacant land adjacent to the irrigation lands.

1.6 Land Use

Land Use Prior to Mining

At present the Beauvallon property is used primarily for irrigation purposes. Six mechanised irrigation pivots with additional hand-moved irrigation pipes are used to irrigate cash crops. Small scale prospecting and mining has historically taken place on the vacant land adjacent to the irrigation lands.

Historical Agricultural Activities

The Grootderm property is used for livestock and game ranching as well as a few hectares of lucerne irrigation close to the Orange River. Substantial historic diamond prospecting and mining has been undertaken on the property close to the Orange River and intermittently along the recently identified paleo channel.

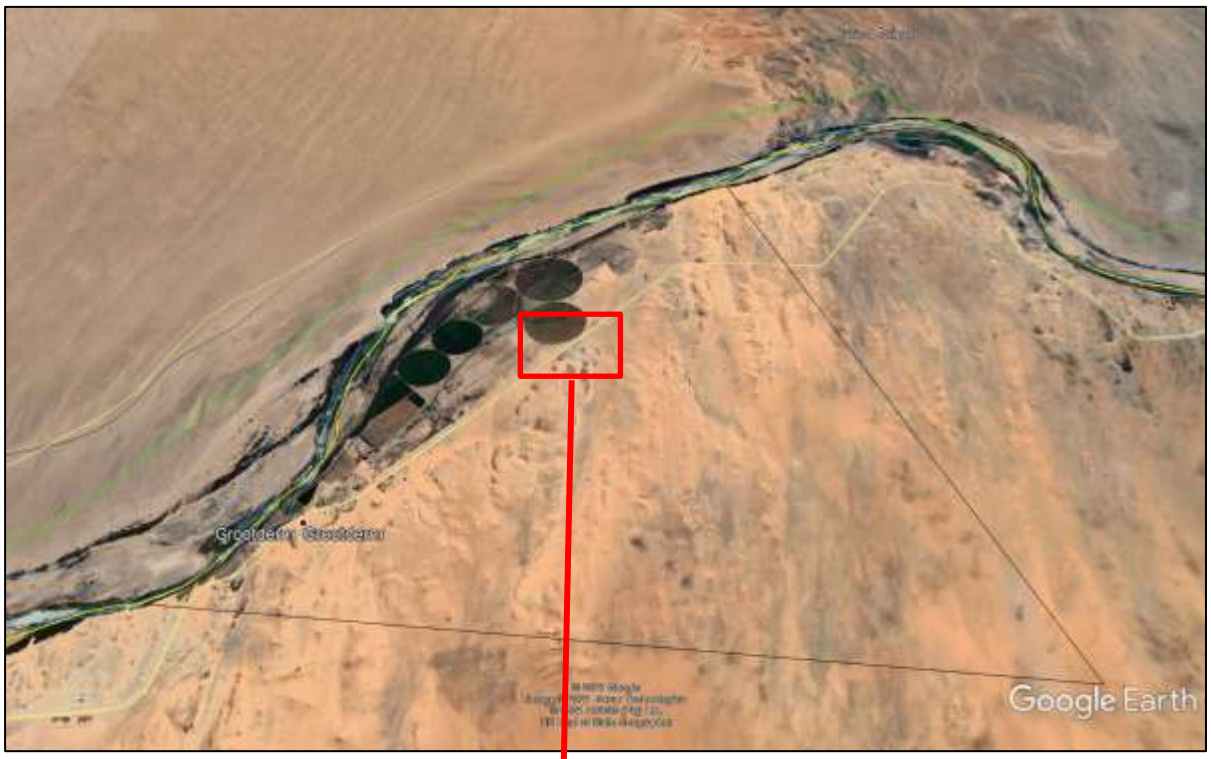


Figure 18. Google image of application area

Figure 19. extract from above

Evidence of Abuse

Historic mining activity in the form of overburden and rock dumps as well as excavations are present on the properties. Should a mining right be granted, the resulting mining operations undertaken will be rehabilitated together with historic unrehabilitated abandoned dumps, to sustain a post mining land use.

Existing Structures

Mining and development activity can be seen on the riverine floodplain. An informal river camp has been developed on the banks of the river within the canopy of trees. A water abstraction pump house is also present on the property.

1.7 Natural Fauna

Common Species

The fauna listed below are common species that have previously been found, or have the potential to occur in the mining area.

- ***Birds***

  The mouth of the Orange River is within the Richtersveld Local Municipality. The wetland at the mouth of the Orange River forms an important stop over for a great variety of migratory birds and has accordingly been declared a Ramsar site. The endemic Barlow's Lark is also found along the riverbanks. Unfortunately, this wetland is currently under major threat from several sources including reduced flow and desertification, but efforts are underway to restore this wetland. This is 23 kilometres distant from the proposed mining and will not be impacted by the mine.

Endangered Species

The fauna listed below are endangered species that are most likely to occur in the area according to the Red Data Book – Birds (Barnes, Keith N, 2000) and the Red Data Book – Mammals (Smithers 1989 & Branch 1988). The following definitions apply:

Vulnerable
Taxa of which all or most populations are decreasing because of: over exploitation, extensive destruction or degradation of their habitat, or other environmetal disturbances. This means that the species is considered to facing a high risk of extinction in the wild.

Rare
Taxa with small population sizes, which are not permanently endangered or vulnerable; but are potentially at risk.

- ***Endangered Mammals***

Scientific Name	Common Name	Status
Aonyx capensis	Cape Clawless Otter	Unknown
Felis lybica cafra	African Wild Cat	Vulnerable
Manis temminckii	Cape Pangolin	Vulnerable
Orycteropus afer	Antbear	Vulnerable
Atelerix frontalis	Cape Hedgehog	Rare
Naja nigricollis woodi	Black Spitting Cobra	Rare
Proteles cristatus cristatus	Aardwolf	Rare
Felis nigripes nigripes	Small Spotted Cat	Rare

- ***Endangered Birds***

Scientific Name	Common Name	Status
Gyps coprotheres	Cape Vulture	Vulnerable
Gyps africanus	African Whitebacked Vulture	Vulnerable
Torgos tracheliotos	Lappetfaced Vultures	Vulnerable
Aquila rapax	Tawny Eagle	Vulnerable
Polemactus bellicosus	Martial Eagle	Vulnerable
Anthropoides paradiseus	Blue Crane	Vulnerable
Ardeotis kori	Kori Bustard	Vulnerable
Neotis ludwigii	Ludwig's Bustard	Vulnerable

Environmental screening (conducted via the Environmental Screening Tool) indicates a low sensitivity risk for the Animal Secies theme. Thus, it is anticipated that the mining activity will have little effect on the fauna species that may be present on the mine site.

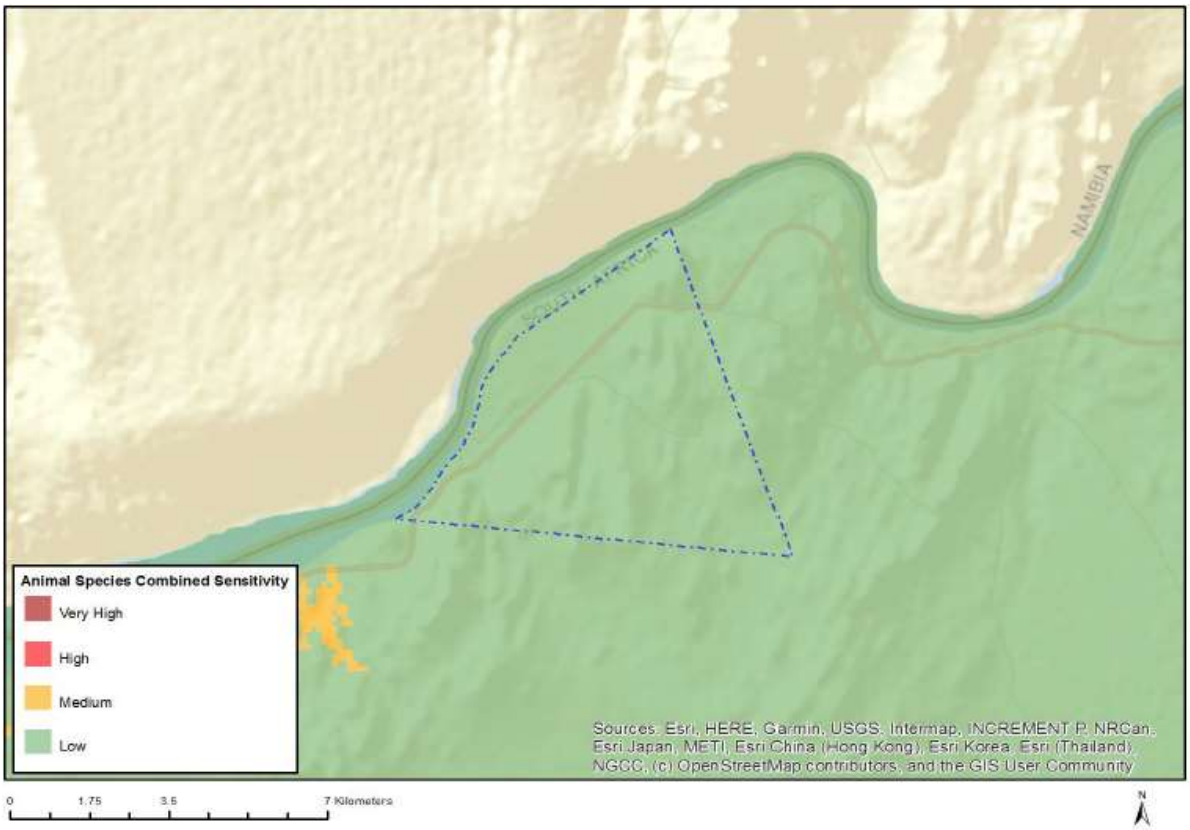


Figure 20. Screening on animal species sensitivity

1.8 Natural Vegetation

The majority of the study area falls in the Desert Biome in the Namib Desert Bioregion (Western Gariep Lowland Desert- Dn 4 vegetation unit). The areas where the boundary of the study area meets the Orange river Alluvial vegetation can be found which forms part of the Succulent Karoo Biome (Lower Gariep Alluvial Vegetation- Aza 3 vegetation unit). (Mucina & Rutherford, 2006).

Desert Biome – Namib Dester Bioregion:

Plant species richness of the desert units is very high when compared with other deserts at the same level of aridity globally. Especially in the Richtersveld, diversity is remarkably high and does not differ much from that in the Succulent Karoo part of the Richtersveld. The diversity may be viewed as moderate in some of the plains vegetation units along the lowest Orange River Valley, especially in the Western Gariep Lowland Desert vegetation unit. It is very high in the mountainous desert sections of the Richtersveld (including Noms Mountain Desert, Richtersberg Mountain Desert, Kwaggarug Mountain Desert and Kahams Mountain Desert) and lower in the region around Henkries and Goodhouse (Eastern Gariep Rocky Desert).

The Southern Namib Desert Bioregion comprises the desert areas along the lowest part of the Orange River between Alexander Bay and Sendelingsdrif and shows the characteristic climatic properties of the southern parts of the coastal Namib Desert, such as a rainfall peak in winter (caused by cyclonic rains), mild temperatures due to the cooling Benguela Current, and a high frequency of fog. The Southern Namib Bioregion corresponds closely to the combination of the South African part of the Southern Namib District (Jürgens 1991) and the West Gariep District (Jürgens 1991).

Western Gariep Lowland Desert

The Western Gariep Lowland Desert vegetation unit is located in the Northwestern Richtersveld, mainly including the lower portion of the large tilted plain of the Annisvlakte pediment west of Kuboes and the hilly mafic lava rock landscape close to Arrisdrif, Brandkaros and Grootderm, close to the lowest reaches of the Orange River, thus extending some 43 km from the southwest to the northeast. The unit borders on Succulent Karoo to the south. Altitude 40–240 m.

Vegetation & Landscape Features
On both the eastern plains and in the rocky hilly landscape in the west, sparse low shrubland with mainly leaf- and stem-succulent chamaephytes predominates. The leaf-succulent megachamaephyte (or small nanophanerophyte) *Ruschianthemum gigas* can be dominant or co-dominant with the nanophanerophyte *Euphorbia gummifera* and occurs on a more sandy soil. The low cushions of *Brownanthus pubescens* and the dwarf stem succulent *Euphorbia melanohydrata* show a stronger link to

gypsum in the topsoil, while *Brownanthus pseudoschlichtianus* prefers calcretic soils. The vegetation of vast areas is heavily degraded and invaded by the annual *Mesembryanthemum hypertrophicum* (= *Opophytum aquosum*) and the annual or biennial *M. squamulosum* as well as nonsucculent annuals. In the western half of the unit (west of Arrisdrif), high loads of sand originating from the sandveld in the south are transported over rocks by frequent strong winds. This region is characterised by a mosaic of rocky outcrops, formed by mafic lava, and sandfilled valleys and plains. *Euphorbia gummifera* and *Ruschianthemum gigas* are dominant on deep sands above bedrock. Shallower sands are covered by (sometimes well-developed) grasslands with *Stipagrostis geminifolia* or *S. ciliata* dominant, but including *Chlorophytum viscosum*, *Foveolina dichotoma, Zygophyllum clavatum* and *Eberlanzia sedoides*. Very dry and shallow sandvelds are sometimes dominated by *Sarcocaulon patersonii*. Rocky outcrops can harbour *Aloe gariepensis* and *Sarcostemma viminale*, together with locally rarer elements like *A. dichotoma var. ramosissima* (westernmost population near Brandkaros), *Crassula atropurpurea var. cultriformis* and *Othonna clavifolia*. At the interface between rocks and shallow sands, the subterranean chamaephyte *Fenestraria rhopalophylla* with its window leaves is found, but also many geophytes, as in the sandy patches between and on the rocky hills.

Important Taxa:
Tall Stem- & Leaf-succulent Shrub found in the vegetation unit includes *Aloe dichotoma var. ramosissima. Stem- & Leaf-succulent Shrubs: Brownanthus arenosus (d), B. pseudoschlichtianus (d), B. pubescens (d), Portulacaria pygmaea*. The vegegation unit also includes the following stem-succulent shrubs: *Euphorbia gummifera (d), E. ephedroides var. imminuta, E. melanohydrata, E. stapelioides, Sarcocaulon flavescens, S. multifidum, S. patersonii, Tylecodon schaeferianus*. Leaf-succulent Shrubs associated with the vegetation unit includes *Ruschianthemum gigas (d), Cheiridopsis verrucosa, Crassula atropurpurea var. cultriformis, Didelta carnosa var. tomentosa, Dracophilus dealbatus, Eberlanzia sedoides, Fenestraria rhopalophylla, Juttadinteria deserticola, Othonna clavifolia, Psammophora modesta.* Other Shrubs that has not been mentioned includes *Gnidia suavissima, Rhyssolobium dumosum. Graminoids: Stipagrostis geminifolia (d), Centropodia glauca, Chaetobromus involucratus subsp. involucratus, Cladoraphis cyperoides, C. spinosa, Dregeochloa pumila, Stipagrostis ciliata var. capensis, S. dregeana, S. lutescens var. lutescens, S. schaeferi, S. subacaulis*. The vegetation unit also contain geophytic Herbs which includes *Ammocharis longifolia, Babiana namaquensis, Chlorophytum viscosum, Ferraria schaeferi, Hexacyrtis dickiana, Strumaria bidentata*. Annual Herb: *Foveolina dichotoma*.

None conserved in statutory conservation areas in South Africa. The unit also partly occurs in Namibia, where it is protected within the Sperrgebiet National Park. Some 3% transformed, mainly by cultivation (near the Orange River). As with the Dn 3 Western Gariep Plains Desert, this unit is part of a centre of endemism (West Gariep CE; Jürgens 1991), which also includes parts of neighbouring desert units and a part of Namibia. The unit is heavily affected by domestic stock, mainly small stock. Photographs

from 1914 show that parts of the Annisvlakte which used to be *Brownanthus pseudoschlichtianus* communities on typical deep loamysandy soils are now degraded to poor and saline habitats of *Euphorbia gummifera* and *Mesembryanthemum hypertrophicum.* The unit has also suffered considerable damage from diamond mining. The fate of endangered species like *Euphorbia melanohydrata* depends on the protection on the Namibian side of the Orange River.

Succulent Karoo Biome – Alluvial Vegetation

The vegetation type is associated with flat alluvial terraces and riverine islands supporting a complex of riparian thickets (dominated by *Ziziphus mucronata, Euclea pseudebenus* and *Tamarix usneoides*). Frequently flooded lower banks are usually populated by transient herblands made up of short-lived, nutrient-demanding flora. Reeds occupy beds forming on banks of very slow-flowing rivers or are found in still backwaters. Reed beds with *Phragmites australis* as well as flooded grasslands and herblands populating sand banks and terraces within and along the river. Patches of flooded grasslands are usually found on both low and middle terraces, while riparian thickets usually occur on high terraces experiencing only occasional disturbance events resulting from floods.

Lower Gariep Alluvial Vegetation
Important Taxa
Riparian thickets
Small Trees found in this vegetation unit includes *Acacia karroo (d), Euclea pseudebenus (d), Salix mucronata subsp. Mucronata (d), Schotia afra var. angustifolia (d), Ziziphus mucronata (d), Acacia erioloba, Combretum erythrophyllum, Ficus cordata, Maerua gilgii, Prosopis glandulosa var. glandulosa, Rhus lancea*. Tall Shrubs associated with the unit include *Gymnosporia linearis (d), Tamarix usneoides (d), Ehretia rigida, Euclea undulata, Sisyndite spartea*. as well as the low shrub *Asparagus laricinus*. and the succulent shrub *Lycium bosciifolium*. This vegetation unit also have the woody climber *Asparagus retrofractus*. and the herb *Chenopodium olukondae*. Reed beds Megagraminoid: *Phragmites australis (d)*. Flooded grasslands & herblands Low Shrubs: *Tetragonia schenckii (d), Litogyne gariepina. Graminoids: Cynodon dactylon (d), Setaria verticillata (d), Cenchrus ciliaris, Cyperus laevigatus, Eragrostis echinochloidea, Leucophrys mesocoma, Polypogon monspeliensis, Stipagrostis namaquensis.* Herbs found in this vegetation unit includes *Amaranthus praetermissus, Coronopus integrifolius, Frankenia pulverulenta, Gnaphalium confine, Pseudognaphalium luteo-album.*

Conservation
Endangered. Target 31%. About 6% statutorily conserved in the Richtersveld and Augrabies Falls National Parks. Some 50% transformed for agricultural purposes (vegetables and grapes) or alluvial diamond mining. Prosopis species, Nicotiana glauca and Argemone ochroleuca can invade the alluvia in places.

The Environmental Screening conducted for the Environmental Authirozation indicated a low, medium and high sensitivity for the Plant species theme. The majority of the site indicates a medium sensitivity for the plant species theme. Plants listed as medium and high sensitivity can be found in the table below:

Sensitivity	Species
High	Cynanchum meyeri
High	Sensitive species 58
High	Hexacyrtis dickiana
High	Calobota acanthoclada
High	Adromischus montium-klinghardtii
Medium	Sensitive species 435
Medium	Aridaria vespertina
Medium	Sensitive species 282
Medium	Astridia citrina
Medium	Astridia velutina
Medium	Sensitive species 1211
Medium	Sensitive species 100
Medium	Sensitive species 1015
Medium	Phyllopodium hispidulum

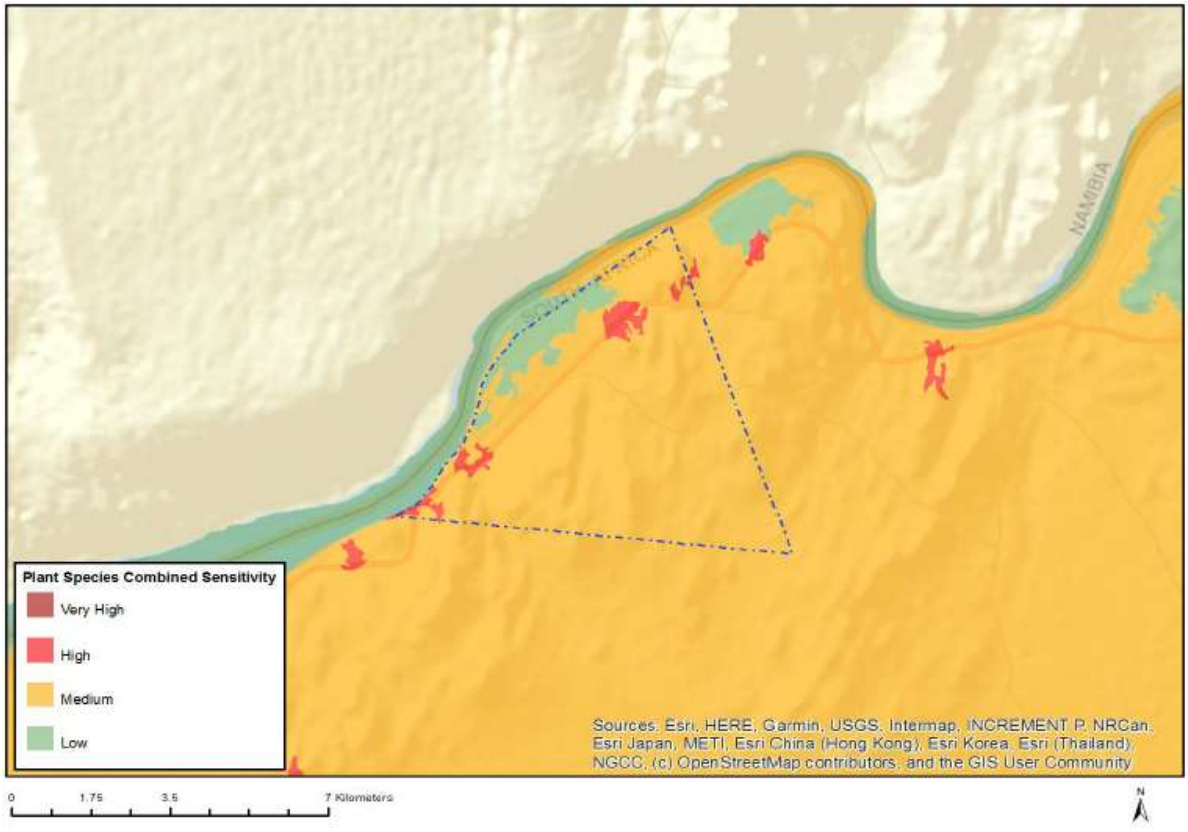


Figure 21. Plant species combined sensitivity.

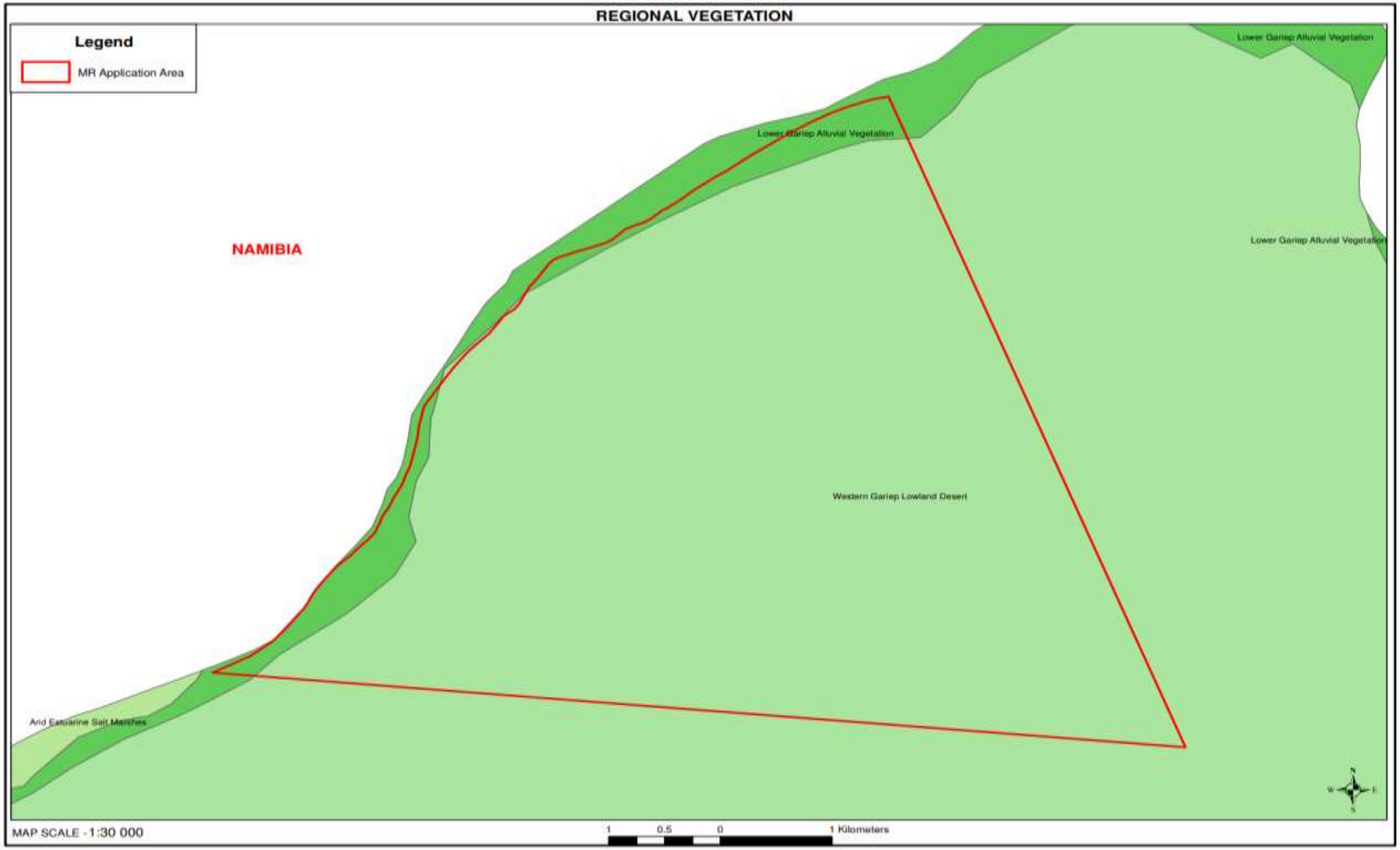


Figure 22. Vegetation map of the Portion of the Remainder and Portion 3 (Beauvallon) of the farm Groot Derm no 10.

1.9 Surface Water

Water Resource Sensitivity

The Orange River Boarders the application area. Within the area concerned, there are some small streams, part of the dendritic drainage towards the Orange River. These are dry for most of the year and only flow for a short while following good rains. The only use of these streams during the few days that they do flow would be as a drinking source for any game or sheep in the area.

The Coptra-SA operation is situated within the quaternary drainage catchments D82L Sub-Catchment. The Sub-Catchment forms part of the Lower Orange Water Management Area.

Water Quality

The overall health of the Orange River is poor. Numerous natural and anthropogenic influences have changed the structural, species compositional and functional characteristics of the river.

Wetlands

There are two pans situated on the application area, and two nearby the application area, there are also numerous reed beds along the banks of the Orange River. No mining will occur in any drainage channels or pans and all mining will be aimed at the already disturbed and target areas.

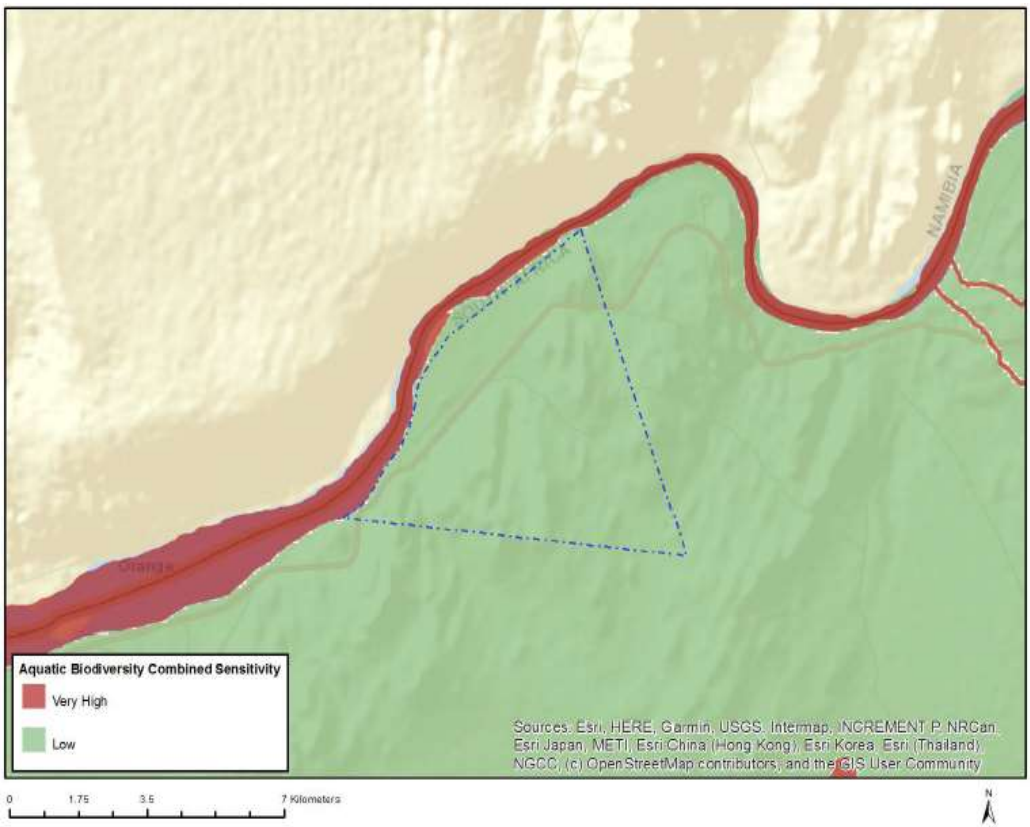


Figure 23. Aquatic Biodiversity Combined Sensitivity.

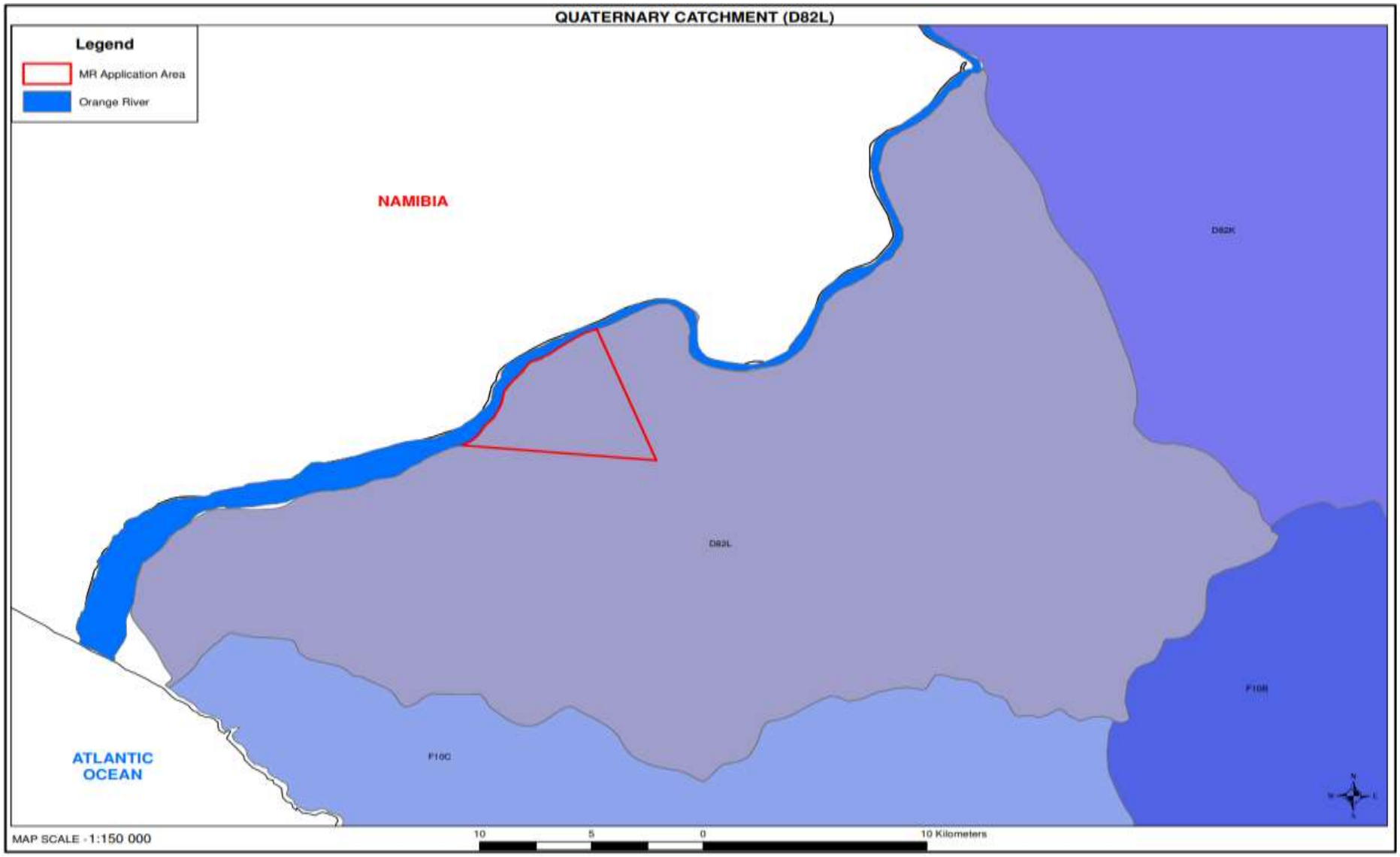


Figure 24. Quaternary Catchment Map

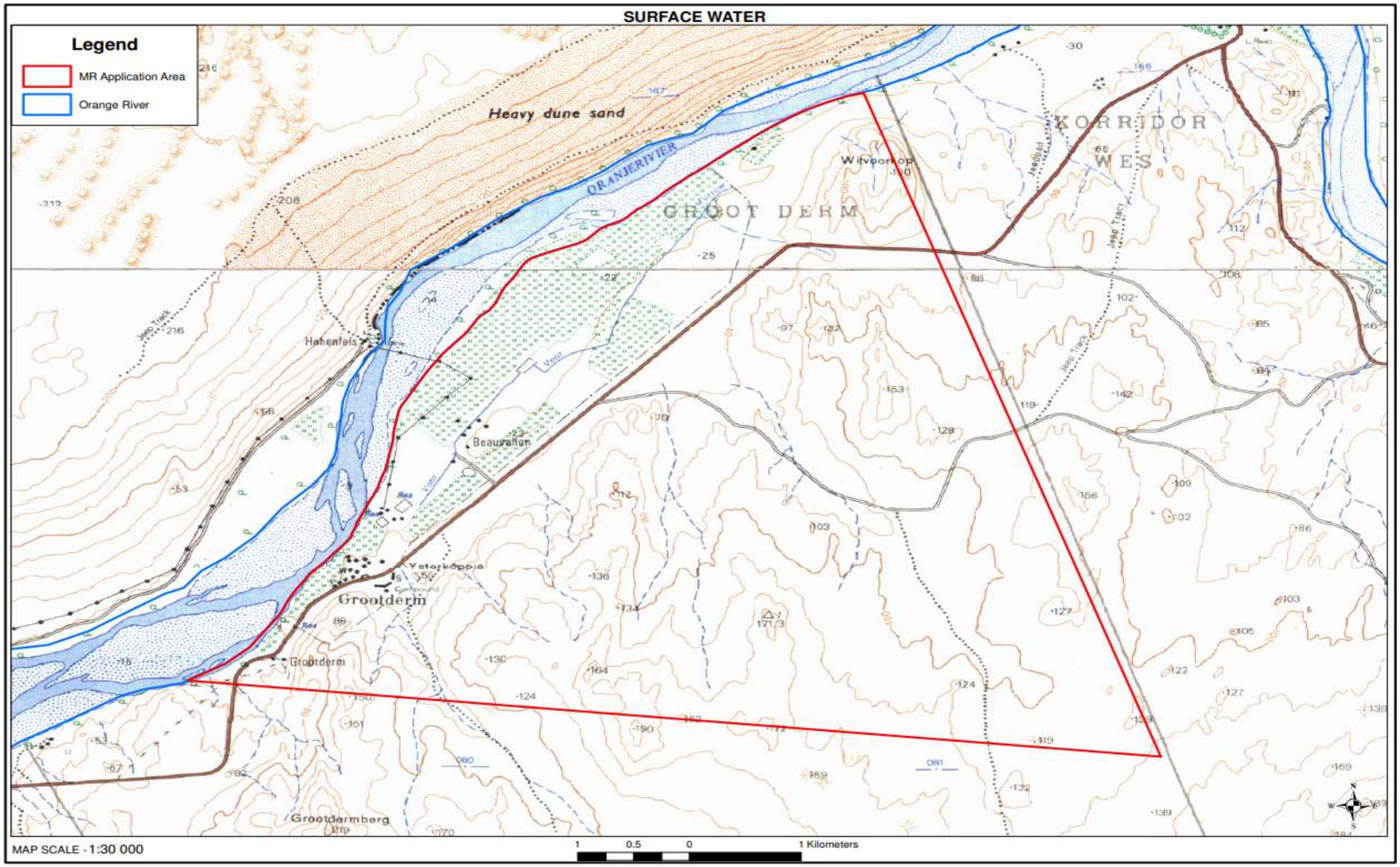


Figure 25. Surface Water

1.10 Ground Water

Ground –Water Zone

Operation Demand

Processed water

The processed water and mine residue deposits will form part of a closed dirty water system and will not be allowed back into the Orange River. Water for mining operations will be sourced from the Orange River.

1.11 Cultural and Heritage Resources

Should any other heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well. If the mining operation is approved, the heritage resources if any other had been encountered will be protected through the demarcation of no-go zones and fencing off.

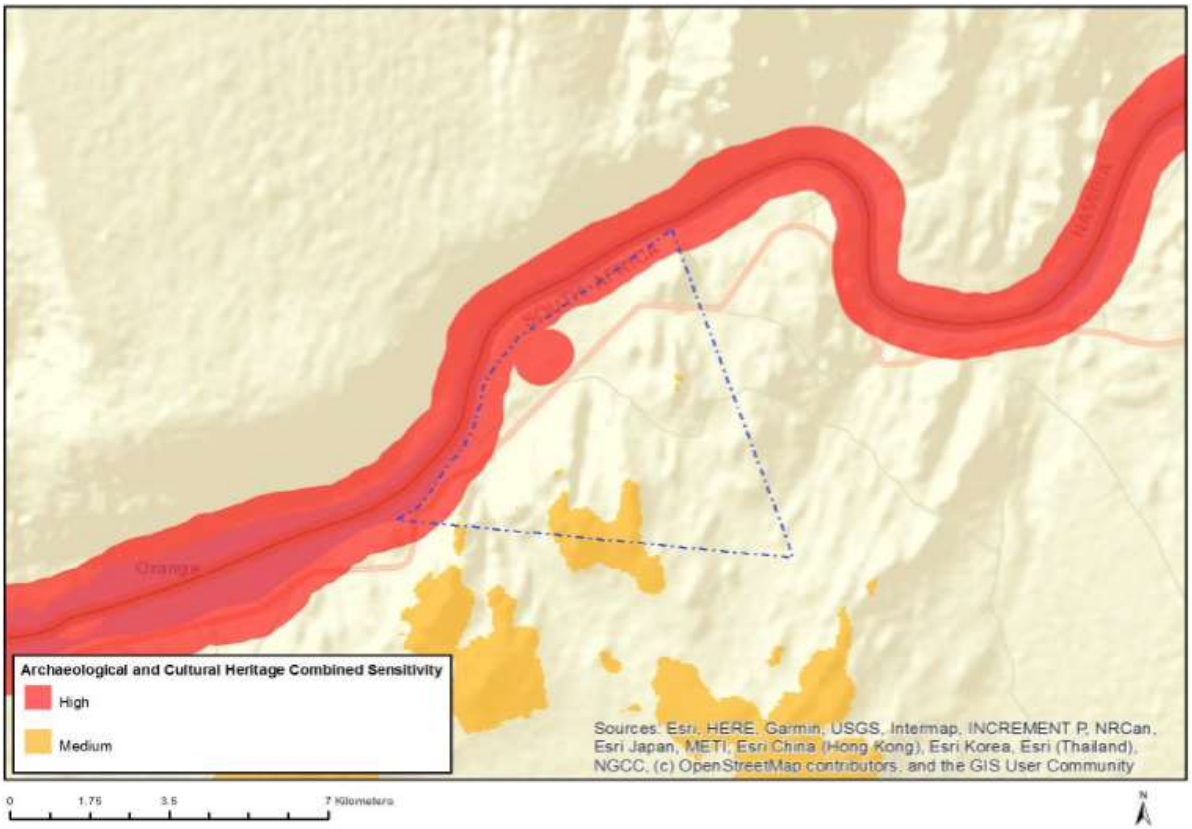


Figure 26. Archeological and Cultural Heritage Combined Sensitivity.

The Screening Report compiled for the Environmental Authorization indicates a High sensitivity and medium sensitivity for the Archeological

and Cultural Combined Sensitivity. The high sensitivity is due to the proximity of the proposed site to the Orange River as well as a wetland.

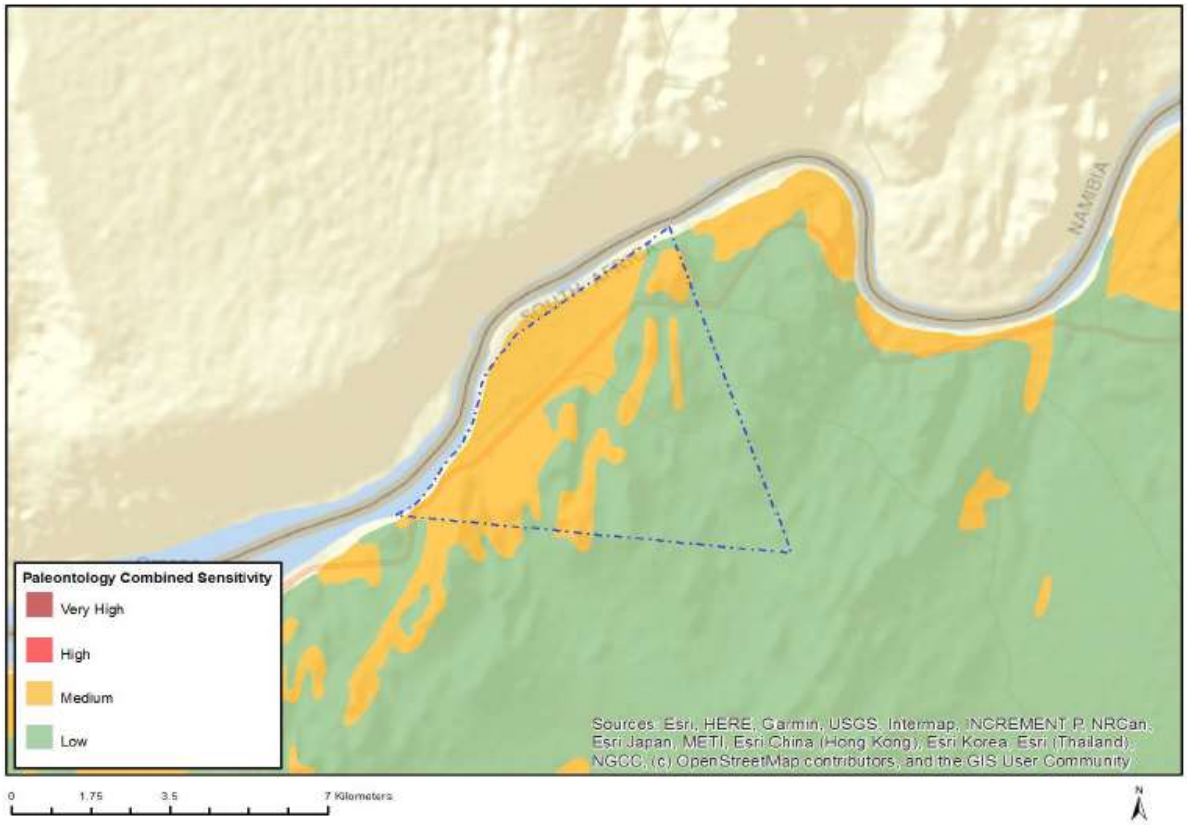


Figure 27. Paleontology Combined Sensitivity.

The Paleontological Combined Sensitivity theme indicates a medium and low sensitivity for the proposed site.

1.12 Air Quality

With reference to the Scheduled Processes under the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), no scheduled process relates to any proposed mining activtiy.

Existing Sources

The current source of air pollution in the area stems from numerous mining operations along the Orange River and from vehicles traveling on the gravel roads of the area. Farming activity, especially ploughing of the irrigation fields, may generate dust during certain periods of the year.

New Source

The source of air pollution on the farm will be nuisance dust generated by the opencast mining process, the loading of gravels onto the transport trucks, the dumping of gravels over each sites primary screen or feeder bins as well as from the movement of trucks and vehicles on the mining roads. Gas emissions from machinery will be kept within legal limits.

Areas of Impact

The prevailing wind (occasionally slightly) is from the South and the south-west with the strongest winds also coming from the south west. The average monthly wind speeds are generally below 12 km/h.
There is a potential for fall-out dust to impact on the surrounding farm properties – which can be described as the nearest potential area of impact. The dust management programme recommended should include daily dosing of access roads and stockpile areas.

If dust is generated, it is expected to be visible from the surrounding farmland or mines along the Orange River.

1.13 Noise

Noise on site will come from the large vehicles (tip trucks, front-end loaders, back actors), from the working pans.

There are other mining operations located within proximity to the mining area. Although these operations do generate noise the overall impact can be described as negligible. It is further negated by very low resident population within earshot.

1.14 Visual Aspects

The mining area is visible from the other side of the Orange river and to the neighbour to the south-west of the mining area. There are no residential areas within the surrounding area. The mine is not located on a tourist route and will not be visible to the average tourist.

1.15 Socio-Economic Structure of the Region

Population Density, Growth and Location

The Northern Cape is geographically the largest province in South Africa having a land mass increased from 361,830 km² to 373,239 km² with the introduction of the new provincial boundaries and covers approximately one third of the country's surface area.

The Northern Cape is divided into five district councils, namely Namakwa, Siyanda, Pixley ka Seme, Frances Baard and Kgalagadi. These district councils are made up of 27 local Municipalities. The province also has five district management areas.

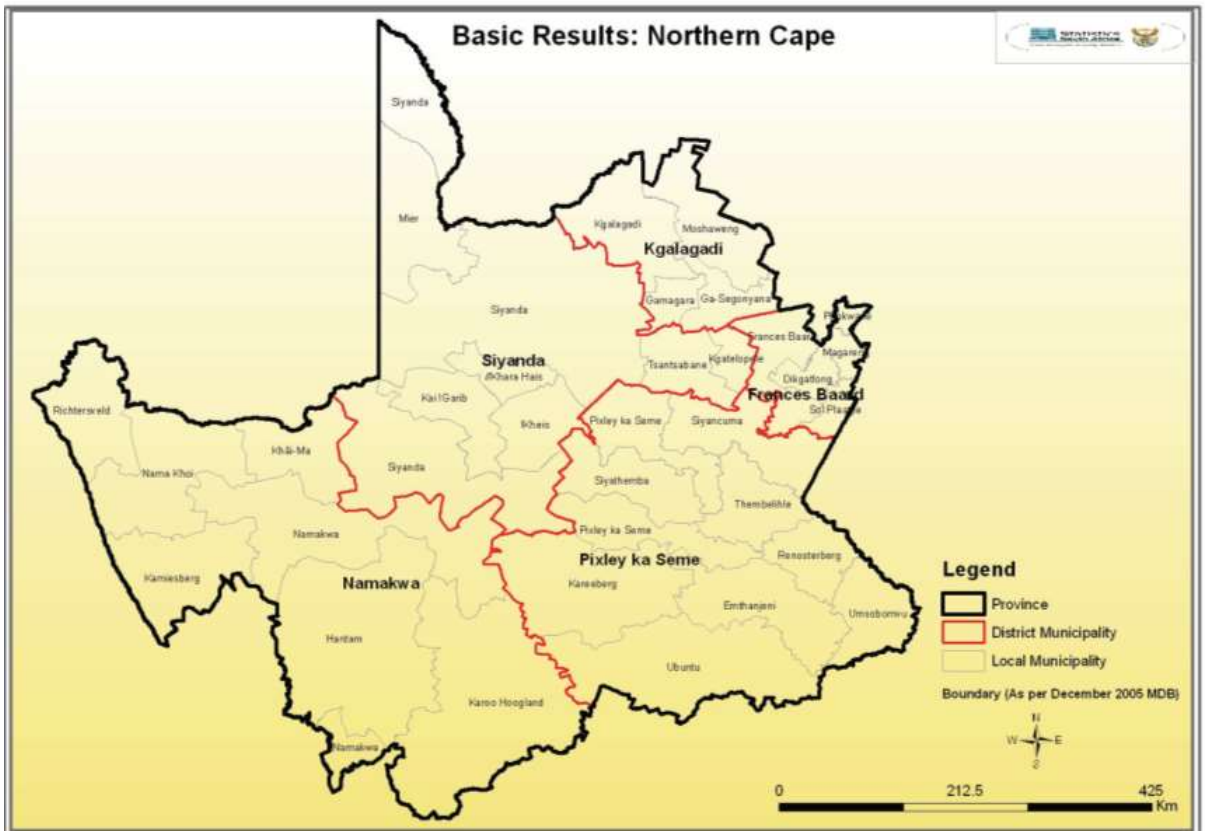


Figure 28. Local Municipal areas in the Northern Cape Province

The Northern Cape Province is the Province with the lowest population in South Africa with only 2.2% of the total population. The Namakwa District is also the District in the Northern Cape Province with the lowest population in 2016 namely 115 488 people. This is a slight decline from the 2011 census figure of 115 842 and is the least populated district in the Province (and Country, although geographically the largest) with a population comprising 10% of the Provincial total population.

Nama Khoi Municipality is the economic hub of the District with the highest population followed by the Hantam Municipality. There was however a slight decline in the populations of Nama Khoi Municipality, Kamiesberg Municipality and Hantam Municipality whilst the population of the other three Municipalities increased marginal.

Richtersveld Municipality is one of the six Category B Local Municipalities which form part of the broader Namakwa District as per the Municipal Demarcation Act. Richtersveld Municipality is an administrative area in the Namakwa District of the Northern Cape Province.

The Richtersveld is a unique landscape surrounded by a variety of contrasts. In Port Nolloth is the ocean, at Alexander Bay there is the Orange River, and at Lekkersing and Eksteensfontein there is underground water that is a little brackish. Rainfall is minimal and water

is a scarce commodity, yet the vast plains, which are considered a special place by some, are still a very beautiful region with unique characteristics that attract thousands of tourists. The Richtersveld is a conservation area.

The main economic sectors of the Richterveld Municipality is mining, agriculture, fishing and tourism. The area includes a number of big rural areas, as well as the towns Port Nolloth, Alexanderbay, Sanddrift, Kuboes, Eksteenfontein and Lekkersing.

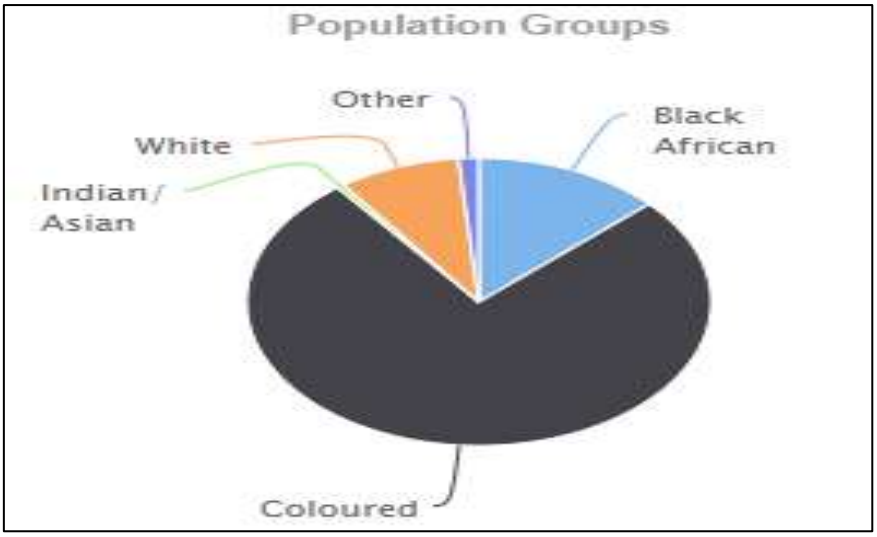
Table 4: Population distribution by municipality – Census 2011 and CS 2016

Province/district/local municipality	Total population	
	Census 2011	CS 2016
DC45: John Taolo Gaetsewe	**224 799**	**242 264**
NC451: Joe Morolong	89 530	84 201
NC452: Ga-Segonyana	93 651	104 408
NC453: Gamagara	41 617	53 656
DC6: Namakwa	**115 842**	**115 488**
NC061: Richtersveld	11 982	12 487
NC062: Nama Khoi	47 041	46 512
NC064: Kamiesberg	10 187	9 605
NC065: Hantam	21 684	21 540
NC066: Karoo Hoogland	12 501	13 009
NC067: Khâi-Ma	12 446	12 333
DC7: Pixley Ka Seme	**186 351**	**195 595**
NC071: Ubuntu	18 601	19 471
NC072: Umsobomvu	28 376	30 883
NC073: Emthanjeni	42 356	45 404
NC074: Kareeberg	11 673	12 772
NC075: Renosterberg	10 978	11 818
NC076: Thembelihle	15 701	16 230
NC077: Siyathemba	21 591	23 075
NC078: Siyancuma	37 076	35 941
DC8: ZF Mgcawu	**236 783**	**252 692**
NC082: Kai !Garib	65 869	68 929
NC084: !Kheis	16 637	16 566
NC085: Tsantsabane	35 093	39 345
NC086: Kgatelopele	18 687	20 691
NC087: Dawid Kruiper	100 498	107 161
DC9: Frances Baard	**382 086**	**387 741**
NC091: Sol Plaatje	248 041	255 041
NC092: Dikgatlong	46 841	48 473
NC093: Magareng	24 204	24 059
NC094: Phokwane	63 000	60 168
Northern Cape	**1 145 861**	**1 193 780**

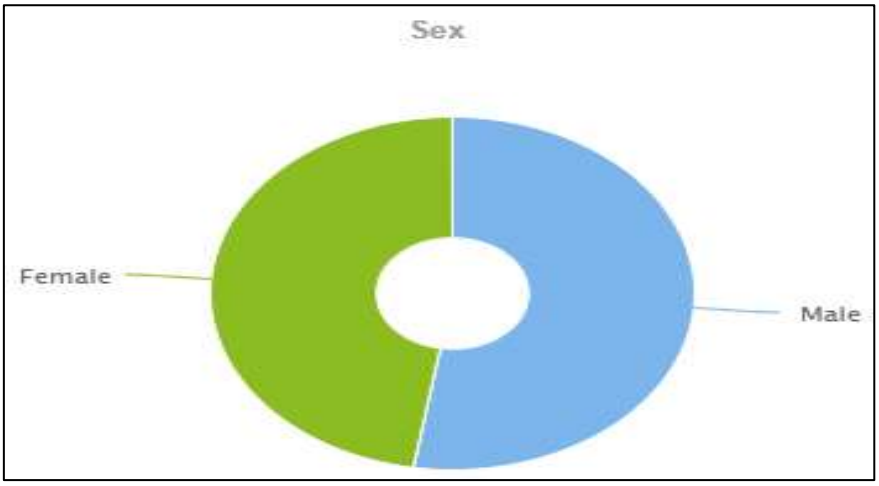
Note: All the above figures are based on the new provincial and municipal boundaries

According to the 2011 Census, Richtersveld Municipality has a total population of 11 982 of which 76,6% are coloured people, 13,1% are black African, 8,5% white people 0.5% Indian/Asian and the other racial groups constitute of 1,4% of the population (Graph 1).

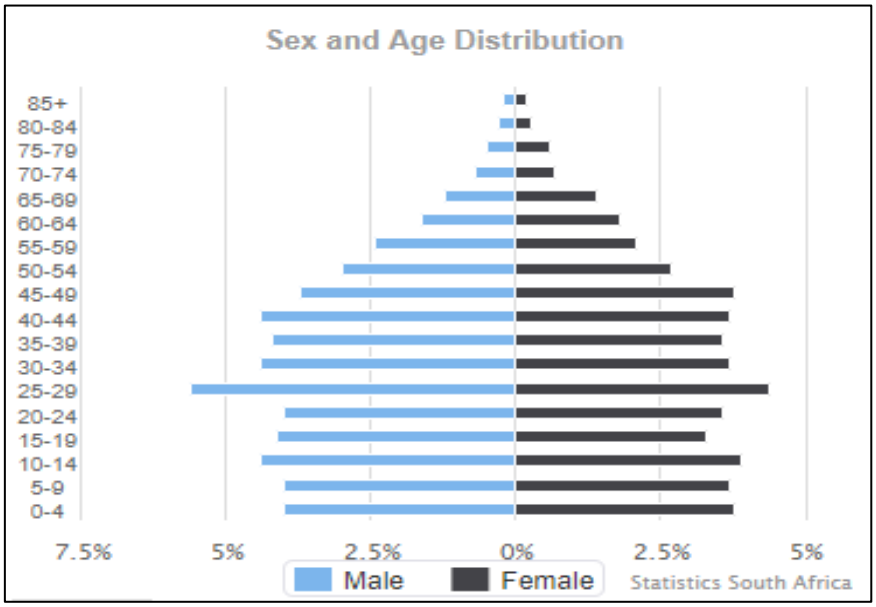
The population of the Richterveld Municipality is dominated by males (52.6%) especially for the age groups up until age 60 (Graph 2 and Graph 3). Females consttitutes to 47,4 % of the population. The greater proportion of the population of Richtersveld is young, consisting mainly of children and youth. As seen in Graph 3 females have a longer life expectancy than men in this Municipality.



Graph 1: Population groups of the Richtersveld Municipality [Source: StatsSA 2011].



Graph 2: Popuation distribution in terms of sex. [Source: StatsSA 2011]



Graph 3: Sex and age distribution of the Richtersveld population [Source: StatsSA 2011].

The most spoken language in the Richtersveld Local Municipality is Afrikaans (92.5%) followed by IsiXhosa (4.3%) and English (2.1%). Other languages include Sesotho, Setswana and other listed in table 5.

Table 5: Language spoken in household Number Percentage (%) [Source: StatsSA 2016].

Language	Number	Persentage
Afrikaans	11 397	92.5
IsiXhosa	526	4.3
English	257	2.1
Setswana	63	0.5
Other	53	0.4
IsiZulu	19	0.2
Total	12 316	100.0

There was an improvement in the level of education in Richtersveld over the period, 1996 to 2016, where there was a decline in the number and proportion of persons aged 20 years and above with no schooling (from 11.8% to 0.5%). It shows a significant increase in the proportion of persons with higher education, from 4.2% in 1996 to 6.6% in 2016. There is also an increase in the proportion of persons who have grade 12/standard 10.

Table 6: Education in the Richterveld Municipality of persons older than 20 (in persentages) [Source: StatsSA 2016].

	No schooling	Some Primary	Complete Primary	Some Secondary	Grade 12/Std 10	Higher	Total*
1996	11.8	28.0	14.2	32.7	9.1	4.2	100.0
2001	7.3	31.4	15.0	30.8	12.6	3.0	100.0
2011	2.6	26.9	12.2	38.4	14.6	5.4	100.0
2016	0.5	13.6	10.8	44.1	24.3	6.6	100.0

Major Economic Activities and Sources of Employment

The economy of this region is not well diversified. In the semi-arid areas of the region small stock and game farming predominates, with few alternative employment opportunities outside of agriculture and government. This makes the region vulnerable to the strong fluctuating conditions of the agricultural markets. The region is a long-term provider of migrant labour with young people leaving in search of work.

Most of the areas rural population is employed in the agriculture as farm workers as well as on the alluvial diamond mines along the Orange River.

Housing-demand and Availability

The demand for housing in the Northern Cape Province is critical as can be seen in the number of informal settlements being built on an almost daily basis in the nearby towns and Kimberley.

Household Access to Services

- ***Water***

Diamond mining can be regarded is one of the largest industrial water users in the Richtersveld municipal area but the main water users still remain households for domestic purposes, schools and agricultural activities for irrigation purposes.

As seen in table 7 below, 88.8% of the households within the Richtersvels Local Municipality makes use of municipal water services. Other sources of water includes the pumping of water from the river (3.8%) or borehole (3.1%). According to the Census conducted in 2016, the Richtersveld Municipality has the lowest number of households with access to clean drinking water in the Namaqua District. Only 72% of the households in this Municipality have clean drinking water of which only 69.7% of the households has access to tap drinking water within their dwelling/house.

Table 7: Water sources used by households {Source: StatsSA 2011].

Source of water	Percentage
Regional/Local water scheme (operated by municipality or other water services provider)	88,8%
Borehole	3,1%
Spring	0%
Rain water tank	0,1%
Dam/Pool/Stagnant water	1%
River/Stream	3,8%
Water vendor	0,1%
Water tanker	0,6%
Other	2,6%

- ***Sanitation***

Alexanderbay has a full waterborne sewerage system in place while Port Nolloth and the rest of the towns are partially serviced with a septic tank system. In Kuboes, Eksteenfontein and Lekkersing there are UDF and VIP toilet systems in place.

Approximately 78.4% of local households have access to flush (78%) or chemical toilets (0.4%). Those households that do not have access to flush or chemical toilets, mainly make use of pit latrines as their main source of sanitation.

Table 8: Sanitation facilities used [Source: StatsSA 2011].

Toilet Facility	Percentage
None	5%
Flush toilet (connected to sewerage system)	69,8%
Flush toilet (with septic tank)	8,2%
Chemical toilet	0,4%
Pit toilet with ventilation	9,9%
Pit toilet without ventilation	3%
Bucket toilet	1%
Other	2,7%

- ***Electricity***

More than 98.7 of household dwellings found in the Richtersveld Municipality have access to electricity. Of these households 39.7% receive their electricity from the municipality and 56.1% directly from ESKOM.

- ***Solid Waste Management***

Around 82.8% of local households enjoyed a weekly refuse removal service by the Local Municipality (Table 9:)

Table 9: Refuse disposal in Richtersveld Municipality [Source: StatsSA 2011].

Refuse Disposal	Percentage
Removed by local authority/private company at least once a week	82,8%
Removed by local authority/private company less often	7,8%
Communal refuse dump	0,6%
Own refuse dump	5,9%
No rubbish disposal	1,2%
Other	1,6%

1.16 Biodiversity

The combined Terrestrial biodiversity theme of the Envirnmental Screening Report indicates a high sensitivity for the proposed site. The proposed site falls within the Critical Biodiversity Area 1 and 2 as well as in an endagered ecosystem and focus area for land-based protected areas expansion.

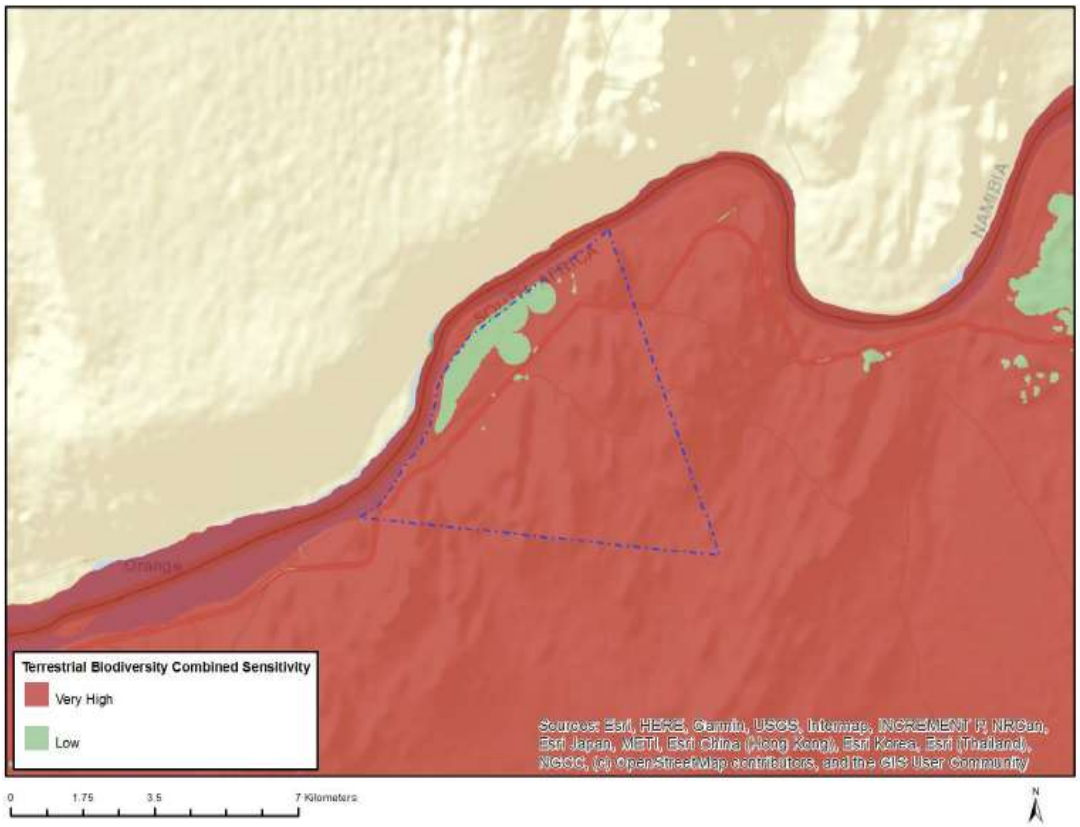


Figure 29. Terrestrial Biodiversity Combined Sensitivity.

1.17 Sensitive Landscapes

"Sensitive Environments" that have statutory protection are the following:-

1. Limited development areas (Section 23 of the Environmental Conservation Act, 1989 (Act 73 of 1989).
2. Protected natural environments and national heritage sites.
3. National, provincial, municipal and private nature reserves.
4. Conservation areas and sites of conservation significance.
5. National monuments and gardens of remembrance.
6. Archaeological and palaeontological sites.
7. Graves and burial sites.

8. Lake areas, offshore islands and the admiralty reserve.
9. Estuaries, lagoons, wetlands and lakes.
10. Streams and river channels and their banks.
11. Dunes and beaches.
12. Caves and sites of geological significance.
13. Battle and burial sites.
14. Habitat and/or breeding sites of Red Data Book species.
15. Areas or sites of outstanding natural beauty.
16. Areas or sites of special scientific interest.
17. Areas or sites of special social, cultural or historical interest.
18. Declared national heritage sites.
19. Mountain catchment areas.
20. Areas with eco-tourism potential.

(b) Description of the Current Land Uses

Land Use Prior to Mining

At present the Beauvallon property is used primarily for irrigation purposes. Small scale prospecting and mining has taken place on the vacant land adjacent to the irrigation lands.

The Grootderm property is used for livestock and game ranching as well as a few hectares of lucerne irrigation close to the Orange River. Substantial historic diamond prospecting and mining has been undertaken on the property close to the Orange River and intermittently along the recently identified paleo channel.

Historical Agricultural Activities

At present the Beauvallon property is used primarily for irrigation purposes. Six mechanised irrigation pivots with additional hand-moved irrigation pipes are used to irrigate cash crops. Presently no crops have been established on the property.

The Grootderm property is used for livestock and game ranching as well as a few hectares of lucerne irrigation close to the Orange River.

Evidence of Abuse

Current mining activities have caused a degree of disturbance in the area however this impact can be mitigated through effective rehabilitation during the mining operations.

Existing Structures

Both Beauvallon and Grootderm properties border onto the Orange River. However, the riverine habitat has been permanently altered through the development of irrigation lands.

(c) Description of Specific Environmental Features and Infrastructure on the Site

The infrastructure on site comprehensively discussed in section d(ii) as part of the mining methodology discussion, as well as in section g as part of the mine footprint description. Furthermore, a comprehensive description of the environment was presented in section (i) as part of the baseline report.

(d) Environmental and Current Land Use Map

(Show all environmental, and current land use features)

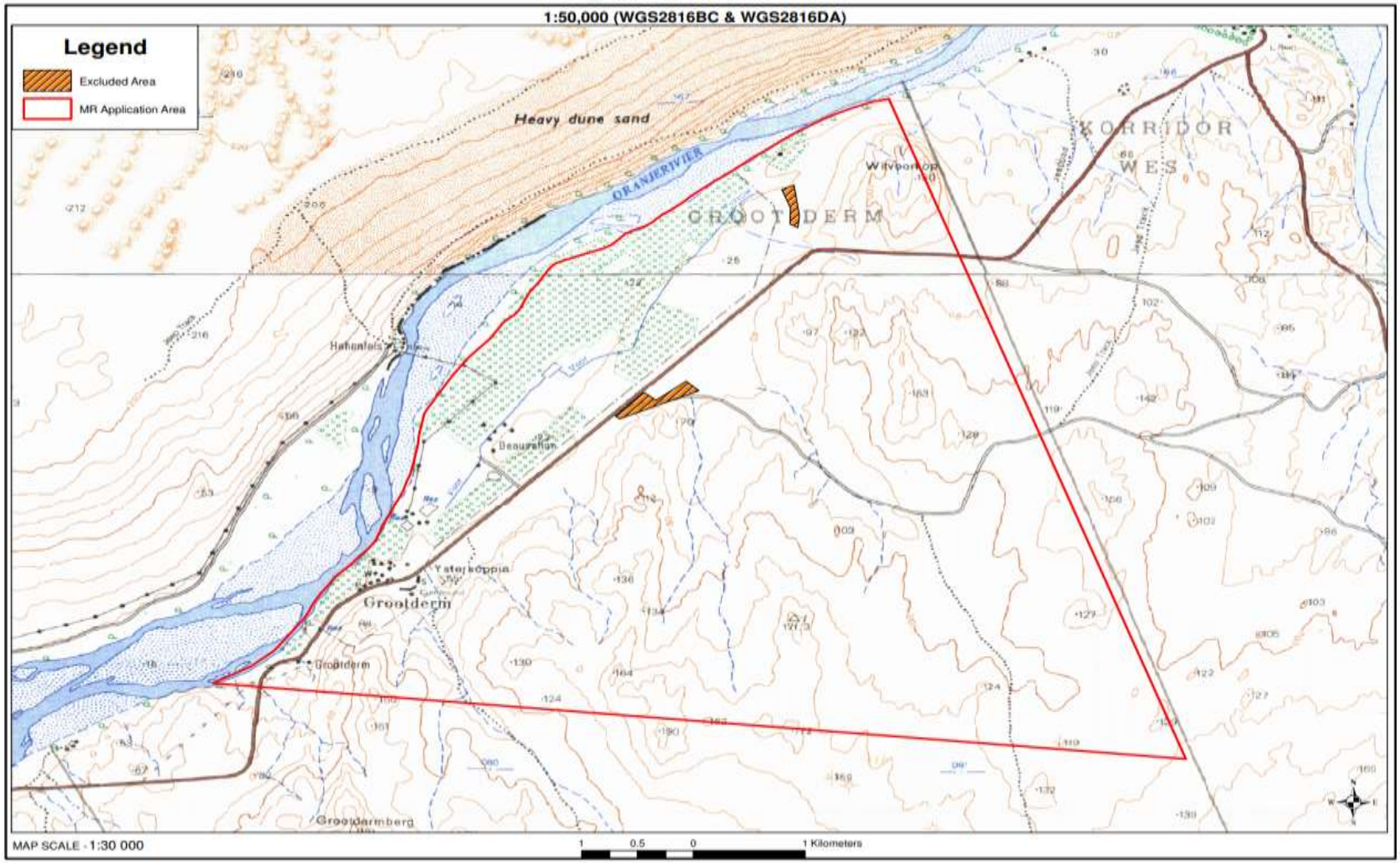


Figure 30. Environmental and current land use features on 1:50 000

v) Impacts identified

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts

Nature of Impact	Significance	Probability	Duration
Sterilisation of mineral resources.	Very low	Highly unlikely	Decommissioning
Changes to surface topography due to topsoil removal, alluvial mining, placement of infrastructure and development of residue deposits.	Low to medium	Certain	Long Term Life of operation
Soil erosion by water and wind on disturbed and exposed soils; potential for dust production and soil microbial degradation; potential contamination of soils due to spillages.	Medium	Possible	Long Term Life of operation
Loss of land capability through topsoil removal, disturbances and loss of soil fertility.	Medium to high	Possible	Short term
Loss of land use due to poor placement of surface infrastructure and ineffective rehabilitation.	Low	Possible	Short term
Pollution of underground water sources.	Low	Possible	Long Term Residual
Deterioration of water resources through alluvial mining.	Medium to high	Possible	Long Term Residual
Deterioration in water quality through spillages and runoff from sites.	Medium to high	Possible	Long Term Life of operation
The clearance of vegetation; potential loss of floral species with conservation value; potential loss of ecosystem function.	Medium	Certain	Long Term Life of operation
Proliferation of alien invasive plants species.	Low to medium	Possible	Long Term Residual
Displacement of faunal species.	Low	Possible	Long Term Life of operation
The loss, damage and fragmentation of floral and faunal habitats; potential loss of ecosystem function.	Low to Medium	Certain	Long Term Residual
Sources of atmospheric emission associated with the mining operation are likely to include fugitive dust from materials handling operations, wind erosion of stockpiles and vehicle entrainment of road dust.	Low to medium	Certain	Life of Operation Decommissioning
Increase in continuous noise levels; the disruption of current ambient noise levels; and the disruption of sensitive receptors by means of increased noise and vibration.	Low to medium	Certain	Long Term Life of Operation

Visual impact of the mine infrastructure, slimes dams and visibility of dust.	Medium to Low	Certain	Life of Operation Decommissioning
Potential negative impacts on traffic safety and deterioration of the existing road networks.	Low	Possible	Life of Operation Decommissioning
The deterioration of sites of cultural and heritage importance.	Medium to high	Possible	Life of Operation
Loss of agricultural/grazing potential; influx of workers to the area increases health risks and loitering (resulting in lack of security and safety); negative impact of employment loss during site closure.	Medium	Certain	Short-term and Closure
Loss of trust and a good standing relationship with the IAPs.	Low to medium	Possible	Life of Operation Decommissioning
Positive socio-economic impacts during operation, upliftment of previously disadvantaged communities.	Medium to high	Certain	Life of Operation Decommissioning to residual

vi) 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)

The limits were defined in relation to the Mining Characteristics. Those for probability, significance and duration are subjective, based on rule of thumb and experience. The significance of the impacts is defined as follows:

The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Nature of impact

This is an appraisal of the type of effect the activity would have on the affected environmental component. Its description should include what is being affected, and how.

Extent

The physical and spatial size of the impact. This is classified as follows:

- **Local**
  The impacted area extends only as far as the activity, e.g. a footprint.
- **Site**
  The impact could affect the whole, or a measurable portion of the property.
- **Regional**
  The impact could affect the area including the neighboring farms, transport routes and the adjoining towns.

Duration

The lifetime of the impact which is measured in the context of the lifetime of the proposed phase (i.e. construction or operation).

- **Short term**
  The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.
- **Medium term**
  The impact will last up to the end of the mining period, where after it will be entirely negated.
- **Long term (Residual)**
  The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent**
  The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Intensity

This describes how destructive, or benign, the impact is. Does it destroy the impacted environment, alter its functioning, or slightly alter it. These are rated as:

- **Low**

This alters the affected environment in such a way that the natural processes or functions are not affected.

- **Medium**
  The affected environment is altered, but function and process continue, albeit in a modified way.
- **High**
  Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

  This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

- **Improbable**
  The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
- **Probable**
  There is a possibility that the impact will occur to the extent that provisions must be made therefore.
- **Highly probable**
  It is most likely that the impacts will occur at some or other stage of the development.
- **Definite**
  The impact will take place regardless of any preventative plans, and mitigation measures or contingency plans will have to be implemented to contain the impact.

Determination of significance

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:

- **No significance**
  The impact is not likely to be substantial and does not require any mitigatory action.
- **Low**
  The impact is of little importance, but may require limited mitigation.
- **Medium**
  The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
- **High**
  The impact is of great importance. Failure to mitigate, with the objective to reduce the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

vii) 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)

During construction and operation of the mine, there is a possibility of sterilisation of the mineral reserves and resources due to improper placement of infrastructure. The infrastructure and slimes dam will alter the topography by adding features to the landscape. Topsoil removal and alluvial mining will unearth the natural topography. The construction of infrastructure and various facilities in the mining area can also result in loss of soil due to erosion. Vegetation where present will be stripped in preparation for placement of infrastructure and loading, and therefore the areas will be bare and susceptible to erosion. The topsoil that is stripped and piled on surrounding areas can be eroded by wind and rain. The soil will be carried away during runoff. The declared areas will be rehabilitated, but full restoration of soil might only occur over a number of years, subsequent to the re-establishment of vegetation. Furthermore, improper stockpiling and soil compaction can result in soil sterilisation. Leaching can also occur, resulting in the loss of nutrients.

During the construction and operation of the mine, there is a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusable unless they are decontaminated. The storage of fuels on site might have an impact on soil if the tanks that are available on site are not properly monitored and maintained to avoid leakages. Then there is the potential that contaminated soil can be carried through runoff to contaminate water resources and soil stockpiled for rehabilitation. Soil pollution is therefore possible, but through mitigation it can be minimised.

The loss of land capability and land use can occur in two ways. Firstly, through topsoil removal, disturbances and loss of soil fertility; and secondly through the improper placement of infrastructure. The site has a land capability for limited grazing, but grazing activities can still be performed in areas not earmarked for mining, and with proper rehabilitation the land capabilities and land use potential can be restored.

If oil and fuel spillages occur, then it will seep into the underlying aquifers and contaminate ground water. Improper handling of hazardous material will cause contamination of nearby surface water resources during runoff episodes. Lack of storm control structures will lead to erosion of stockpiles during heavy rains and runoff will carry suspended solids into the downstream environment. This might cause high silt load and affect stream flow.

Construction and mining activities on site will reduce the natural habitat for ecological systems to continue their operation. It is not expected that the areas of high ecological function will rehabilitate following disturbance events. Vehicle traffic generates lots of

dust which can reduce the growth success and seed dispersal of many small plant species. It is expected that protected species if present will be destroyed during the mining operation, the necessary permits will be obtained after the specialist studies have been completed to confirm the presence of the protected species.

While general clearing of the area and mining activities destroy natural vegetation, invasive plants can increase due to their opportunistic nature in disturbed areas. If invasive plants establish in disturbed areas, it may cause an impact beyond the boundaries of the mining site. These alien invasive species are thus a threat to surrounding natural vegetation and can result in the decrease of biodiversity and ecological value of the area. Therefore, if alien invasive species are not controlled and managed, their propagation into new areas could have a high impact on the surrounding natural vegetation in the long term. With proper mitigation, the impacts can be substantially reduced.

The transformation of natural habitats to mining and associated infrastructure will result in the loss of habitat affected individual species, and ecological processes. In turn this will result in the displacement of faunal species dependent upon such habitat. Increased noise and vibration due to mining activities will disturb and possibly displace birds and other wildlife. Fast moving vehicles take a heavy toll in the form of road kills of small mammals, birds, reptiles, amphibians and a large number of invertebrates. The construction of the mine and associated infrastructure will result in the loss of connectivity and fragmentation of natural habitat. Fragmentation of habitat will lead to the loss of migration corridors, in turn resulting in degeneration of the affected population's genetic make-up. This results in a subsequent loss of genetic variability between meta-populations occurring within the site. Pockets of fragmental natural habitats hinder the growth and development of populations.

During the mining operation the abovementioned activities have potential for dust generation. It is anticipated that the extent of dust emissions would vary substantially from day to day depending on the level of activity and the specific operations. The mine will add a certain amount of noise to the existing noise in the area. However, levels of noise generated by mining activities are low.

The impact of site generated trips on the traffic of the existing roads is experienced to be low. Nevertheless, if road safety is not administered it can have a high impact on the safety of fellow road users.

The mining operation, especially during construction, will create a number of new employment opportunities. The magnitude of this impact will depend on the number of people that will be employed and the number of contractors sourced. An influx of people into the area will possibly impact on safety and security of local residents. During the decommissioning and at closure of the mine, staff will most likely be retrenched.

Economic slump of the local towns after mine closure is an associated potential impact, although small due to the small scale of the operation. Income streams from wage bills as well as goods and services contracts (at all geographical levels) will come to an end, reducing the monetary income of individuals and mine-related businesses. People who have derived income directly or indirectly from the project may be inclined to leave the region in search of employment or business opportunities.

It is likely, however that there will be residual positive economic impacts that are not fully reversed with the closure of the mine, and that the economy will not decline to its original level prior to the development of this project. This is because the mine will generate substantial income for the regional and local economy, both directly and indirectly, during its life.

It is difficult to predict the actual impact of the mine closure in advance, but it is acceptable to assume that the mine closure will have a negative impact on the local and regional economy with a high probability of occurrence, a Low severity and a Low significance.

Positive impacts include employment and training opportunities for people in the local community and local contractors; social upliftment and community development programmes; economic benefits. Also, people will have gained added skill and experience and better training for the entire period of the mine operation, and that can imply better skills than never to have had such opportunity for improvement.

viii) 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)

Geology and Mineral Resource

Level of risk: Very low

Mitigation measures

- Ensure that optimal use is made of the available mineral resource through proper planning.
- The alluvial deposit should be delineated first and all infrastructure positions should be selected with the main aim of avoiding sterilization of future resources.
- No dumping of materials prior to approval by the mine manager.

Topography

Level of risk: Low to medium

Mitigation measures

- Mine all alluvial diamond gravels and rehabilitate material back up to natural ground level.
- Do controlled dumping.
- Employ effective rehabilitation strategies to restore surface topography of the area and plant site.
- Stabilise the excavations and mine residue deposits.
- All temporary infrastructures will be demolished during closure.

Soil Erosion

Level of risk: Medium

Mitigation measures

- At no point may plant cover be removed within the no-development zones.
- All attempts must be made to avoid exposure of dispersive soils.
- Re-establishment of plant cover on disturbed areas must take place as soon as possible, once activities in the area have ceased.
- Ground exposure should be minimised in terms of the surface area and duration, wherever possible.
- The mining operation must co-ordinate different activities in order to optimise the utilisation of the alluvial mining operations and thereby prevent repeated and unnecessary dumping.
- The run-off from the exposed ground should be controlled with the careful placement of flow retarding barriers.
- The soil that is excavated during construction should be stock-piled in layers and protected by berms to prevent erosion.
- All stockpiles must be kept as small as possible, with gentle slopes (18 degrees) in order to avoid excessive erosional induced losses.
- Excavated and stockpiled soil material are to be stored and bermed on the higher laying areas of the footprint area and not in any storm water run-off channels or any other areas where it is likely to cause erosion, or where water would naturally accumulate.
- Stockpiles susceptible to wind erosion are to be covered during windy periods.
- Audits must be carried out at regular intervals to identify areas where erosion is occurring.
- Appropriate remedial action, including the rehabilitation of the eroded areas, must occur.
- Rehabilitation of the erosion channels and gullies.
- Dust suppression must take place, without compromising the water balance of the area.
- Linear infrastructure such as roads and pipelines will be inspected at least monthly to check that the associated water management infrastructure is effective in controlling erosion.

Soil Pollution

Level of risk: Medium to high

Mitigation measures

- Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.
- Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- All facilities where dangerous materials are stored must be contained in a bund wall.
- Vehicles and machinery should be regularly serviced and maintained.

Land Capability and Land Use

Level of risk: Low to Medium

Mitigation measures

- Ensure that optimal use is made of the available land through consultation with land owner and proper planning of mining activities.
- Surface agreement to be signed with land owners.
- Employ effective rehabilitation strategies to restore land capability and land use potential of the farm.
- All activities to be restricted within the demarcated areas.
- Ensure that land which is not used during construction is made available for grazing.

Groundwater

Level of risk: Low

Mitigation measures

- Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.
- Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- All facilities where dangerous materials are stored must be contained in a bund wall.
- Vehicles and machinery should be regularly serviced and maintained.

Surface Water

Level of risk: Medium to high

Mitigation measures

- Sufficient care must be taken when handling hazardous materials to prevent pollution.
- Under no circumstances may ablutions occur outside the provided facilities.
- If servicing and washing of the vehicls occur on site, there must be specific areas constructed for these activities, which must have concrete foundations, bunding as well as oil traps to contain any spillages.
- A walled concrete platform, dedicated store with adequate flooring or bermed area and ventilation must be used to accommodate chemicals such as fuels, oils, paints, herbicide and insecticides.
- Oil residue shall be treated with oil absorbent and this material removed to an approved waste site.
- Spill kits must be easily accessible and workers must undergo induction regarding the use thereof.
- At all times care should be taken not to contaminate surface water resources.
- Store all litter carefully to prevent it from washing away or blown into any of the drainage channels or Kamfersdam within the area.
- Provide bins for staff at appropriate locations, particularly where food is consumed.
- The mining site should be cleared daily and litter removed.
- Conduct ongoing staff awareness programmes in order to reinforce the need to avoid littering, which contributes to surface water pollution.

Indigenous Flora

Level of risk: Medium

Mitigation measures

- Minimise the footprint of transformation.
- Encourage proper rehabilitation of mined areas.
- Encourage the growth of natural plant species.
- Ensure measures for the adherence to the speed limit.
- Footprint areas of the mining activities must be scanned for Red Listed and protected plant species prior to mining.
- It is recommended that these plants are identified and marked prior to mining.
- These plants should, where possible, be incorporated into the design layout and left in situ.
- However, if threatened of destruction by mining, these plants should be removed (with the relevant permits from DAFF and DENC) and relocated if possible.

- A management plan should be implemented to ensure proper establishment of ex situ individuals, and should include a monitoring programme for at least two years after re-establishment in order to ensure successful translocation.
- All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.

All Invasive Plants

Level of risk: Low to medium

Mitigation measures

- Minimise the footprint of transformation.
- Encourage proper rehabilitation of mined areas.
- Encourage the growth of natural plant species.
- Mechanical methods (hand-pulling) of control to be implemented extensively.
- Annual follow-up operations to be implemented.

Fauna

Level of risk: Low

Mitigation measures

- Careful consideration is required when planning the placement for stockpiling topsoil and the creation of access routes in order to avoid the destruction of habitats and minimise the overall mining footprint.
- The appointment of a full-time ECO must render guidance to the staff and contractors with respect to suitable areas for all related disturbance.
- The extent of the mine should be demarcated on site layout plans, and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the mine site that are not part of the demarcated development area should be considered as a no go zone for employees, machinery or even visitors.
- All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.
- The ECO must ensure that all contractors and workers undergo Environmental induction prior to commencing with work on site.
- The environmental induction should occur in the appropriate languages for the workers who may require translation.
- Reptiles and amphibians that are exposed during the clearing operations should be captured for later release or translocation by a qualified expert.
- Employ measures that ensure adherence to the speed limit.

Habitat

Level of risk: Low to Medium

Mitigation measures

- Mining activities must be planned, where possible in order to encourage faunal dispersal and should minimise dissection or fragmentaton of any important faunal habitat type.
- The extent of the mining area should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance). No construction personnel or vehicles may leave the demarcated area except those authorised to do so.

Air Quality

Level of risk: Low to medium

Mitigation measures

- Vegetation must be removed when soil stripping is required only. These areas should be limited to include those areas required for mining only, hereby reducing the surface area exposed to wind erosion. Adequate demarcation of these areas should be undertaken.
- Control options pertaining to topsoil removal, loading and dumping are generally limited to wet suppression.
- Where it is logistically possible, control methods for gravel roads should be utilised to reduce the re-suspension of particulates. Feasible methods include wet suppression, avoidance of unnecessary traffic, speed control and avoidance of track-on of material onto paved and treated roads.
- The length of time where alluvial dimoand mining areas are exposed should be restricted. Mining should not be delayed after vegetation has been cleared and topsoil removed where possible.
- Dust suppression methods should, where logistically possible, be implemented at all areas that may/are exposed for long periods of time.
- For all mining activities management should undertake to implement health measures in terms of personal dust exposure, for all its employees.

Noise and Vibration

Level of risk: Low to medium

Mitigation measures

- Restrict mining activities to daytime unless agreements obtained to do 24hr operations.
- Systematic maintenance of all forms of equipment, training of personnel to adhere to operational procedures that reduce the occurrence and magnitude of individual noisy events.
- Where possible material stockpiles should be placed so as to protect the boundaries from noise to individual operations.

- Standardised noise measurements should be carried out on individual equipment at the delivery to site to construct a reference data-base and regular checks carried out to ensure that equipment is not deteriorating and to detect increases which could lead to increase in the noise impact over time and increased complaints.
- Environmental noise monitoring should be carried out regularly to detect deviations from predicted noise levels and enable corrective measures to be taken where warranted.

Visual Impacts

Level of risk: Low to Medium

Mitigation measures

- Infrastructure should be placed to optimise the natural screening capacity of the vegetation.
- Where practical, protect existing vegetation clumps during in order to facilitate screening during the mining operation.
- Remove rubble and other building rubbish off site as soon as possible or place it in a container in order to keep the mining site free from additional unsightly elements.
- Dust suppression procedures should be implemented especially on windy days during earth works.
- Rehabilitation should aim to establish a diverse and self-sustaining surface cover that is visually and ecologically representative of naturally occurring vegetation species.
- Implement a management plan for the post-mining site in order to control the invasion of alien vegetation and to manage erosion, until the site is fully rehabilitated.

Traffic and Road Safety

Level of risk: Low

Mitigation measures

- Implement measures that ensure the adherence to traffic rules.

Heritage Resources

Level of risk: Medium to high

Mitigation measures

- The heritage if any is encountered and cultural resources (e.g. graveyards, ruins, historic structures, etc.) must be protected and preserved by the delination of no go zones.

- Intact bedrock strata should be avoided during mining of terrace gravels where possible.
- Stone tools should be avoided where possible and fresh exposure should be recorded before destruction. All stone tool artefacts should be recorded, mapped and collected before destruction.
- Should development necessitate impact on any building structures, the developer should apply for a SAHRA Site Destruction Permit prior to commencement of construction.

Socio-Economic

Level of risk: Medium to high

Mitigation measures

- The mine must ensure that false expectations are not created regarding job creation.
- Jobs must be allocated as advertised and in so far as is possible to local inhabitants.
- Contractors and employees should not be permitted to wander outside the mining area.
- Uncontrolled settlement of contractors and workers outside of the site will be prevented.
- The expectations of what benefits can accrue to the community must be managed from the initiation of the project.
- Commitments as set out in the SLP must be attained.

Interested and Affected Parties

Level of risk: Low to medium

Mitigation measures

- Maintain active communications with IAPs.
- Ensure transparent communication with IAPs at all times.
- IAPs must be kept up to date on any changes in the mining operation.
- A complaints management system should be maintained by the mine to ensure that all issues raised by community members are followed up and addressed appropriately.

ix) The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

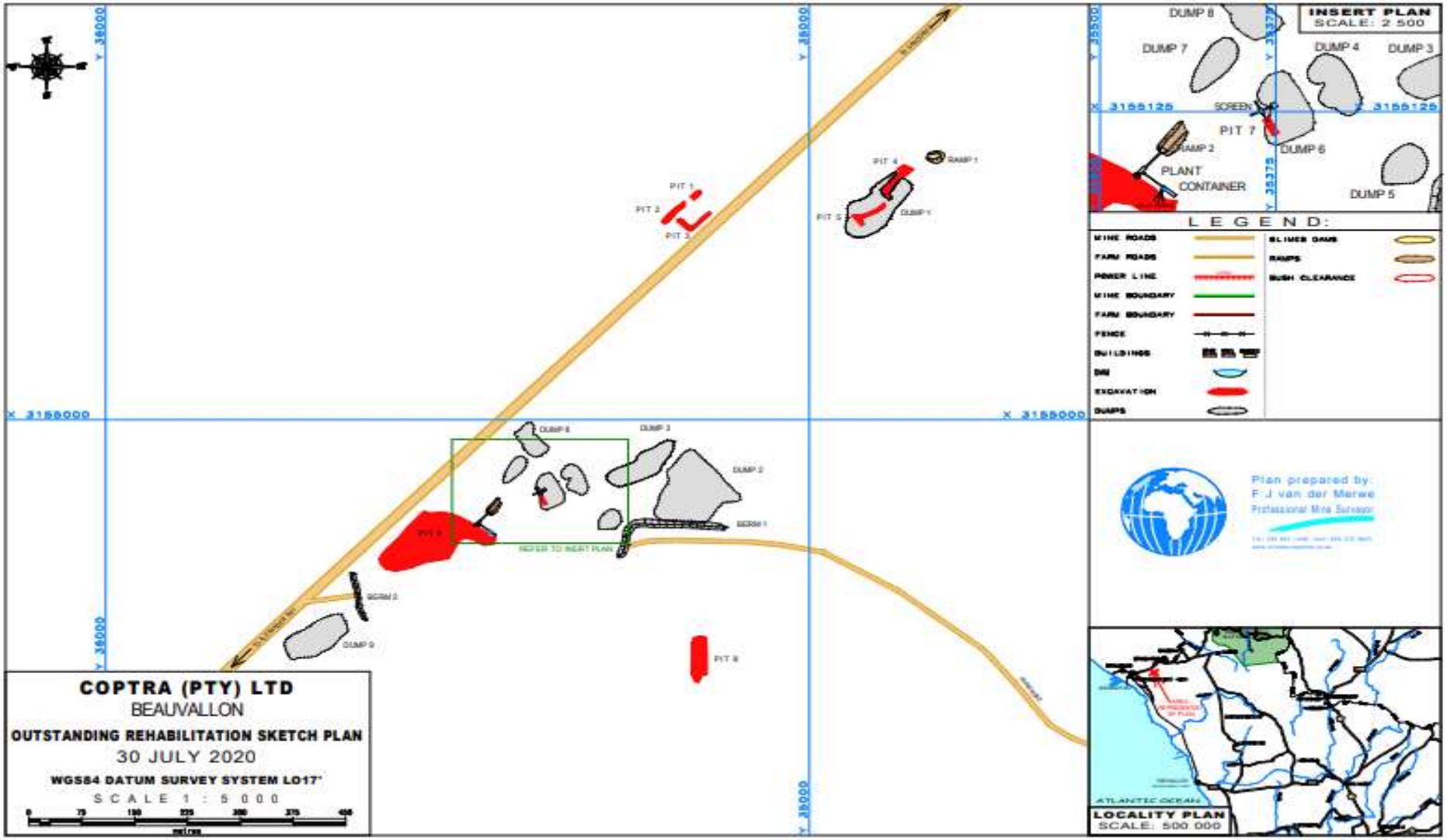


Figure 31. Final site layout plan as surveyed subject to change and survey every quarter.

Figure 32. Google image of the site during bulk sampling

x) Motivation where no alternative sites were considered

No alternative location for the proposed mining operation was considered, as the alluvial diamond resources has been deposited in this area. There is therefore no other alternative with regard to the overall operation footprint.

xi) Statement motivating the preferred site.

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

Not applicable. There is no alternative development location for the site as this is the area with the mineable resource.

i) Plan of study for the Environmental Impact Assessment Process

i) Description of alternatives to be considered including the option of not going ahead with the activity

- Land use development alternatives:
  The site layout may vary, depending on the operational requirements. However, the final design and layout of the infrastructure have been planned and decided upon by the developer on the grounds of reserves, and placement of infrastructure based on hauling distance, environmental features such as wind direction, heritage findings, protected species, and stormwater management on the mine.

- No-go option:
  The following positive impacts will be lost if the proposed mining project is not developed:
  - TAX and VAT obligations to SARS as well as Royalties;
  - CAPEX spent locally and regionally;
  - Employment opportunities;
  - Payroll income;
  - Operating expenditure and maintenance (OPEX);
  - Community loss of profit because they own 26% of the mining company;
  - Revenue

  Mining activities are believed to be the most economically beneficial option for the area.

  If the operation does not continue it would hold back any potential employment for the region and the families who are likely to benefit from the positive employment opportunities. Simultaneously, it may have a stagnant effect on the economy of South Africa and the diamond industry as a whole. Substantial tax benefits to the State and Local Government will also be inhibited.

  Mining forms an integrated part of the social and economic growth of South Africa.

ii) Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control berms, roads, pipelines, powerlines, conveyers, etc..etc…)

1. The clearing of vegetation for:
   - Access roads and haul roads
   - Surface infrastructure
   - Product Stockpile area
   - Waste disposal site (domestic and industrial waste)

2. The stripping and stockpiling of topsoil.

3. Load and Haul Operation for the mining of alluvial gravels.

4. Altering the characteristics of surface water features (possible drainage channel).

5. The development of temporary stockpiles:
   - Topsoil storage area;
   - Mine Residue Stockpile for slime.

6. The rehabilitation of footprint areas where the open casts have been opened.

7. The Processing plant.

8. Loading, hauling and transporting of ROM, product and material

9. Water holding facilities, pipeline and stormwater control:
   - Clean & Dirty water system: Stormwater dam / Water storage facility;
   - Water distribution Pipeline and tank;

10. Fuel storage and refuelling bays;
    - Fuel Storage facility (Diesel tanks);
    - Concrete bund walls and diesel depots.

11. Supporting infrastructure:
    - Temporary Offices;
    - Office Parking Bay;
    - Temporary Workshop and Wash bay;
    - Salvage yard (Storage and laydown area);
    - Ablution facilities/ Sewage facilities;
    - Generators;
    - Pipelines transporting water;

(i) Description of aspects to be assessed by specialists:

Specialist studies and their reports will be taken into consideration and findings disclosed to all interested and affected parties.

Due to the mining techniques proposed as well as the initial impact identification, studies of ecology which will include surface water, topography, soil, fauna, flora and bio-diversity will be conducted. A heritage and palaeontological impact assessment will also be conducted these studies will be the focus of specialist studies.
Water studies will provide a baseline study of the geology, hydrology, geochemistry and potential contamination at the proposed site and the impact of proposed mining operations on the Orange river.
Ecological studies will provide more detailed baseline assessments regarding specific plant- and animal species, soil and wetlands, their densities and conservation value. 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.
Heritage Assessments will focus on both paleontological and archaeological significance of the area and assess the cumulative impacts within and around the proposed mine property.

Specialist contributions will be provided in the EIA EMP.

(ii) Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives:

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, ground water, terrestrial ecology, air quality, noise, etc.

The identification of potential impacts of the mining activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process. Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the mining activities include impacts on air quality, noise, fauna, flora, ground water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, storm water and erosion.

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the proposed project. In order to ensure that the proposed project enables sustainable mining, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, mining method and proceeding without the mining operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility.

Alternatives for the locality of the mining operation will however not form part of this consideration, as the location of the mining site is determined by the geological location of the mineral resource.

(iii) The proposed method of assessing duration significance:

The lifetime of the impact will be measured in the context of the lifetime of the proposed phase or activity.

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

- **Short term**
  The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.
- **Medium term**
  The impact will last up to the end of the mining period, where after it will be entirely negated.
- **Long term**
  The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent**
  The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

(iv) The stages at which the Competent Authority will be consulted:

Consultation with the Competent Authority will take place throughout the application process, however more specifically; consultation will take place before submission of the Scoping Report and again before submission of the EIA/EMPR Report.

(v) Particulars of the public participation process with regard to the Impact Assessment process that will conducted:

1. Steps to be taken to notify interested and affected parties:

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h)(ii) herein.)

The consultation process as described by NEMA for Environmental Authorisation was followed and is still in process. The following steps were already taken:

A copy of the draft Scoping Report (burned to disc) was send to all interested and affected parties. All Government Departments identified were also notified by registered letters. The surface owner also received a registered

letter. Letters was also sent to various neighbouring people with adjacent farms or further away.

A notice was also placed on the gates at the entrance of the proposed site to invite any other interested parties to come forward and to register. Other notices were brought up on relevant public places to inform the communities in the surrounding area of the proposed mining operation.

Furthermore, an advert will be placed in the Gemsbok Newspaper which will invite any other interested or affected party to come forward and register.

Proof of notification and consultation is attached as Appendix 3. The consultation process is still in process.

2. Details of the engagement process to be followed:

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and record of such consultation will be required in the EIA at a later stage.)

The following procedures will be followed:

- Public meetings will be held with registered IAPs at suitable venues and on appropriate dates, depending on the feedback received during the consultation process.
- An IAP register will be compiled and regular and ongoing follow-up sessions will be held with the IAPs to monitor those issues raised during the IAP process and that are deemed to be affected by the mining operation.
- All documents will be sent to all registered IAPs and other documentation (Scoping, EMP and EMPR) will be made available in public libraries as soon as the libraries are open.
- Records will be kept of the complaints and the mitigation measures implemented.

3. Description of the information to be provided to Interested and Affected Parties:

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land.)

The following information will be provided to IAPs:

- The site plan;
- List of activities to be authorised;
- Scale and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity.

The following information will be requested from the IAPs:

- To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions;

- To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity;
- To provide information on current land uses and their location within the area under consideration;
- To provide information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied. They will be requested to make written proposals;
- To mitigate the potential impacts on their socio-economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied).

(vi) Description of the tasks that will be undertaken during the environmental impact assessment process:

Determining environmental attributes

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, groundwater, terrestrial ecology, air quality, noise, etc.

Identification of impacts and risks

The identification of potential impacts of the mining activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process.

Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the mining activities include impacts on air quality, noise, fauna, flora, ground water, surface water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, stormwater and erosion.

Consideration of alternatives

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the mining project. In order to ensure that the proposed project enables sustainable mining, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, mining method and proceeding without the mining operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility.

Alternatives for the locality of the mining operation will however not form part of this consideration, as the location of the mining site is determined by the geological location of the mineral resource.

Process to assess and rank impacts

Before any assessment can made the following evaluation, criteria need to be described

Table 10: Explanation of PROBABILITY of impact occurrence

Weight	Probability of Impact Occurrence	Explanation of Probability
1	Very Low	<20% sure of particular fact or likelihood of impact occurring
2	Low	20 – 39% sure of particular fact or likelihood of impact occurring
3	Moderate	40 – 59% sure of particular fact or likelihood of impact occurring
4	High	60 – 79% sure of particular fact or likelihood of impact occurring
5	Very High	80 – 99% sure of particular fact or likelihood of impact occurring
6	Definite	100% sure of particular fact or likelihood of impact occurring

Table 11: Explanation of EXTENT of impact

Weight	Extent of Impact	Explanation of Extent
1	Site Specific	Direct and Indirect impacts limited to site of impact only
2	Surrounding Area	Direct and Indirect impacts affecting environmental elements within 2 km of site
3	Local Municipality	Direct and Indirect impacts affecting environmental elements within the Richterveld area
4	Regional/District	Direct and Indirect impacts affecting environmental elements within District (Richterveld/Namaqualand District)
5	Provincial	Direct and Indirect impacts affecting environmental elements in the Northern Cape Province

Table 12: Explanation of DURATION of impact

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

Table 13: Explanation of SEVERITY of the impact

Weight	Impact Severity	Explanation of Severity
1	No Impact	There will be no impact at all – not even a very low impact on the system or any of its parts.
2	Very Low	Impact would be negligible. In the cast of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple. In the case of positive impacts alternative means would almost all likely to be better, if one or a number of ways, then this means of achieving the benefit.
3	Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required or both. In the case of positive impacts alternative means for achieving this benefit would be easier, cheaper, more effective, less time-consuming, or some combination of these.
4	Moderately Severe	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts other means other means of covering these benefits would be about equal in cost and effort.
5	High Severance	Impacts of substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these. In the case of positive impacts other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
6	Very High Severity	Of the highest order possible within the bounds of impacts which could occur, in the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted. In the case of positive impacts there is no real alternative to achieving the benefit.

Methodology used in determining and ranking the nature, severity, consequences, extent, duration and probability of potential environmental impacts and risks

The criteria used to assess the significance of the impacts are shown in the table below. The limits were defined in relation to mining characteristics. Those for probability, intensity/severity and significance are subjective, based on rule-of-thumb and experience. Natural and existing mitigation measures were considered. These natural mitigation measures were defined as natural conditions, conditions inherent in the project design and existing management measures, which alleviate impacts. The significance of the impacts was calculated by using the following formula:

(Severity + Extent + Duration) x Probability weighting

For the impact assessment, the different project activities and associated infrastructure were identified and considered in order to identify and analyse the various possible impacts.

Table 14

SIGNIFICANCE				
Colour Code	**Significance rating**	**Rating**	**Negative Impact**	**Positive Impact**
	Very low	3 -16	Acceptable/Not serious	Marginally Positive
	Low	17 - 22	Acceptable/Not serious	Marginally Positive
	Medium-Low	23 -33	Acceptable/Not desirable	Moderately Positive
	Medium	34 - 48	Generally undesirable	Beneficial
	Medium-High	49 - 56	Generally unacceptable	Important
	High	57 - 70	Not Acceptable	Important
	Very High	90 - 102	Totally unacceptable	Critically Important

Significance of impacts is defined as follows:

Very Low - Impact would be negligible. Almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple.

Low - Impact would have little real effect. Mitigation and/or remedial activity would be either easily achieved or little would be required or both.

Medium Low- Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and fairly easily possible.

Medium - Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be feasible and possible.

Medium High- Impact would be real but could be substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and possible but may be difficult and or costly.

High - Impacts of substantial order. Mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these.

Very High - Of the highest order possible within the bounds of impacts which could occur. There would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted.

(vii) Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored:

ACTIVITY Whether listed or not listed (e.g. excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water suppy dams and boreholes, accommodation, offices, ablution, stores, workshops, processing lant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc…)	POTENTIAL IMPACT (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…)	MITIGATION TYPE modify, remedy, control or stop (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc…etc…) (e.g. modify through alternative method. Control through management and monitoring through rehabilitation.)	POTENTIAL FOR RESIDUAL RISK
Ablution facilities: Chemical toilets	• Soil contamination • Groundwater contamination • Odours	• Maintenance of chemical toilets on regular basis. • Removal of containers upon closure.	Low
Clean & Dirty water system	• Surface disturbance • Groundwater contamination • Soil contamination • Surface water contamination	• Maintenance of berms and trenches. • Oil traps used in relevant areas. • Drip trays used. • Immediately clean hydrocarbon spill.	Low/Medium
Diesel tanks	• Groundwater contamination • Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance	• Maintenance of diesel tanks and bund walls. • Oil traps. • Groundwater quality monitoring. • Drip tray at re-fuelling point. • Immediately clean hydrocarbon spill.	Medium
Opencast Alluvial Diamond mining	• Dust • Possible Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance	• Access control • Dust control and monitoring • Groundwater quality monitoring • Noise control and monitoring • Continuous rehabilitation • Stormwater run-off control • Immediately clean hydrocarbon spill • Drip trays • Erosion control	Medium to high

	• Surface water contamination		
Generators	• Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance	• Access control • Maintenance of generator and bund walls • Noise control and monitoring • Oil traps • Groundwater quality monitoring • Immediately clean hydrocarbon spill	Medium
Office – Pre-fabricated office blocks on concrete	• Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance	• Immediately clean hydrocarbon spill • Rip disturbed areas to allow re-growth of vegetation cover	Low
Parking bay	• Dust • Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Surface disturbance	• Dust control and monitoring • Noise control and monitoring • Drip trays • Stormwater run-off control. • Immediately clean hydrocarbon spills • Rip disturbed areas to allow re-growth of vegetation cover	Low
Processing plant	• Dust • Noise • Groundwater contamination • Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance	• Access control • Maintenance of processing plant • Dust control and monitoring • Groundwater quality and level monitoring • Noise control and monitoring • Drip trays • Stormwater run-off control. • Immediately clean hydrocarbon spills • Rip disturbed areas to allow re-growth of vegetation cover	Medium
Water distribution Pipeline	• Surface disturbance	• Maintenance of pipes.	Low

	• Possible Groundwater contamination • Soil contamination • Surface water contamination		
Roads	• Dust • Possible Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Surface disturbance	• Maintenance of roads • Dust control and monitoring • Noise control and monitoring • Speed limits • Stormwater run-off control. • Erosion control • Immediately clean hydrocarbon spills • Rip disturbed areas to allow re-growth of vegetation cover	Low
Salvage yard	• Possible Groundwater contamination • Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination • Surface disturbance • Surface water contamination	• Access control • Maintenance of fence. • Stormwater run-off control • Immediately clean hydrocarbon spill	Low to medium
Stockpile area	• Dust • Possible Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Surface disturbance	• Dust control and monitoring • Noise control and monitoring • Drip trays • Stormwater run-off control. • Immediately clean hydrocarbon spills • Rip disturbed areas to allow re-growth of vegetation cover	Low
Topsoil storage area	• Dust	• Dust control and monitoring • Stormwater run-off control.	Low

	• Removal and disturbance of vegetation cover and natural habitat of fauna • Soil disturbance • Surface disturbance	• Continuous rehabilitation • Rip disturbed areas to allow re-growth of vegetation cover • Backfilling of topsoil during rehabilitation	
Waste disposal site	• Groundwater contamination • Surface water contamination	• Storage of waste within receptacles • Storage of hazardous waste on concrete floor with bund wall • Removal of waste on regular intervals.	Low to medium
Mine Residue Deposit – Slimes	• Dust • Possible Groundwater contamination • Noise • Removal and disturbance of vegetation cover and natural habitat of fauna • Surface disturbance	• Dust control and monitoring • Groundwater quality monitoring • Noise control and monitoring • Stormwater run-off control. • Rip disturbed areas to allow re-growth of vegetation cover	Low
Wash bay	• Possible Groundwater contamination Removal and disturbance of vegetation cover and natural habitat of fauna • Soil contamination	• Groundwater quality and level monitoring • Concrete floor with oil/water separator • Stormwater run-off control • Immediately clean hydrocarbon spills	Low to medium
Water tank: It is anticipated that the operation will establish 1 x 10 000 litre water tanks with purifiers for potable water.	• Orange river water and usage • Surface disturbance	• Monitor water quality and quantity • Maintenance of tanks (check for leaks).	Low

(viii) Other information required by the Competent Authority:

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:-

a. 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 parson including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix '7' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

The socio-economic conditions of the local community could be affected in two ways:

- Negative impacts to the welfare of the residents and workers through general nuisance, dust generation, damages to properties and any associated potential safety risks.
- Positive impacts through job creation and local business opportunities.
- The consultation with interested and affected parties is on-going and any issues, concerns or comments will be considered and included in the EIA report and control measures will be presented in the EMP report.

b. 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 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 '8' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

A Heritage study will be done to determine if any such sites and/or objects are located on the site itself.

Should any heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well.

(ix) Other matters required in terms of Sections 24(4)(a) and (b) of the Act:

(The EAP managing the application must provide the Competent Authority with details, 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. The EAP must attach such motivation as Appendix '9'.)

As mentioned before, the specific occurrence of diamonds in the area dictates the selection of the specific mining site and there are no alternatives in terms of project location.

Site selection of the mining areas was guided by:

- Comments received during the consultation process,
- Bulk sampling results,

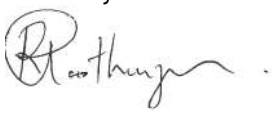
- Current land use,
- Proximity to historical mining sites,
- Proximity to the Orange River,
- Proximity to receptors,
- Proximity to infrastructure and
- Natural undisturbed areas.
- Careful consideration has been given to current land use. Alternative sites located on active farming lands have been excluded.
- The bulk sampling results confirmed that all of the sites are proximal to the identified paleo channel.

The mining operation will provide ±12 - 25 jobs and will also add to the increased economic activity and the area surrounding the farm.

Negative impacts on the area are expected to be temporary and can be mitigated to a large extent if the recommendations of the EMPR area adhered to e.g. rehabilitation.

(x) Undertaking regarding correctness of information:

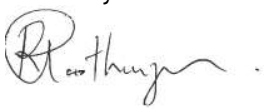
I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report.



Signature of EAP
Date: 07 July 2021

(xi) Undertaking regarding level of agreement:

I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of EAP
Date: 07 July 2021

- END –

APPENDIX 1

DIE UNIVERSITEIT VAN DIE ORANJE-VRYSTAAT

THE UNIVERSITY OF THE ORANGE FREE STATE

HIERMEE WORD VERKLAAR DAT DIE GRAAD THIS IS TO CERTIFY THAT THE DEGREE

Magister in Omgewingsbestuur

Master in Environmental Management

TOEGEKEN IS AAN
HAS BEEN CONFERRED UPON

ROELINA HENRIËTTE OOSTHUIZEN

NADAT AAN DIE STATUTE EN REGULASIES VAN DIE UNIVERSITEIT VOLDOEN IS. AS BEWYS DAARVAN PLAAS ONS ONS ONDERSKEIE HANDTEKENINGE EN DIE SEëL VAN DIE UNIVERSITEIT HIERONDER.

IN ACCORDANCE WITH THE STATUTES AND REGULATIONS OF THE UNIVERSITY. AS WITNESS OUR RESPECTIVE SIGNATURES AND THE SEAL OF THE UNIVERSITY BELOW.

VISEKANSELIER/VICE-CHANCELLOR

DEKAAN/DEAN

REGISTRATEUR/REGISTRAR

BLOEMFONTEIN
2000-09-16

Appendix 2

CURRICULUM VITAE

Roelina Henriette Oosthuizen

Cell: 084 208 9088

E-Mail: roosthuizen950@gmail.com

1. PERSONAL INFORMATION

Name: Roelina Henriette Oosthuizen

Surname: Oosthuizen (Maiden: Alberts)

Identity number: 7004180037082

Date of birth: 18 April 1970

Gender: Female

Marital status: Married (28 years) with 3 children

Driving license: Yes, Code EB

Languages: Fluent in Afrikaans and English

Nationality: South African

Criminal offences: None

Health: Excellent, fit

2. SYNOPSIS OF PROFESSIONAL CAREER

Roelina Henriette Oosthuizen has 22 years of experience in the environmental management field. She started her career in the area of Environmental Management and Environmental Impact Assessment (EIA) evaluation in 1997 at the Department of Minerals and Energy. After moving to industry in 2005, Roelien became involved in the practical aspects of environmental management. A major project during her early years outside of government was that of the EIA for a Game Reserve and Lodge development near Barkly-Wes, she did this project together with a consultancy firm from Kimberley AWS water solutions (Mr. Adriaan du Toit). In 2007 the Company she worked for was bought by a Canadian Group of Companies and she became more involved in practical aspects of the operations and worked closely with operations personnel in dealing with ongoing management of environmental impacts at the Mine (e.g. monitoring, auditing, operating procedures). She was also centrally involved in liaison with the authorities and with stakeholders in neighbouring areas.

During her time at the Canadian Group of Companies, Roelien was the environmental manager overseeing operations in the Barkly-West, Prieska and Douglas areas. She was responsible for preparing the environmental compliance documents for each operation which included Performance Assessments (Audit reports) and Financial Quantum submissions as well as new applications for Prospecting Rights and Mining Rights with the relevant Scoping, EIA / EMP documents. Her activities included liaison with stakeholders and also with the relevant Departments. During this time, Roelien became increasingly involved in environmental policy and strategy work, as well as the environmental aspects of corporate governance.

She has assisted a range of clients with Environmental Due Diligence audits and compliance audits. Roelien has also undertaken numerous environmental audits, particularly compliance and due diligence audits for clients in the mining industry. Thus, she is familiar with best practice standards in environmental auditing.

Roelien have also represented the South African Diamond Producers Organisation (SADPO) on the Environmental Policy Committee (EPC) at the Chamber of Mines between 2005 and 2011.

In a nutshell, Roelien has wide ranging experience and is thus well-positioned to assist clients in any matter related to sustainability and environmental management. This is achieved through her own skills base and on drawing on specialists.

3. QUALIFICATIONS

MEM (Master in Environmental Management) University of the Orange Free State (2000)
B – Comm NWU (1991)

4. TRAINING COURSES

Roelien have attended various mining and environmental conferences and seminars to stay abreast with the latest changes in legislation, legal compliance and policy positions in the sector.

October 1997	Mineral Laws Administration & Environmental Management (University of Pretoria)
July 2002	Project Management for Environmental Systems (University of the Orange Free State)
August 2004	Environmental and Sustainability in Mining Minerals and Energy Education and Training Institute (MEETI)
September 2005	Converting Old Order Rights to New Order Rights in Mining International Quality & Productivity Centre Johannesburg)
November 2006	Mine waste disposal and Achievement of Mine Closure
February 2007	Introduction to ArcGis 1
April 2010	Mining Law Update Conference (IIR BV South Africa)
November 2010	Social Labour Plans for Mining Workshop (Melrose Training)
August 2011	Mineral Resources Compliance and Reporting (ITC)
May 2012	Enviro Mining Conference 2012 (Sustainability and Rehabilitation) (Spectacular Training Conferences)
August 2012	Mineral Resources Compliance and Reporting 4th Annual (ITC)
March 2013	1st EnviroMining-Ensuring Environmental Compliance and reporting
March 2014	4th Annual EnviroMining Conference
March 2015	5th Annual EnviroMining Conference
February 2018	Seminar by the Department of Environmental Affairs on knowledge sharing workshops on the Screening Tool
August 2020	SAHRA Workshop for EAP's and Heritage Practitioners
October 2020	IAIAsa Simposium

5. PROFESSIONAL REGISTRATION

Registered Environmental Assessment Practitioner: Number 2019/1467 at EAPASA
Registered as a professional at IAIAsa (International Association for Impact Assessment South Africa). IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisations code of ethics.

6. PROFESSIONAL EXPERIENCE

Projects are listed below by area of expertise.

Environmental Management Systems (EMS) and Environmental Auditing

Development of EMS and Compilation of INCIDENT REPORT AND INVESTIGATION FORMS for the EMS of the Canadian group of Companies on various sites.

Undertaking of a range of due diligence and performance audits for operations, including those listed below:

Performance Assessment reports for a mining company with various infrastructure and mining operations near Barkly-West and Windsorton.

Performance Assessment reports for a mining company near Douglas.

Preparation of an environmental auditing checklist / protocol for a Community project with restitution ground in assisting the community to determine environmental legal compliance at their operations.

Environmental audit as part of a closure with Dr. Betsie Milne another specialist. This Annual Rehabilitation Plan has been developed to match the various requirements set out in the National Environmental Management Act (No 107 of 1998) (NEMA) Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations (as amended in 2015).This project had the objective of ensuring that this company are accounting for environmental liabilities and risks adequately. The plan distinguishes between (a) those environmental rehabilitation liabilities pertaining to drilling, for which the Company was legally responsible and (b) those environmental rehabilitation liabilities pertaining to historic mining activities, for which the Company is not legally responsible, but consider performing as part of their best practice environmental principals. Three costing scenarios were explored in order to evaluate the most feasible rehabilitation plan, i.e. (1) Total cost (worst-case scenario) including risks, (2) legally required cost and (3) features currently available that do not involve any risks.

Sustainability projects: policies, guidelines, strategies and performance reporting

Involved in the compilation of 43-101 technical documents for listed companies which included information on sustainability and performance in rehabilitation and sustainable mining.

Alien species eradication project guideline and strategy near Barkly-Wes in terms of Regulations that have been promulgated in terms of the Conservation of Agricultural Resources Act, No. 43 of 1983 further make it unlawful to allow various species of weeds and invader plants to grow. The target species was Wild tobacco (declared weed), Pink Tamarisk (declared weed) and Mexican poppy, it also involved the community for job creation and training (2008).

Investigations for a Company near Prieska on Development of a biodiversity offsets policy for the applications for forestry tree licences for protected tree species.

Strategic Environmental Studies and Environmental Impact Assessment (EIA)

Undertaking of a Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2006 for a Private Individual which involved the proposed extension of a roof over an existing deck with two wood pillars by means of the excavating of 0.5m X 0.5m X 1m X 2 (½m²) OF SOIL WITHIN 100M OF THE HIGH WATER MARK OF THE SEA. A Positive Record of Decision (ROD) Granted (2010).

Undertaking of an ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) near Boshof for a kimberlite Diamond Mining Company (2015)

Undertaking of a strategic environmental review and amendment for a Chinese group of Companies near Postmasburg. The study provided baseline environmental information and a high-level review of the potential impacts of various components of the development (2014 – 2016). Roelien worked as a member (EAP) of a large team consisting of a project Coordinator, attorneys, water specialists, other specialist and an engineer.

Environmental Impact Assessments for various developments including the proposed mining project for the former retrenchees of De Beers in Kimberley. This project involved coordination of the process, liaison with the authorities and compilation as well as appointment of specialist with contributions of specialist reports to compile the EIA EMP report (2017). Roelien worked as a member (EAP) of a team consisting of De Beers (attorneys and environmentalists), the retrenchees, the appointed contractor, EKAPA, and specialist appointed for the studies.

Environmental Impact Assessments for a Salt operation near Upington. This project involved coordination of the process, liaison with the authorities and compilation as well as appointment of specialists with contributions of specialist reports to compile the EIA EMP report (2019). Roelien also worked as part of a team with the Company and another consultant that started with the Water Use Licence application. The public participation was done to include the water use activities.

Environmental Impact Assessment for a change in scope of a prospecting right application consisting of the sole and exclusive right to prospect for iron, silver, zinc,

copper and sulphur ore. This project involved coordination of the process, liaison with the authorities and compilation as well as appointment of specialists with contributions of specialist reports to compile the EIA EMP report (2019). Roelien also worked as a member (EAP) of a team consisting of the directors of the company and specialists appointed for the studies

7. CAREER PATH

01 April 1997 to 28 February 2005
DEPT OF MINERALS & ENERGY
Senior Environmentalist - Assistant Director Environment

MAIN JOB FUNCTIONS

- Collect analyse and interpret information regarding the measurement of impacts of mining operations on the environment, the rehabilitation of land surfaces.
- The prevention, control and combating of pollution.
- Co-ordinate and prioritise the rehabilitation of derelict and ownerless mines.
- Co-ordinate, investigate, audit and resolve environmental problems in conjunction with the Department of Water Affairs and Forestry, Department of Agriculture and the provincial Department of Tourism, Environment and Conservation.
- Address complaints and inquiries received from the public and mining industry.
- Consult with relevant authorities and interested and affected people regarding the approval of Environmental Management Programmes.
- Ensuring that rehabilitation standards are applied.
- Ensuring that the requirements stated in Environmental Management Programme Reports are adhered to.
- Conduct inspections and recommendations on mines that apply for closure.
- Evaluate mining licences and prospecting applications and recommend site-specific conditions according to legislative requirements.
- Constant liaison with the public, the mining industry and other government authorities on environmental matters, legislation and agreements.
- Influence new development processes through participation in the EMPR and EIA processes and give guidance through education and awareness programmes.
- Calculate and verify financial provision for outstanding rehabilitation.

01 March 2005 – 30 September 2012
Appointed as professional Mineral Law Administration and Environmental Manager for HC van Wyk Diamonds which was bought over in 2007 by a **Canadian group of Companies.**

MAIN JOB FUNCTIONS

Conducting of Environmental Impact Assessments (EIAs), including the implementation of public participation programmes, for a variety of projects.
Undertaking of environmental reviews, audits and management plans:
Formulation of an environmental policy and guidelines for the Group.
Participation in the development of the budget for environmental expenditure.
Co-ordination of technical studies (e.g. monitoring of groundwater quality).
Environmental compliance measurement and reporting with respect to environmental permit conditions (e.g. Forestry Licences and water sampling for Water Use Licences).
Development of environmental guidelines for contractors on sites.
Liaison with regulatory authorities on compliance with environmental legislation.
Documentation of environmental incidents.
Environmental awareness and training.
Development of a public participation strategy.
Formulation of a complaint's procedure.

01 October 2012 to Present
Appointed as professional Mineral Law Administration and Environmental Manager for **Mentor Trade and Investments Pty Ltd**

MAIN JOB FUNCTIONS

Conducting of Environmental Impact Assessments (EIAs), including the implementation of public participation programmes, for a variety of projects.
Undertaking of environmental reviews, audits and management plans.
Formulation of an environmental policy and guidelines for the Mine.
Co-ordination of technical studies (e.g. monitoring of groundwater quality) as well as updating of the Mine's IWWMP.
Environmental compliance measurement and reporting with respect to environmental permit conditions (e.g. as water sampling and effluent).
Development of environmental guidelines for contractors.
Liaison with regulatory authorities on compliance with environmental legislation.
Documentation of environmental incidents.
Environmental awareness and training.
Development of a public participation strategy.
Formulation of a complaint's procedure.

01 October 2012 to Present part time
Appointed as EAP on some projects for ***Wadala Mining and Consulting Pty Ltd***

Conducting of Environmental Impact Assessments (EIAs), including the implementation of public participation programmes, for a variety of projects.
Undertaking of environmental reviews, audits and management plans.
Liaison with regulatory authorities on compliance with environmental legislation.
Environmental awareness and training.

APPENDIX 3

INTERESTED AND AFFECTED PARTY CONSULTATION