

DRAFT SCOPING REPORT

Proposed Grasdrift Alluvial Diamond Mine,
A Portion of Remainder of Farm No. 18 (Grasdrift),
!Ai-!Ais/ Richtersveld Transfrontier Park, Namakwa
District, Northern Cape Province, South Africa

Prepared for:

Nabas Diamonds (Pty) Ltd

DMRE Reference no. NCS 30/5/1/2/2/10211 MR



Prepared by:



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AVAILABLE FOR PUBLIC COMMENT UNTIL

28 MARCH 2023

DRAFT SCOPING REPORT FOR PUBLIC COMMENT FOR THE PROPOSED GRASDRIFT ALLUVIAL DIAMOND MINE ON A PORTION OF THE REMAINDER OF FARM NO. 18 (GRASDRIFT)¹, |AI-|AIS/ RICHTERSVELD TRANSFRONTIER PARK, RICHTERSVELD LOCAL MUNICIPALITY, NAMAKWA DISTRICT, NORTHERN CAPE PROVINCE, SOUTH AFRICA

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¹ The Prospecting Right (NC 501 PR) for Grasdrift was issued over the remainder of the Farm Richtersveld No. 11. A section of the Farm No. 11 has since been converted to 'the remainder of the Farm No. 18'. The prospecting right and now proposed mining right application area is therefore referred to as 'a portion of the remainder of the Farm No. 18.

A. Special Thanks

Naledzi would like to thank Dr Ilse Aucamp from Equispectives Research and Consulting Services for taking the necessary time and effort to independently review the Scoping Report. We sincerely appreciate all her valuable comments and suggestions, which helped Naledzi, improve the quality of the report.

B. Statement of independence

Nabas Diamonds (Pty) Ltd is the applicant for the proposed Grasdrift Diamond Mine. Nabas is represented in all its applications by acting agent, NDI Geological Consulting Services (NDI) situated in Kimberley in the Northern Cape. NDI provides the geological services and submitted all the relevant project applications to the DMRE. Accordingly NDI is recognised as the independent environmental assessment practitioner (EAP) for this project at the DMRE.

Naledzi Environmental Consultants (Pty) Ltd acts on behalf of NDI as the independent EAP to undertake and manage the Environmental Impact Assessment (EIA) and public participation process for project in line with the requirements of the NEMA EIA Regulations of 2014 (GNR 326 as amended in 2017). Naledzi is based in Polokwane in the Limpopo Province.

This report has been compiled in line with the provisions of Appendix 2 of the NEMA EIA Regulations (GNR 326, as amended) and the DMRE scoping report template requirements.

Naledzi has prepared this report for the sole use of Nabas Diamonds (Pty) Ltd. The report is also privy to review by the public, interested and affected parties (I&APs) as well as relevant commenting authorities as part of a public participation process. No part of the report may be reproduced in any manner without written permission from Naledzi Environmental Consultants (Pty) Ltd representing Nabas Diamonds (Pty) Ltd. No other warranty, expressed or implied, is made as to the professional advice included in this report.

This report is an initial scope of the potential impacts that may arise from the project expressing the impacts and their significance as a ‘worst-case-scenario’ until Naledzi has completed its detailed field investigations and assessments to narrow down the specifics of impacts and affected receptors.

Naledzi has no vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed. Our fees are based on the South African Council for Natural Scientific Professionals (SACNASP) Recommended Consultation Fees (Notice 98 of 2021). We do not echo the views of the applicant / its acting agent however provide an independent view formed by tasks conducted under the NEMA and the EIA Regulations. The payment of our professional fees is therefore not subject to the outcome of the EIA process.

Project parties:

Applicant, future rights holder:

NABAS DIAMONDS (PTY) LTD

Acting agent and Geologist:



Independent EAP





mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

**DRAFT SCOPING REPORT FOR PUBLIC COMMENT FOR THE
PROPOSED GRASDRIFT ALLUVIAL DIAMOND MINE,
RICHTERSVELD, NORTHERN CAPE PROVINCE,
SOUTH AFRICA**

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

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

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FILE REFERENCE NUMBER (SAMRAD): NCS 30/5/1/2/2/10211 MR

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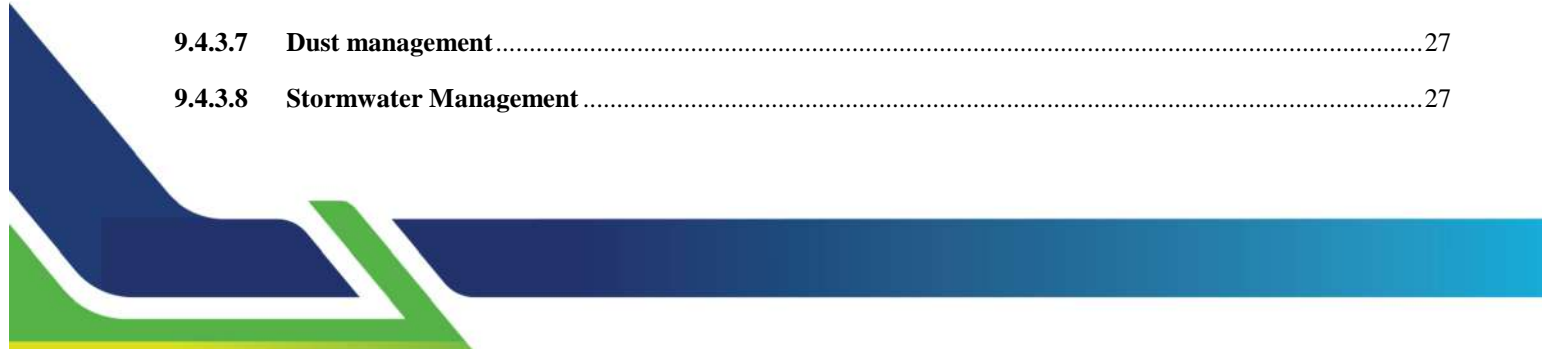
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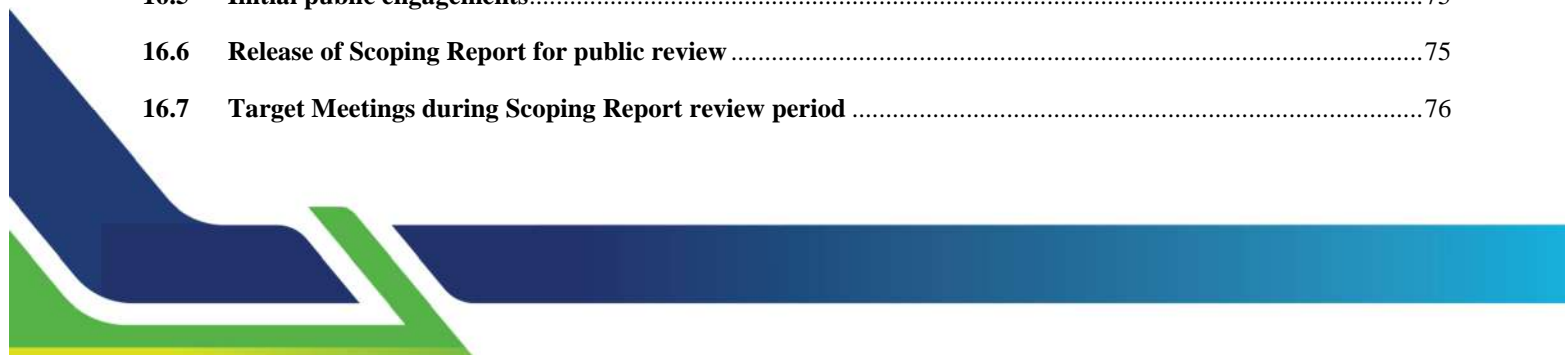
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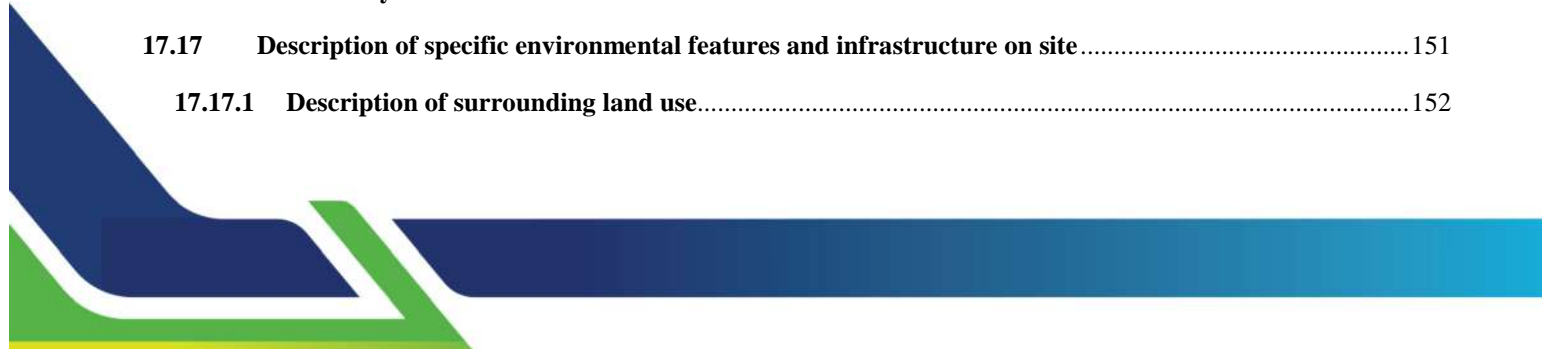
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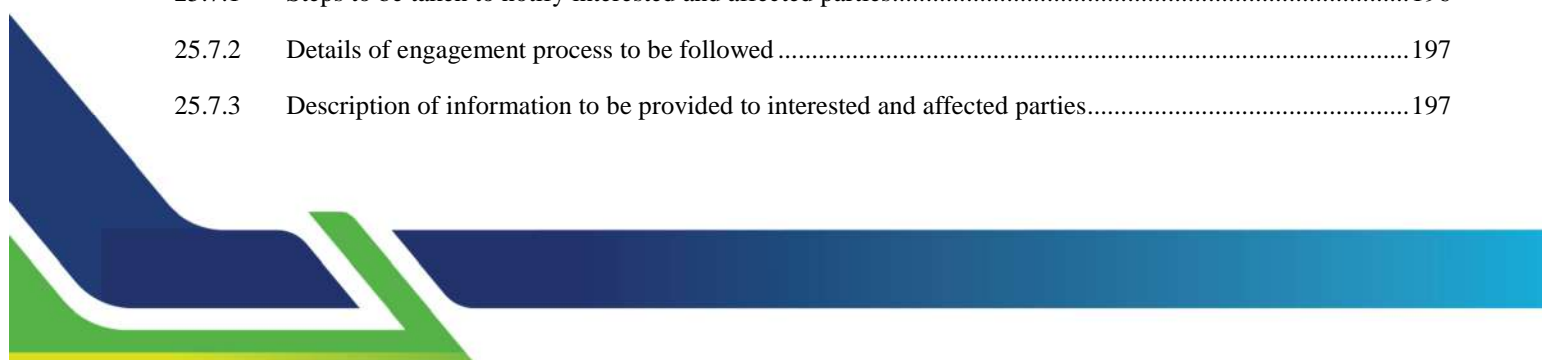
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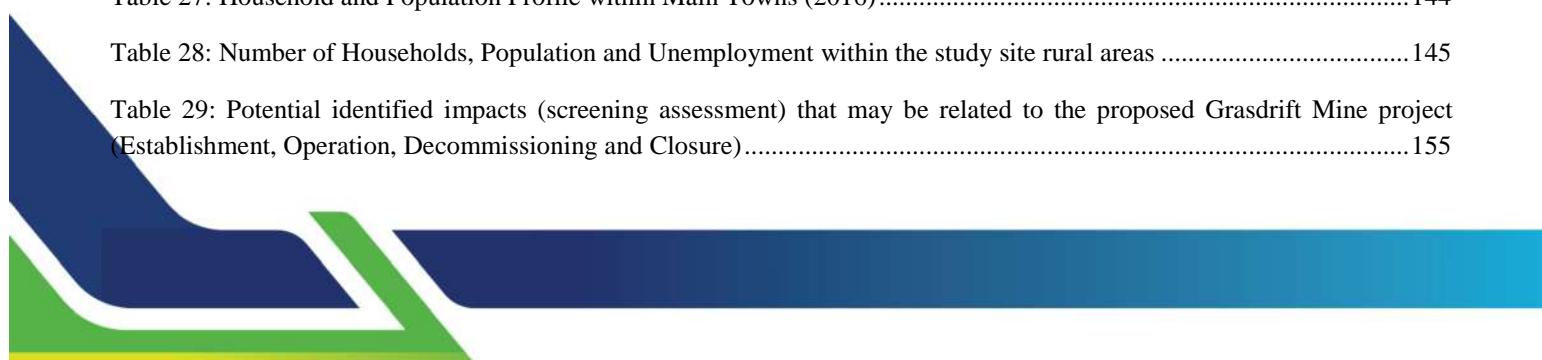


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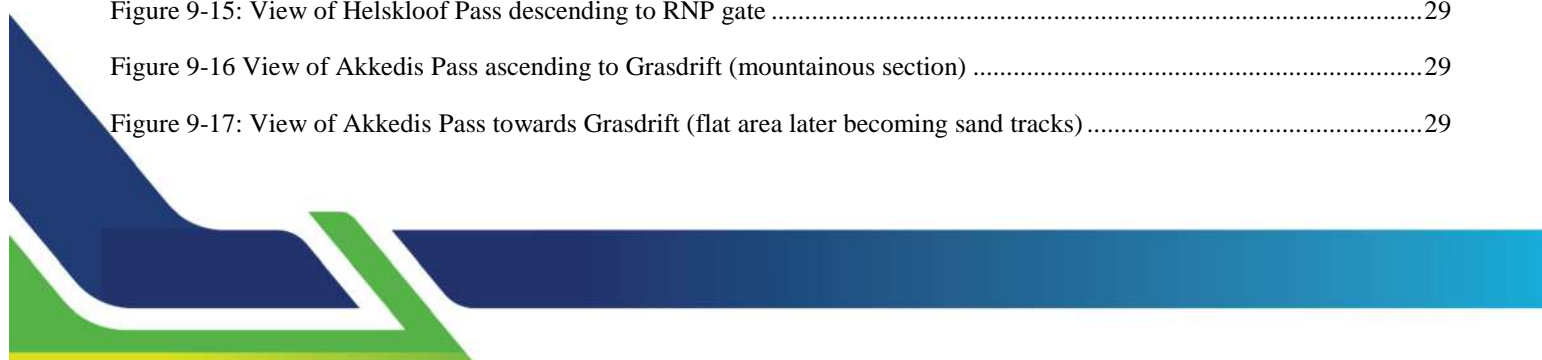


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Important Notice

In terms of the Mineral and Petroleum Resources Development Act (MPRDA), No. 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 (EIA) and an Environmental Management Programme (EMP) report in terms of the National Environmental Management Act (No. 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 Regulation 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 Regulation 17(1)(c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template.

Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

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

Objectives of Scoping Report

- 1) The objective of the scoping report 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 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.

1. INTRODUCTION

Nabas Diamonds (Pty) Ltd currently holds a registered prospecting right (NC 30/5/1/1/2/501 PR) for alluvial diamonds on the South African bank of the Orange River over the remainder of the Farm Richtersveld No. 11 (*Grasdrift*) located in the |Ai-|Ais/Richtersveld Transfrontier Park (ARTP/the Park).

Nabas has now applied to the Northern Cape Department of Mineral Resources and Energy: Springbok (DMRE) for a mining right (DMRE Ref. NCS 30/5/1/2/2/10211 MR) over the same area. The mining operation will be known as ‘Grasdrift Mine’. Since the prospecting right was issued, a section of the Farm Richtersveld No. 11 was converted to ‘remainder of the Farm No. 18’. The property description for the proposed mining right area is therefore ‘a portion of the remainder of the Farm No. 18’.

The mining right application includes an application for integrated environmental authorisation and waste management license which is subject to a Scoping and EIA process in terms of the National Environmental Management Act, 107 of 1998 (NEMA), National Environmental Management: Waste Act no. 59 of 2008 (NEM:WA) and the Mineral and Petroleum Resources Development Act no. 28 of 2002 (MPRDA)..

Naledzi Environmental Consultants (Pty) Ltd (Naledzi) have been appointed as the independent EAP to conduct the EIA and public participation process for the mining right application.

2. LOCALITY

The project area is located in the Northern Cape Province of South Africa, in the jurisdiction of the Richtersveld Local Municipality 140km east of Alexander Bay, 210km northeast of Port Nolloth and 250km north of Springbok. Refer to **Figure 3-1 for a regional locality map**.

The project site (i.e. Grasdrift) is a remote desert environment located in the eastern section of the Richtersveld National Park along the left bank of the Orange River where the river meets Namibia’s Kara Region at Aussenkehr. It is recognised restricted current diamond mining area in the Park and is accessed over Helskloof Pass. Refer to **Figure 3-2 for a map showing the local setting of the application area**.

3. BACKGROUND

The Park proclamation is subject to conditions set out by the Minister of Mineral and Energy Affairs in terms of Section 2B (1) (a) of the National Parks Act no 57 of 1976 and GNR 1969 of 1991 which require existing exploration/mining rights to continue to exist, not to be affected by the proclamation of the National Park including consideration (on merit) of future applications of exploration and mining in the post the proclamation.

Nabas has been in possession of a prospecting permit (PP 23/98) for alluvial diamonds over Grasdrift since 10 July 1998 under the former Minerals Act 50 of 1991. The permit was converted to a prospecting right (NC 501 PR) before its expiry in 2003 when the MPRDA came into force in 2002. The right was granted on 1 December 2005 and was registered at the Titles Registration Office on 15 March 2017. Nabas applied its renewal again in March 2021. The DMRE’s decision is pending but the right is still in force according to section 18 (5) of the MPRDA until the department grants/refuses the application.

According to the RNP Management Plan 2018 – 2028 the current diamond mining areas in the Park are managed according to section 48 of the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003). Nabas has an agreement with the Park to move vehicles and equipment to Grasdrift through the Park via Helskloof Pass. According to SanParks there has been “very good support and collaboration between Nabas and the Park operations including assistance with road maintenance, law enforcement incidences, conservation and community.”

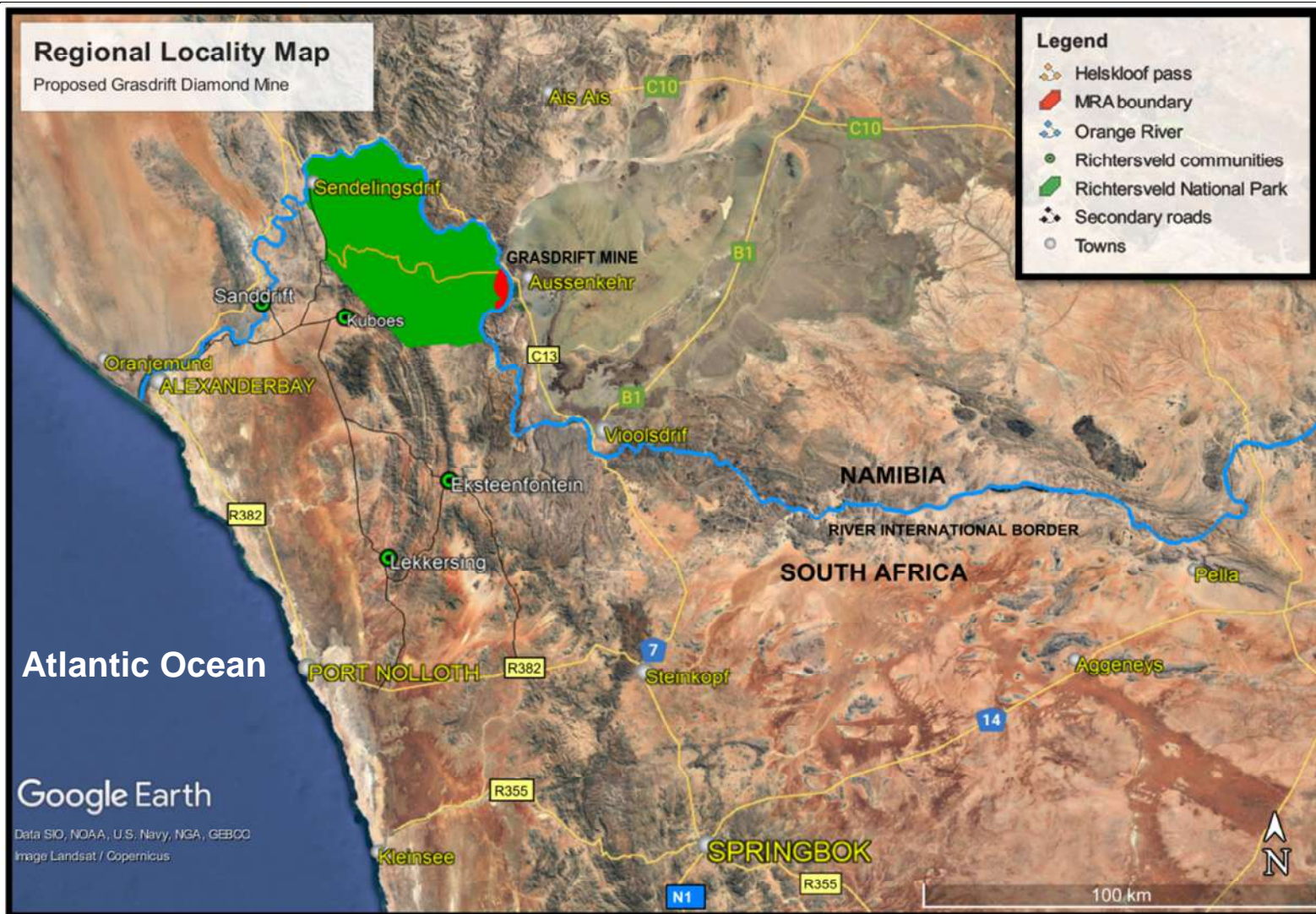


Figure 3-1
Regional Setting (Image courtesy of Google Earth Pro™)

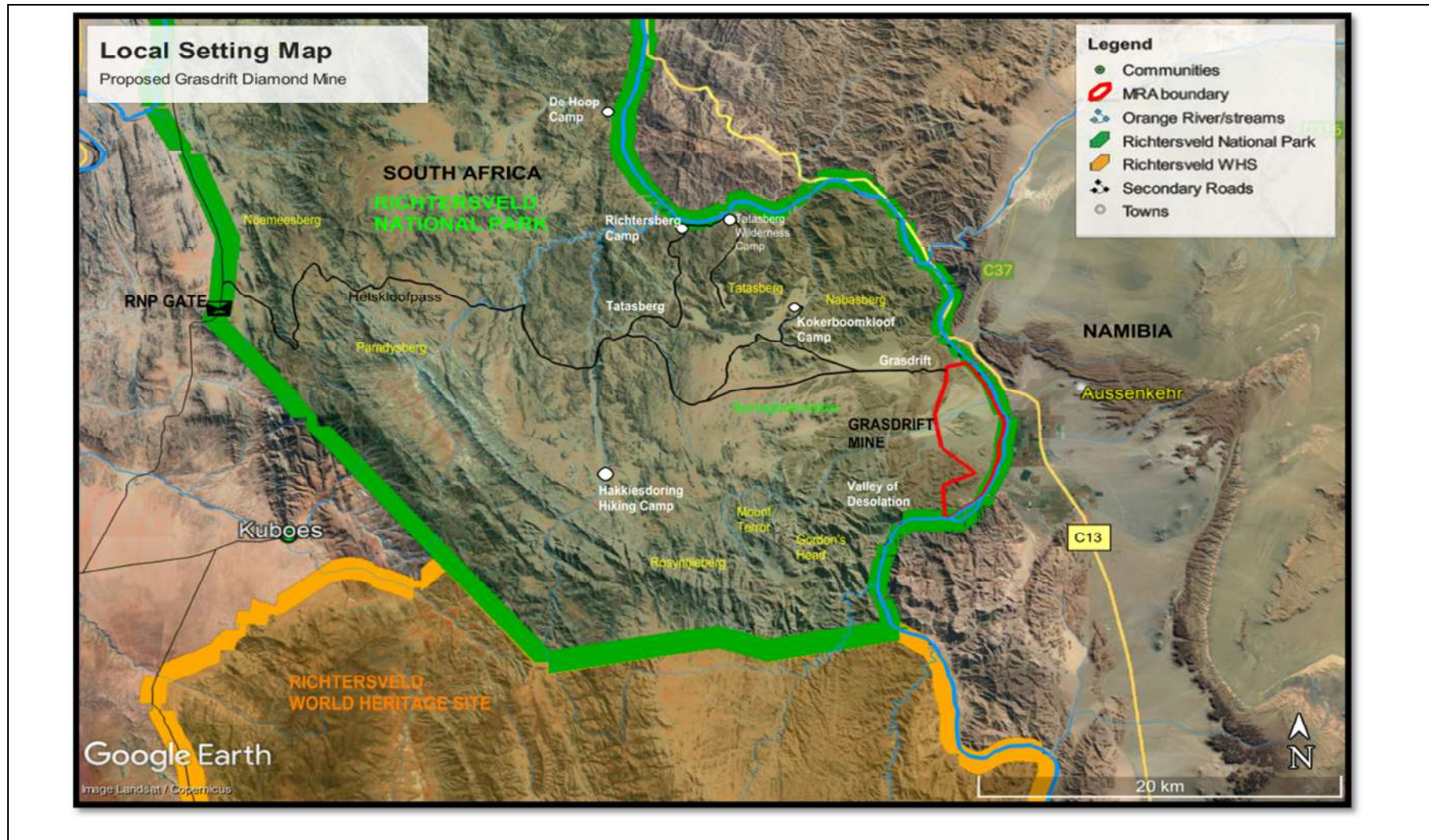


Figure 3-2
Local Setting (Image courtesy of Google Earth Pro™)



4. PURPOSE OF THE SCOPING REPORT

The EIA process is conducted in line with the requirements of the NEMA EIA Regulations of 2014 (GNR 326 as amended in 2017) and requires the EAP to submit a series of reports to the DMRE for decision-making, which have been subjected to a consultative process i.e. Scoping Report, Environmental Impact Report (EIR) and Environmental Management Programme EMPR).

This Draft Scoping Report is the first report released as part of the EIA process. It aims to solicit public comment on the proposal, potential impacts and scope of the process by giving the public an opportunity to review the report.

The report describes the following:

- The project and its considered alternatives;
- Legal context within which the project is to take place
- Environment that may be affected
- Various environmental aspects that may be impacted
- Describes the specialist studies that will be undertaken as part of the EIA process to further investigate such.

5. DETAILS AND EXPERTISE OF EAP

5.1 Details of EAP who prepared report

Table 1 provides the details of the EAP and environmental scientist involved in the compilation of the report.

Table 1 Details of EAP

EAP Name	Environmental Scientist (report author)
Naledzi Environmental Consultants (Pty) Ltd	
Prof. Desmond Musetsho	Marissa Botha (Senior Environmental Scientist)
Contact number: +2783-410-1477	+2784-226-5584 / 087-550-1529
Fax: 087-550-1537	
Email: dmusetsho@naledzi.co.za	botham@naledzi.co.za

5.2 Expertise of EAP

5.2.1 Qualifications of EAP

The qualifications of the project team managing the EIA process are provided in **Table 2** and copies of qualifications are provided in **Appendix 1**.

Table 2: Qualifications and professional registration of EAP

Name	Qualifications	Years' experience	Professional Registration
Prof. Desmond Musetsho	(PhD) Pri.Sci.Nat M.Inst.D	19	EAPASA, SACNASP, SAIIES
Marissa Botha	18 years working experience. Wetland Assessment, DWS Wetland Impact Assessment, Rhodes University.	18	SACNASP

5.2.2 Summary of EAP’s past experience

The expertise and past experience of the project team including a past projects list is detailed in the attached curriculum vitae’s provided in **Appendix 2**.

Prof. Desmond Musetsho is a registered Environmental Assessment Practitioner with the Certification Board for Environmental Assessment Practitioners South Africa (EAPASA), Environmental Scientist accredited by South African Institute of Ecologists and Environmental Scientists (SAIEES) and a registered Environmental Scientist with the South African Council for Natural Scientific Professions (SACNASP) with 19 years working experience in the environmental management industry.

Marissa Botha is a registered professional Environmental Scientist with the SACNASP and has 18 years working experience in doing environmental impact assessments which include prospecting and mining related assignments.

6. PROPERTY DESCRIPTION

Table 3 provides the description of the property.

The site covers a 10km stretch of alluvial gravel terraces along the Orange River up to the river watermark (**Figure 6-1**). No mining would be undertaken on river bank, riparian zone or below the river 1:100 year flood line. The property boundary coordinates are listed in **Figure 6-2**.

The flood line would be delineated as part of the EIA process and reflected on the key plan included in the draft EIR and EMP documents.

Table 3: Property details

Farm Name:	A portion of the remainder of the Farm No. 18 (Grasdrift)
Application area (Ha):	2691.1942 Hectares
Magisterial District:	Namaqualand
Distance, direction to nearest town	140km east of Alexander Bay 210km northeast of Port Nolloth 250km north of Springbok.
21 digit Surveyor General code for each farm portion	C05300000000001800000

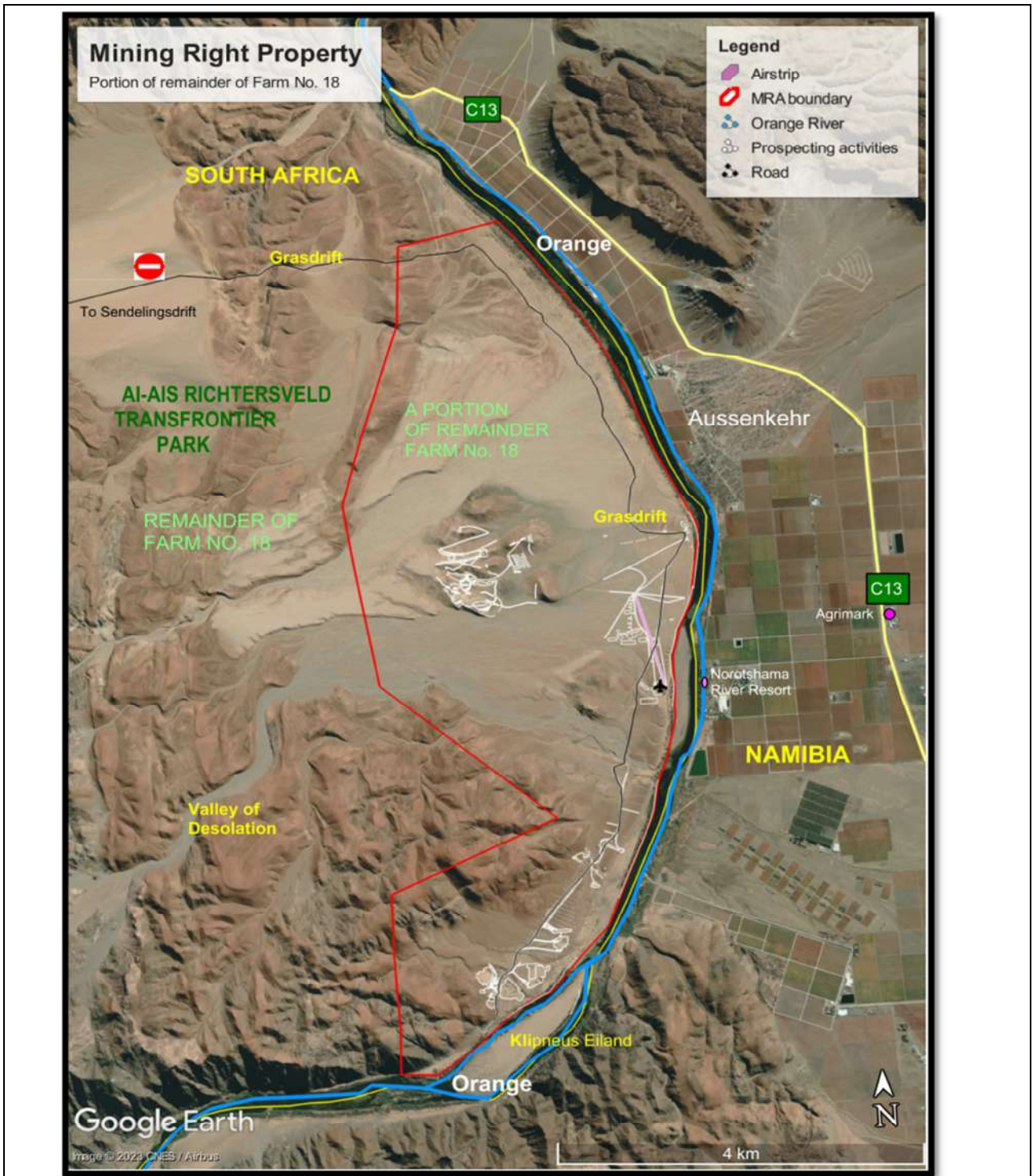


Figure 6-1: Property description map
(Image courtesy of Google Earth Pro™)

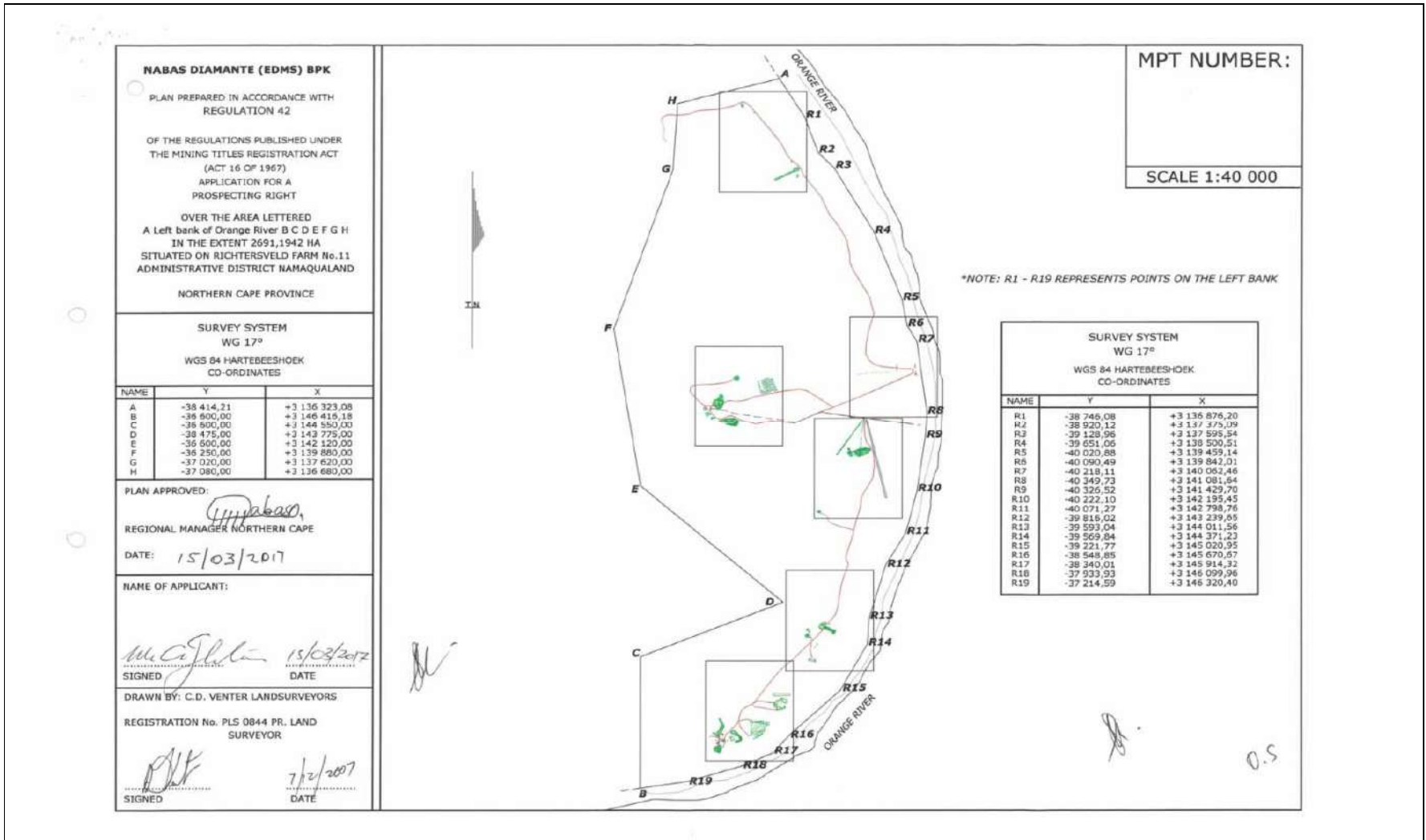


Figure 6-2: Plan showing the registered prospecting right area and activities on a portion of the remainder of Farm No. 18 including the property boundary coordinates. This is the same area covered by the mining right application.



7. SURFACE RIGHTS HOLDERS

The Park is managed jointly between SanParks and the Richtersveld community, through the elected Richtersveld Joint Management Committee (i.e. RJMC).

The Richtersveld community is represented by the Richtersveld Sida !Hub Communal Property Association (CPA) currently under the administration of the Director General of the Department of Agriculture, Land Reform and Rural Development.

Instead of a lease agreement Nabas would transfer 20% of the mine shares through 'Nabas Trust' to the Richtersveld CPA/community free of charge in lieu of rental.

8. POTENTIALLY AFFECTED COMMUNITIES (PAC)

The **Richtersveld community** residing in the towns of Kuboes, Sanddrift, Eksteenfontein and Lekkersing, respectively 90km and 150km away from the project site, are the landowners (refer to **Figure 3-1**).

Aussenkehr on the Namibian bank of the Orange River (**Figure 3-1, 6-1**) across from the site are considered the affected receptors. The land uses in Aussenkehr include:

- Table grape farming (main)
- Tourism facilities
- Aussenkehr Informal Settlement
- Any potential water users along the Namibian bank of the Orange River

9. DESCRIPTION AND SCOPE OF PROPOSED ACTIVITY

9.1 Mineral Resource of Interest

The site is situated on the western edge of the Karoo-aged Nabas basin, which consists of relatively soft tillites, sandstones and shales of the Dwyka group. The Nabas basin where Grasdrift (the site) is located is the first opportunity the Orange River has had to deposit a vast volume of diamondiferous gravel in the form of terraces downstream of Augrabies. Two suits of river gravel terraces are present at the mining right property (**Figure 9-1**), namely:

- **Proto terraces** present in the isolated perched koppies in the central section (> 40m above the current river) – **Figure 9-2**.
- Extensive **Meso terraces** extending 10km from the southern to the northern section (< 40m above the current river) - **Figure 9-3, 9-4**.

Diamond concentrations are dependent on the age of gravel and depositional setting i.e. the older the higher the grade. The Proto suite is older dating back to Miocene (19-17Ma) whilst Meso is younger (but undated) possibly dating back to 5-2Ma.

Diamonds are usually concentrated in **fixed-trap sites** along the river which occur at or near the bedrock surface i.e. scours, push bars, bedrock highs, oversize bounders, riffles and bar heads. Grasdrift has a couple of trap-sites i.e. large boulders (+600mm) and classic bar head. The bar head has been pegged onto bedrock which is considered potential good bedrock trap site. (Dr Jürgen Jacobs, Geological Report, 2001).

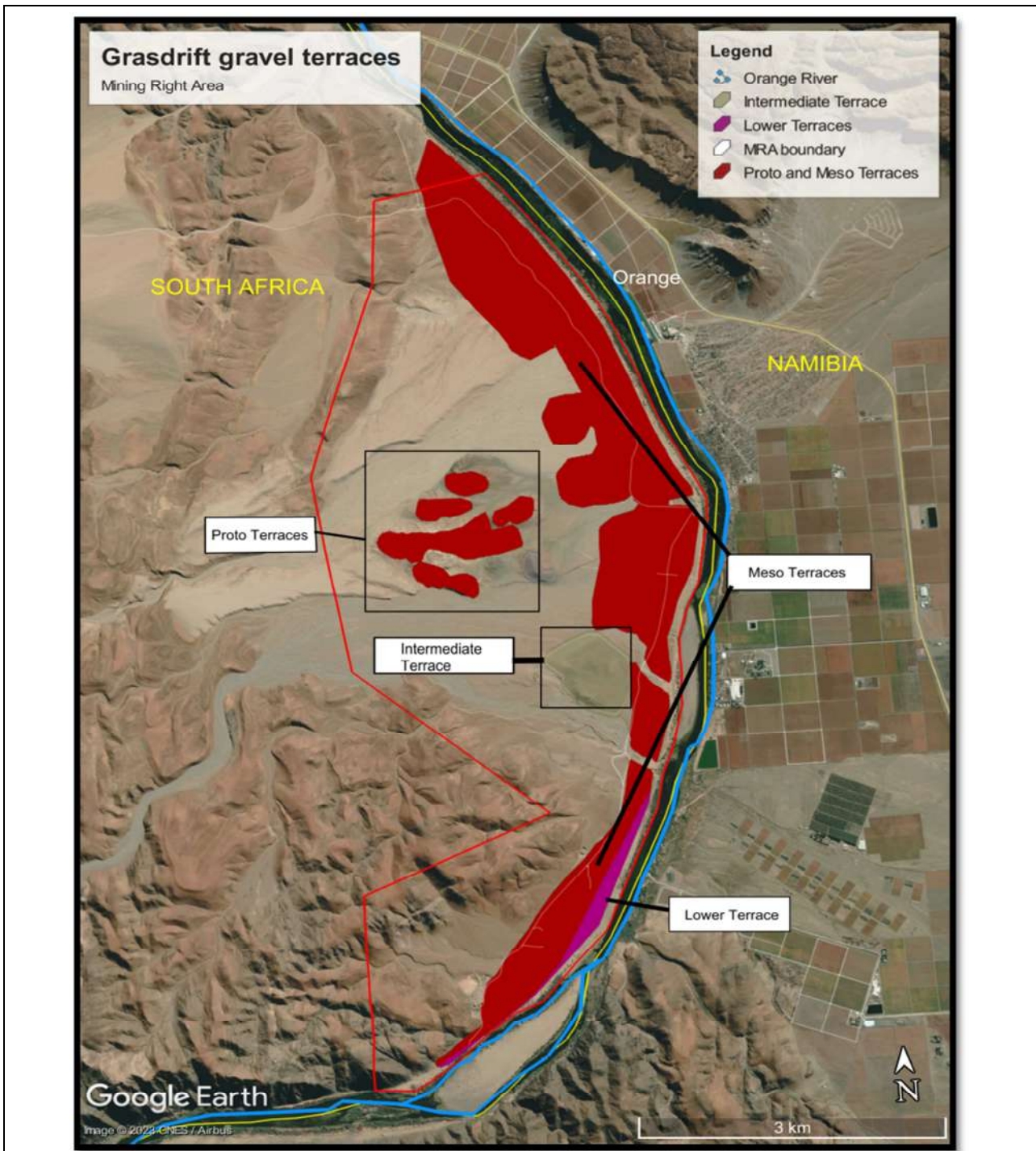


Figure 9-1: Gravel terraces present at Grasdrift, Google Earth™
(Slight recreation of Grasdrift Geological Report, 2001 mineral resource map @Dr Jurgen Jacobs)



Figure 9-2: Proto terraces present in perched koppies in the central section of MRA



Figure 9-3: Meso terraces in the northern section of the site



Figure 9-4: Meso terraces in southern section of the site

9.2 Prospecting over Grasdrift

Nabas has determined and quantified the available diamondiferous gravel resource at Grasdrift under prospecting permit (PP 23/1998) and right (501 PR – 2017). The prospecting was done in the form of drilling and bulk sampling in the year 1998 and 2018 -2019 to confirm the extent of gravel tonnage and feasibility of establishing a mine.

The property was divided in three sections (i.e. section 1, 2 and 3) explored through phased prospecting i.e.

- **Year 1998:** 625 holes were drilled down to bedrock on the Meso terraces from south to north on the property and took bulk samples (trench and process through plant) in a northward direction.
- **Years 2018 – 2019:** A further 1028 holes were drilled on the Meso terraces (terraces A-J) at an average depth of 14 meters per hole including 10 bulk sampling trenches. See **Figure 9-5**.

The prospecting results from these gravel terraces indicate there is enough diamond resources at the site to merit a full scale mine. There are more than 250, 000 carats of high-value diamonds present which can be mined over a 30 year period using conventional open cast mining methods i.e. loading, hauling and mineral processing by means of Standard Rotary Pan Plants and Final Recovery Plants.

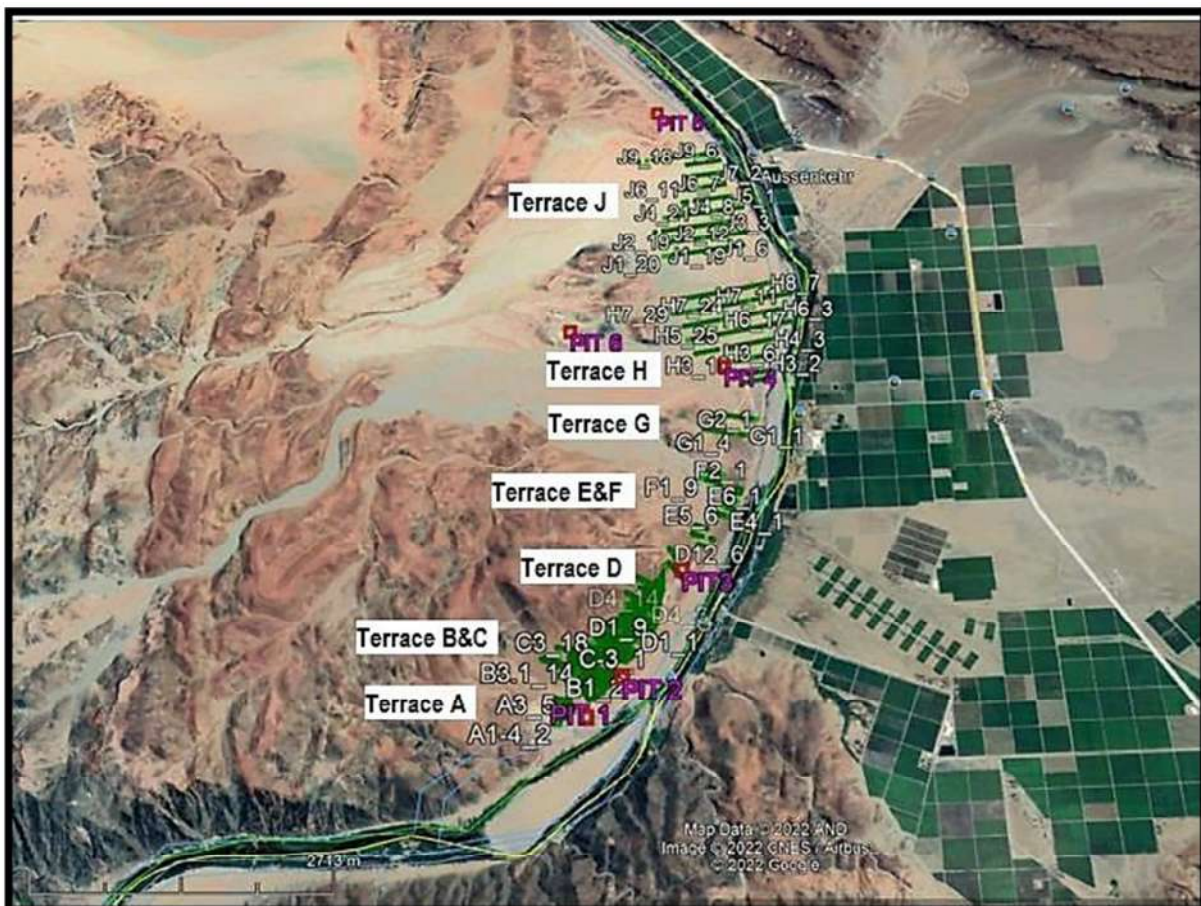


Figure 9-5: Location of trenches in relation to gravel terraces (Nabas Diamond Resources Statement, 2022)

9.3 Existing prospecting infrastructure on the property

Naledzi conducted a site inspection on 18-19 November 2022 to confirm the status quo on site. The existing infrastructure that was established as part of the prospecting activities includes:

- Access and haul roads
- 10 Trenches and many capped/closed up prospecting boreholes
- Gravel Processing Plant (and ray sorter) at Section 1 (southern section of site)
- Standard 2x 14 ft. Rotary Pan Plant
- Historic processing plant at Section 2 (central section of the site on the perched Proto terraces)
- Existing slimes dams (one at the Section 1 plant and one at the section 2 plant)
- Waste dumps (overburden, coarse and fine tailings)
- JoJo tanks and steel dams
- Existing airstrip
- Contractors area i.e. security point, containerized accommodation units associated infrastructure.
- 8 Brick buildings and a steel structure
- Ablution Facilities: Pit latrines and French drains are used for disposal of effluent water from camp washing facilities.
- Power Generators: Contractors area and plant
- Fuel Storage at plant and contractors area

- Existing water abstraction points from Orange River at Section 1 and at the contractors area
 - 18 000m³/annum

As per Nabas's agreement with the Park, general mine vehicles move to Grasdrift over Helskloof Pass. Light vehicles occasionally make use of Akkedis Pass. Majority of heavy mine machinery (HME's) were brought across the Orange River through Namibia with the necessary permissions from the authorities. Remaining HME's were dismantled and moved over Helskloof Pass.

The steel structure and the brick-and-mortar buildings on site (former labour quarters) including airstrip hanger/control tower were vandalized and stripped of their roofs and need to be refurbished. In the interim containerized accommodation units are used whilst the applicant determine the building revamp costs and feasibility for reuse.

Photos taken during November 2022 of the existing infrastructure on site are provided in **Figures 9-6, 9-7 and 9-10** overleaf.

Figure 9-6: Photos of existing contractors area and roads



Photo 1: Security access point (brick building, without roof) including existing access road.



Photo 2: Brick buildings without roofs (former labour quarters).



Photo 3: Containerized accommodation units



Photo 4: Contractors generator building, fuel storage



Photo 5: Water supply (JoJo tanks) and pipeline to Orange River abstraction point at contractors area



Photo 6: Typical existing access and haul roads

Figure 9-7: Photos of existing plant, abstraction point and associated infrastructure (Section 1)



Photo 7: Airstrip with cement slab (courtesy of NDI)



Photo 8: Overview of processing plant including ramp and associated infrastructure at Section 1.



Photo 9: Standard Rotary Pan Plant (2 x 14ft) with ramp behind. This plant will be retained for mining phase.



Photo10: Processing Plant (Final Recovery Plant) and steel structure with water spraying to allay dust.



Photo 11: Steel structure, x 4 JoJo Tanks and 150m³ steel dam



Photo 12: Section 1 processing plant water abstraction point at Orange River



Photo 13: Genetor and fuel storage



Photo 14: Slimes Dam



Photo 15: Mined trench being backfilled before spreading topsoil



Photo 16: Excavator and dump truck used to extract gravels to load and haul to static processing plant

Figure 9-8: Existing infrastructure at Section 2 old processing plant (Perched Proto terraces)



Photo 17: Old Section 2 processing plant



Photo 18: Plant Bin



Photo 19: Steel dam (old)



Photo 20: Container / storage



Photo 21: Slimes Dam



Photo 22: Road leading to old Proto terrace plant

9.4 Scope of the proposed Grasdrift Diamond Mine project

The proposal is to mine alluvial diamonds from a 2691.1942 hectare mining right area by establishing a shallow opencast mine (up to a depth of 20m). The mineral extraction would take place from the Proto and Meso terraces as illustrated in Figure 9-1.

The gravel terraces are devoid of vegetation. Vegetation is only present along the Orange River riparian fringe which is restricted from mining.

The proposed mineral extraction activities would be located as follows:

- Above the 1:100-year flood line (still to be delineated);
- Above the river bank and riparian vegetation
- No infrastructure, except for water pumps and pipelines, would be located within a 100m of the river.
- Infrastructure and mineral extraction would be located within 100m of several episodic streams intersecting the site.

Static gravel processing plants have been placed as far as technically possible from the Orange River i.e. grape farming and tourist facilities on the Namibian bank of the Orange River.

The overall Mine Layout is presented in **Figure 9-9** with **Figure 9-10** illustrating 'zoomed in' mine sections. The plans are discussed in the below sections and are presented for ease of reference for the reader. Zoomed in sections include:

- Section 1 Plant area at Orange River
- Section 2 Plant area at Koppies
- Contractors Area
- Section 3 and the landing strip area are not zoomed in. All required infrastructure would be placed in proximity of the Section 3 plant. A hanger will be built at the existing airstrip.

The Key Mine Plans provided by NDI Geological Consultants are attached as a series of plans² under **Appendix 4**.

The layout is preliminary and still subject to specialist recommendations. A surveyed plan will be prepared based on the final mine plan and will be included in the Draft EIR.

² Please note the yellow blocks on the Key Plan attached under Appendix 4 do not imply that mining would overlap into Namibia. It was merely a method by the surveyor to highlight the mining section from the Key Plan.

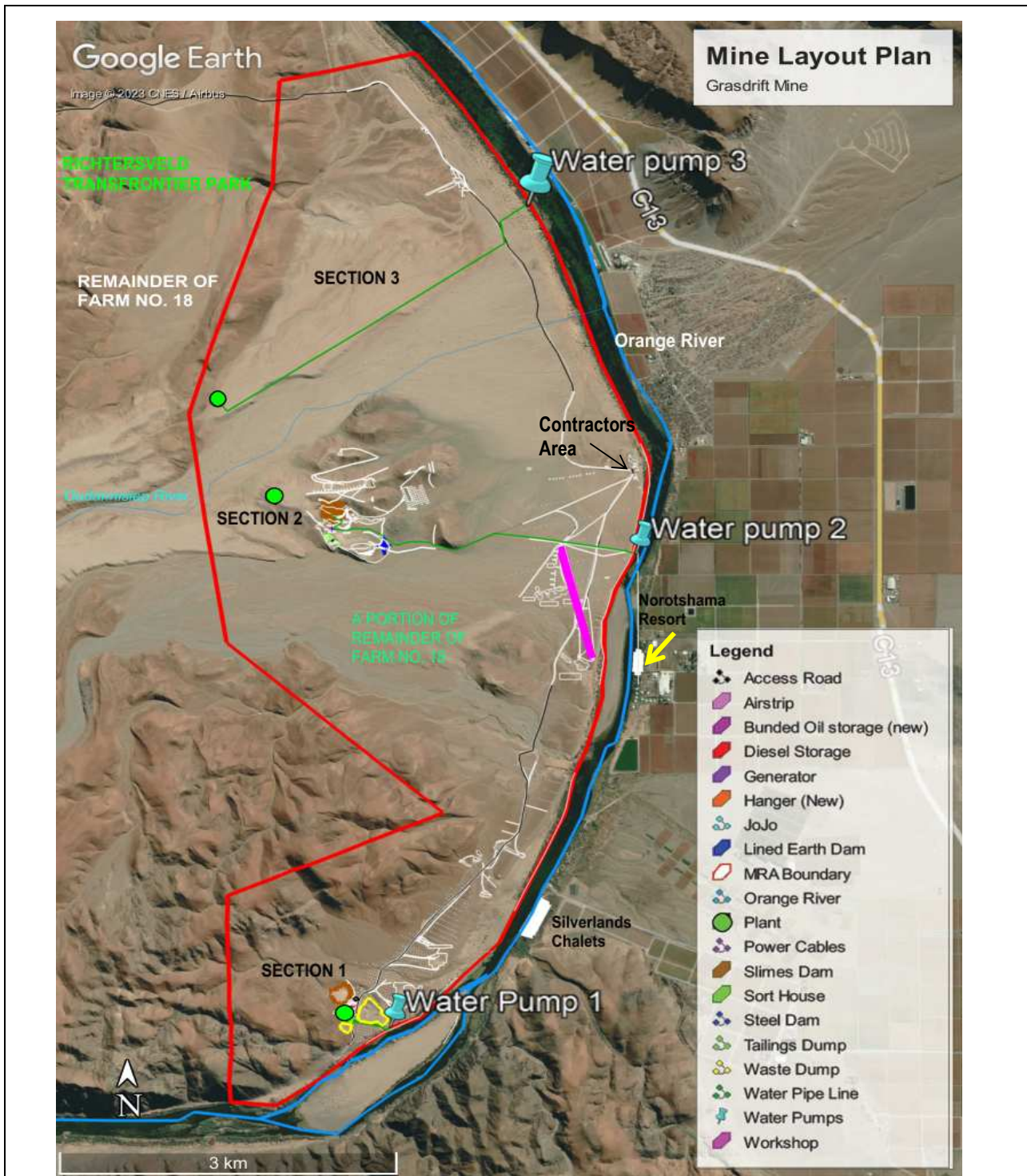
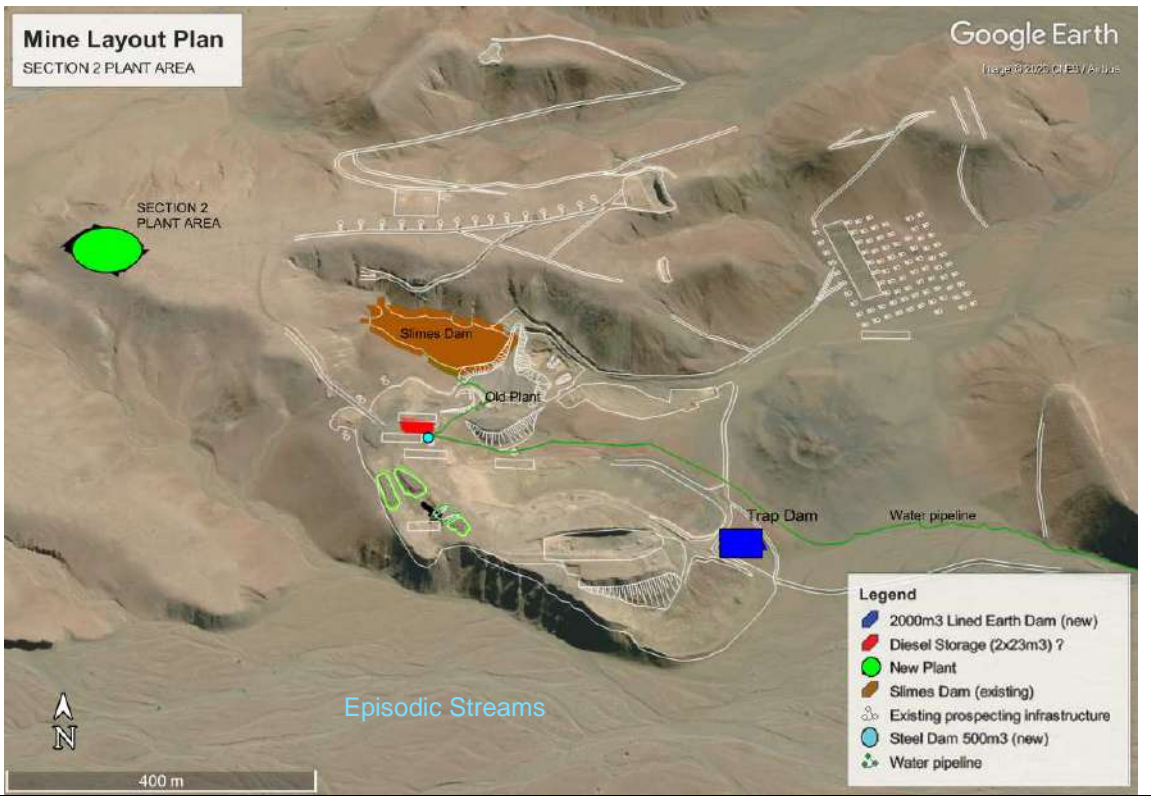
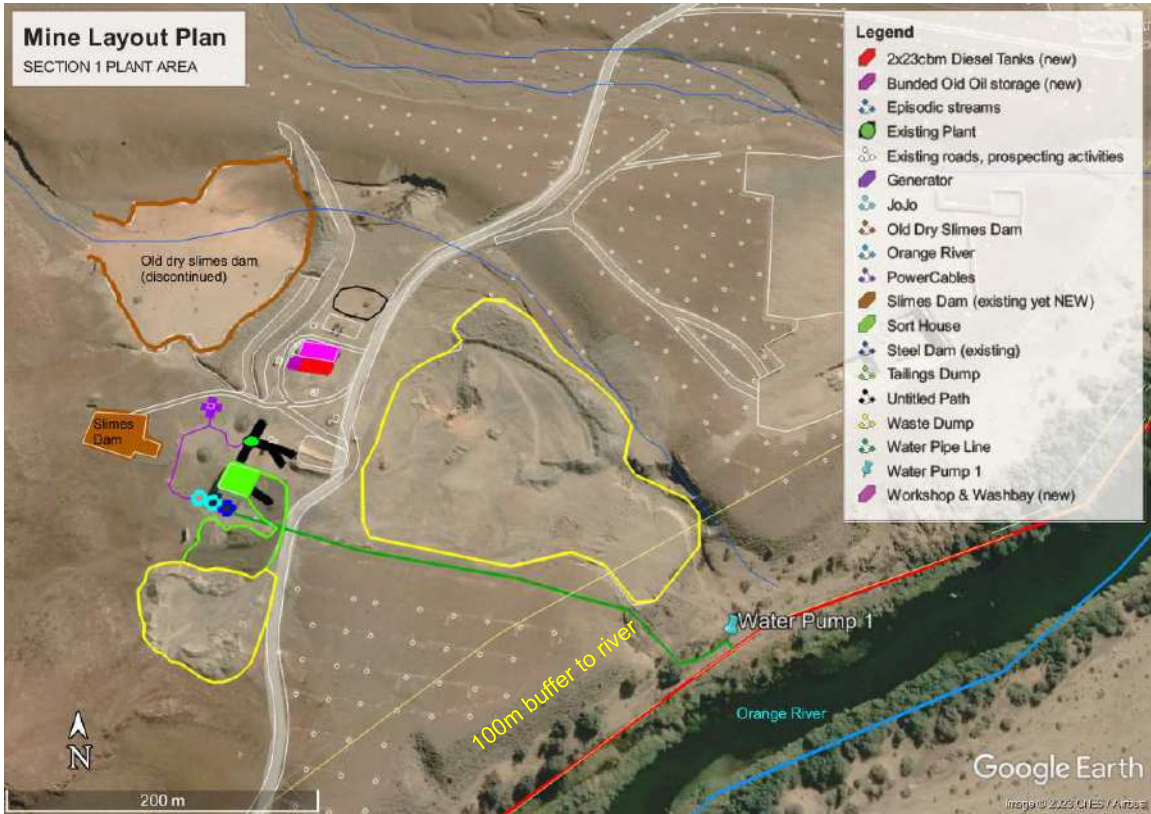


Figure 9-9: Preliminary Grasdrift Mine Layout Plan, Google Earth™





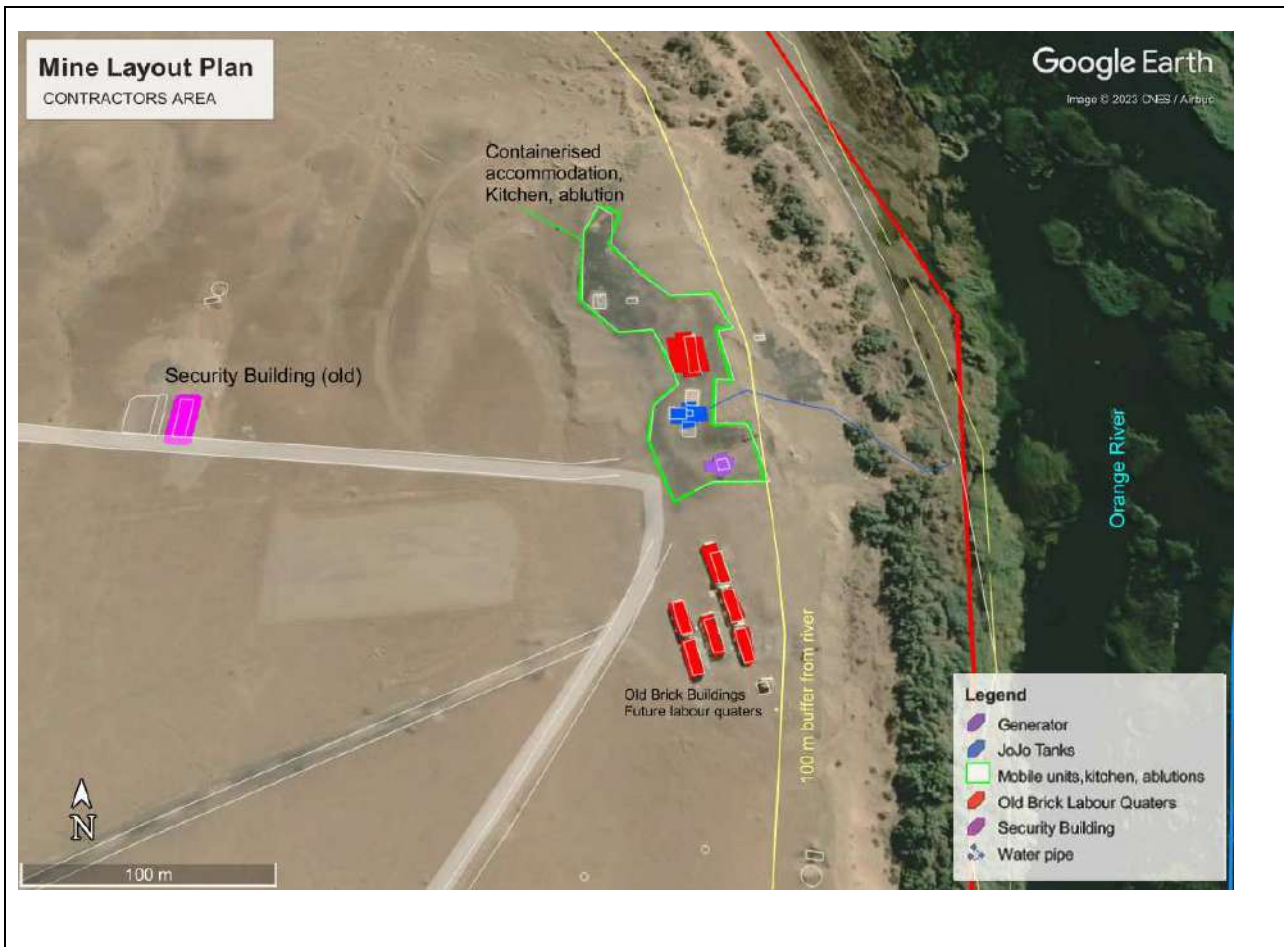


Figure 9-10: Preliminary Grasdrift Mine Layout Plan, Google Earth™
 (Zoomed in maps of Section 1 and 2 Plant area, Contractors Area)

9.4.1 Mining Method

As illustrated in Figure 9-9 and Figure 9-10, the mining area would be divided into three (3) sections, each with a static gravel processing plant and water abstraction point from the Orange River. These plants would service the mineral deposit areas around them.

The plant locations are as follows:

- Section 1 at the river, southern portion of property
- Section 2 at the koppies, central portion of the property
- Section 3 at the northern section/entrance of mining property.

Two contractors would mine the application area simultaneously at Section 1, 2 and 3 with random selection of mining terraces for extraction based on recovery rates.

The basic mining method would include:

- Remove and stockpile topsoil and overburden (i.e. sand and boulders) and place on waste stockpile
- Excavate the gravels
- Remove the oversized, fine gravel including sand using infield screen
- Load and haul remaining gravel concentrate to processing plant
- Process the minerals by means of Standard Rotary Pan Plants (wet process)
- Final extraction through Final Recovery Plant.
- Concurrent rehabilitation:

Excavators and Front End Loaders will load the material onto dump trucks and ADT's. The material will be screened using a mobile infield screen, where sand and the larger stones are screened out. The gravel concentrate is then hauled to the processing plant for diamond recovery. The waste and tailings material (i.e. sand, oversized stones, coarse and fine tailings from plant, dry slimes) from the overburden and waste stockpiles will be used to backfill and rehabilitate the mined out areas.

Given the safety risk to the community and absence from the Mining Works Programme, no bedrock sweeping would be allowed by any community.

The mine equipment (yellow fleet) to be used during operations includes:

- Rondebult RB950 Excavator (95ton), Volvo EC750 Excavator (75ton)
- 2 x Rondebult CDM6490 Excavators (50 tons)
- 3 x Rondebult CMT96 Rigid Dump Trucks (96 tons)
- 3 x Rondebult RB856 Front End Loader (4,2m³)

9.4.2 Production Rate

The production rate is proposed as follows:

- 600 000 tons in first 0-6 months;
- 1, 200 000 tons/annum from month 6 to year 2
- 3, 600 000 tons/annum from year 2 onward.

The production rate would be ramped up as time goes on expedited by the introduction of processing plants in different sections of the mine. Section 1 Plant would be brought into full production with issued MR. The Section 2 and 3 plants would be established immediately upon Nabas receiving the mining right i.e. operational within 3 months depending on the time required to transport HME's.

9.4.3 Proposed infrastructure

Much of the roads, plant and mining equipment required for the mining operation has already been established during the prospecting operation (refer to section 9.3) and would be used and expanded for the proposed Grasdrift Diamond Mine operation.

Nabas would still need establish an additional infrastructure to bring the mine into full production.

The additional infrastructure to be established at the mine site includes:

- Use of existing access and haul roads
- Labour accommodation to be established in the form of shipping containers (6-12m) converted into dormitories, ablutions and kitchen (at contractor's area).

- In future refurbish and reuse the existing brick buildings and steel structures as offices and labour quarters.
- New parking area
- 1 ha Static Processing Plant site in each mine section comprising:
 - Rotary Pan Plan covering 0.5ha (i.e. 3 plants = 1.5ha)
 - Final Recovery Plant covering 0.5ha (i.e. 3 plants = 1.5ha)
 - Slimes Dam at each process plant (of which two already exist)
- 2 x 23m³ Diesel storage tanks at each mine section (i.e. at plant) and a single 0.5m³ fuel trailer
- Generator and power cables at each mine section
- Workshop (incl. washbay)
- Water abstraction point including water transfer pipeline from Orange River to plant areas.
- Water storage tanks (JoJo) and steel dams
- 3 x 0.5ha Topsoil stockpiles (temporary storage for use in rehabilitation of mined out areas)
- Tailings and waste dumps
- < 0.5ha Contractors laydown area
- A new hanger at airstrip
- 50m² Temporary waste storage areas
- Dust suppression
- Storm water management infrastructure

The existing section 1 plant would be upgraded to accommodate higher production volumes and has an existing slimes dam. A new plant would be established at Section 2 and the existing slimes dam would be used. All new infrastructure needs to be established at section 3.

The pollution control dam and sewage package plant would no longer be required for the project, unless otherwise recommended by the appointed specialist hydrologist as part of the management of clean and dirty water.

9.4.3.1 Processing Plants

a) Mobile Metso Infield Screen 600tph

The sand and larger stones would be screened out using a mobile infield screen similar to below image. The use of the infield screen will minimise material handling at the processing plants.

b) Standard Rotary Pan Plant (see example in Figure 9-7, Photo 9):

Equipment:

- Static Dabmar Screen 600tph
- Rotary Pan Plants Complete (Close Circuit) 180tph
 - Section 1 Prospecting Phase: 2 x 14Ft Pans
 - Section 1 Mine Expansion: 2 x 10Ft Pans with extractor (added when mining right issued)
 - Section 2 Mining: 1 x 16Ft Pan with scrubber
 - Section 2 Mining Expansion: 2 x 16Ft Pans
 - Section 3 Mining: Double 18Ft Pan

Process: Each plant would have a production rate of 71 000 tons/plant. Sand will be screened out before passing through the plant and a close circuit system will be used to decrease the amount of slurry being pumped to slimes dams and water usage through the plant.

The main processing unit onsite works as follows:

- The gravel concentrate is tipped into dumper trucks into a hopper feeding the main rocks screen where oversize (+25mm) is discarded and collected for rehabilitation purposes.
- Gravel and sand (-25mm) is fed into the hopper bin to the sand screen to remove sand and fine gravels (-4mm) which is moved by conveyor belt into the tailings hopper to mix with pan tailings (de-watered +4mm -25mm gravels).
- From the sand screen a gravel matrix (>4<25mm) is fed into the rotary pans where its mixed with slurry to form a medium suitable for separation of heavy and light materials to produce concentrate for further processing.
- The diamond concentrate is extracted from both pans, dewatered and by means of closed conveyor system to final recovery plant.

The small amount of slurry produced at pan tailings and concentrate is pumped to the slimes dam for evaporation.

Solid tailings (+25mm rock), pan tailings (+4mm)-25mm) and sand (-4mm) are loaded onto dumper trucks and hauled back to the excavations for backfilling purposes.

c) Final Recovery Plant (See Figure 9-7, Photo 10)

The final recover plant will be provided by Bourestnik SA and will utilise a Bourestnik LS-20-05-2N unit as primary sorter and a Flow sort unit as concentrating sorter. Diamond concentrate will be received from the different sites in an input hopper from where it will first pass through a classifier before it is presented to the sorters. Concentrate tailings will be stockpiled securely and reprocessed at least once. Majority of the plant feed will be returned to the excavations in the form of dry tailings as backfill in the rehabilitation process.

Refer to **Figure 9-11** for a General Diamond Process Flowchart (i.e. rotary pan with final recovery plant).

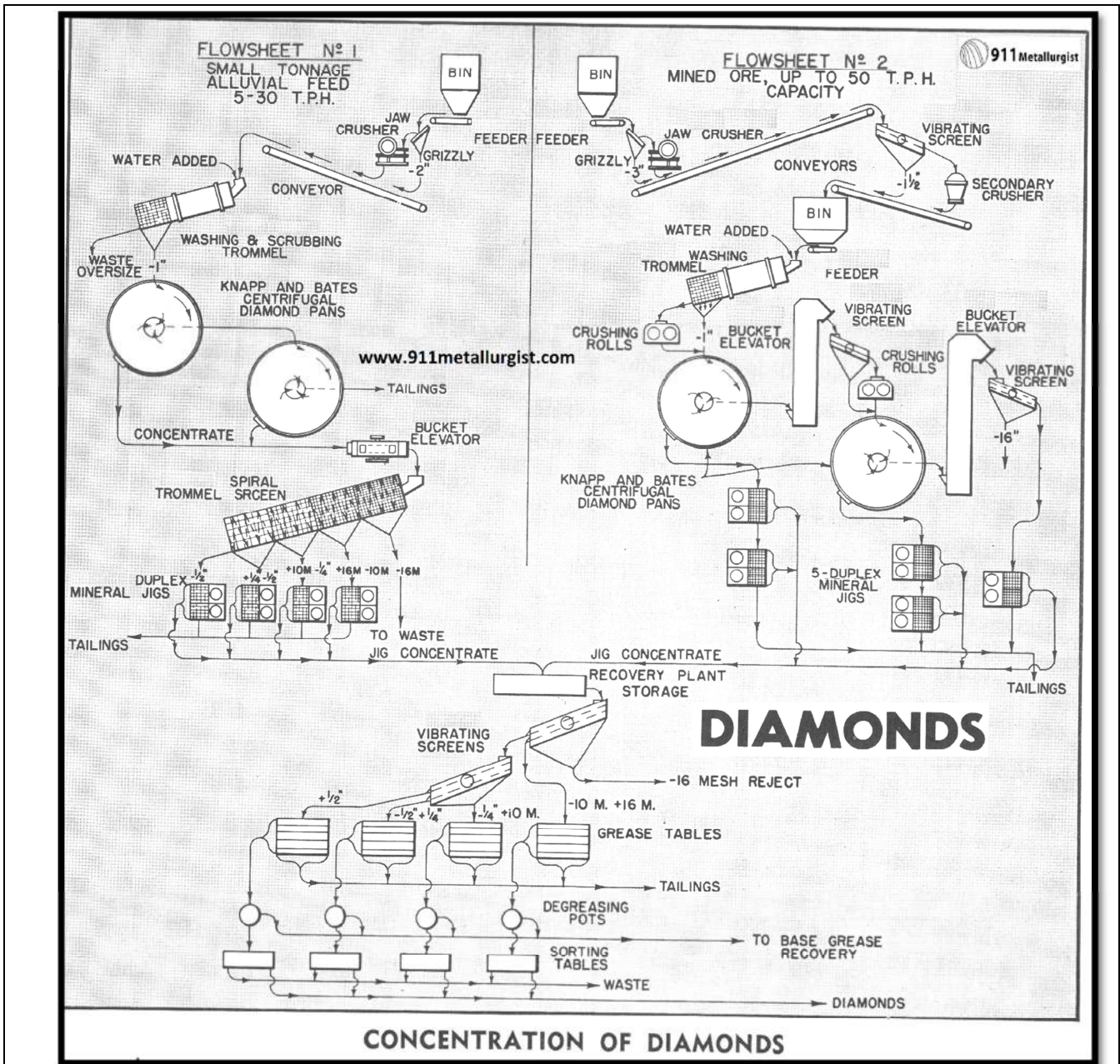


Figure 9-11: Diamond Processing Flow chart i.e. Rotary Pan and Final Recover Plant (image courtesy of www.911metallurgist.com)

9.4.3.2 Slimes / Tailing Dams

As described in section 9.4.3.1 (b) of this report, a small amount of slurry would be produced at each of the plants (i.e. pan tailings and concentrate) to be pumped to the individual plant slimes dams to settle. The geochemical property of the slurry or 'porrel' (i.e. sand and water) is considered inert which would be confirmed through basic laboratory testing.

The water from the slimes dams (after settling) would be pumped back and reused at the plant and for dust suppression. The wet sediment will be left to dry and evaporate for later use as backfill and surface cover of mined out areas.

The minimum holding capacity of the slimes dams would be 110 000m³/month with an extent of approximately 2 ha each. The existing section 1 and section 2 slimes dams are shown in **Figure 9-7 Photo 14** and **Figure 9-8 Photo 21**. A new slimes dam needs to be constructed for section 3.

No waste management license is required to authorize residue stockpiles and deposits (i.e. tailings stockpiles, slimes dams) given the recent shift of the 'Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015' to be regulated now under NEMA instead of NEM:WA.³

The current and proposed slimes dams do however need to comply with certain best environmental practice standards/guidelines and require a section 21g water use authorisation in terms of the NWA from the DWS.

Prescribed standards and guidelines include:

The Code of Practice for Mine Residue (SANS 0286: 1998) – covers disposal of mine residue designed according to particular residue characteristics (design and management of facilities);

- GN R. 704 'Mine Water Regulations' regulation 4 and 6 and 10:
 - Regulation 4- May not locate or place any residue deposit, dam within the 1: 100 year flood line or within a distance of 100m from any watercourse;
 - Regulation 6 - Must design, construct and operate any tailings dam that forms part of dirty water system to have a minimum freeboard of 0.8m above full supply level.
 - Regulation 10 – No person may establish any slimes dam within the 1: 50 year flood line or within distance of 100m of any watercourse
- Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015 under NEMA (it remains in force).

WULA requirements:

- Detailed design report with drawings signed off by an Professional Engineer;
- Construction Quality Assurance Plan
- Confirmation of geochemical characteristics of the residue (test results).

The slimes dams may therefore need to be upgraded/constructed to comply with the above mentioned standards and legislation as specified by the appointed Professional Engineer.

³ Residue deposits and stockpiles would in future be regulated in terms of environmental authorisation and approved EMPR issued in terms of NEMA. Changes to the NEMA EIA Listed Activities would need to be made to facility this regulatory shift.

9.4.3.3 Stockpiles, Tailings and Waste Dumps

Topsoil will be removed and stockpiled along the perimeter of excavations for later use to cover rehabilitated areas. Removed overburden, coarse tailings and sand screened out with the infield screen will be placed on the waste dump/stockpile for use as backfill into the mined out areas.

Solid tailings (+25mm rock), pan tailings (+4mm)-25mm) and sand (-4mm) will be stockpiled at the processing plant areas and loaded onto dumper trucks and hauled back to the excavations for backfilling purposes. As per section 9.4.3.2 above, no waste management license is required to authorize these residue stockpiles.

9.4.3.4 Diesel Storage

The use of power generators and yellow fleet require the bulk storage of Diesel onsite i.e.

- 2 x 23m³ Diesel Storage tanks at each mine section (6 storage tanks @ 23m³ tanks = 138m³)
- 0.5m³ Fuel trailer onsite

The bulk storage of fuel would reduce mine traffic (i.e. frequent fuel bowser) over Helskloof Pass. The diesel storage area will be bunded and constructed according to the applicable SABS Standards (10131: 2004) with secondary containment features installed around the filler points and tanks.

This specific diesel storage will take place within a geographic area (i.e. protected area) and meet the threshold for regulated activities under NEMA (GNR 327 Activity 14 and potentially GNR 324 Activity 10) which require EA.

9.4.3.5 Workshop, Services and Washbay area

A workshop for services and washbay and 'old oil storage area' will be established at section 1. The area will be bunded of which the runoff will pass through an oil separator and into a French drain system.

9.4.3.6 Contractors laydown area, offices and labour quarters

The mine would have a staff component of 150 people operating in two 12-hour shifts. 90% of the staff would be sourced from the Richtersveld community. Given the distance to Grasdrift, all staff, visiting non-core contractors and sub-contractors would reside on the mine during their shifts in proposed single labour quarters. Mining contractor staff would go home every 14 days. 30 of the 150 staff component are already onsite for the prospecting activities.

Staff would be housed in 6-12 meter mobile shipping containers converted into dormitories, ablutions and kitchens. The labour quarters would be established to meet the IFC standard for worker accommodation.

The existing brick-and-mortar buildings (Figure 9-6) located in the central section of the mining property may in future be refurbished for use as offices, kitchens, and ablution and labour quarters during the mining operation. For now, containerized accommodation units would be used.

9.4.3.7 Dust management

Water sprayers currently allay dust at the Section 1 plant. At least 5000 – 10 000 liters/hour of water will be used for dust suppression/plant area abstracted from the Orange River. To reduce water consumption, water from the slimes dams would be reused for dust suppression as far as possible.

Additional abatement equipment would be installed at each mining section plant i.e.

- Section 1 plant will be fitted with a dust extractor.
- Section 2 plant will have a scrubber (wet process) and will produce low to no dust.
- Section 3 area to be mined does not have a lot of fine materials in the diamond-bearing gravels therefore much less dust is expected from this mining section. It is highly likely that this plant would also be fitted with a scrubber.

9.4.3.8 Storm water Management

A Storm water Management Plan will be developed for the project with the main aim being to limited silt and sedimentation from being carried into the Orange River. The SMWP would include measures to prevent soil erosion and limited activities that generate sediment. Berms, catchment drains and silt traps will be recommended to mitigate this potential impact.

9.5 Access

Light vehicles and general mine traffic would move through the Park over Helskloof Pass. Light vehicles would occasionally make use of Akkedis Pass (refer to **Figure 9-13 overleaf**). This is the same logistic arrange Nabas has with SanParks for the prospecting traffic. Both Helskloof – and Akkedis Pass are slow rugged mountainous routes with large sections of sand tracks ascending to Grasdrift (refer to **Figure 9-15 to 9-17**).

Heavy Mine Equipment (HME’s) would be brought to site across the Orange River from Namibia (at Aussenkehr) via Vioolsdrift border during dry season as per the prospecting phase (refer to **Figure 9-12** below for an illustration and **Figure 9-14** overleaf showing the locality of the crossing point). Alternatively, if the river flows do not permit, the HME’s would be dismantled and moved over Helskloof Pass.

In line with agreement between SanParks (RNP Park Manager) and Nabas, Helskloof Pass would not be widened for the purposes of mine traffic; however road repairs may be made using materials from existing quarries along the route only.



Figure 9-12: Yellow fleet crossing Orange River from Aussenkehr in Namibia to Grasdrift during dry season for prospecting phase (images courtesy of Mr Pieter De Wet)

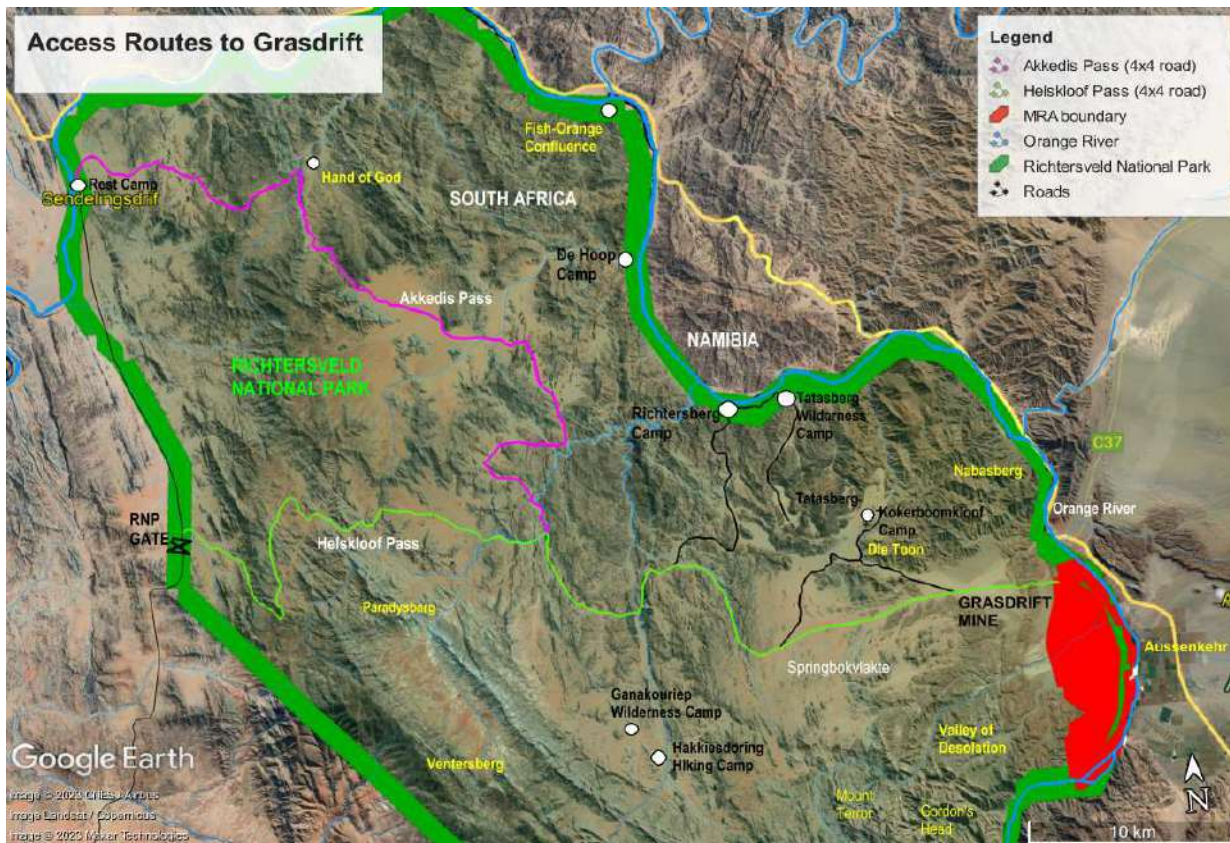


Figure 9-13: Two access roads (i.e. Akkedis Pass and Helskloof Pass) through RNP to Grasdrift

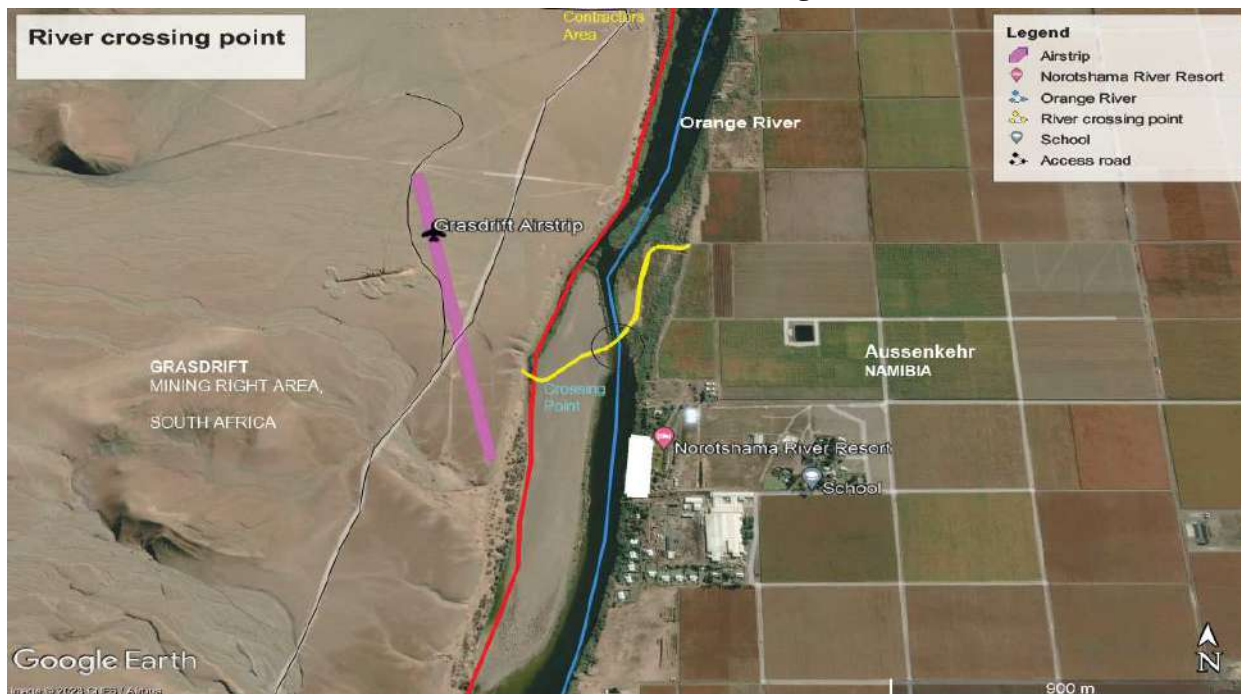


Figure 9-14: Yellow Fleet crossing point over Orange River from Namibia (Aussenkehr)



Figure 9-15: View of Helskloof Pass descending to RNP gate



Figure 9-16 View of Akkedis Pass ascending to Grasdrift (mountainous section)



9.6 Water

Use, Supply and

Figure 9-17: View of Akkedis Pass towards Grasdrift (flat area later becoming sand tracks)

infrastructure

The mine will require process and potable water .i.e.

- Process water for the processing plants, sorter, scrubber and dust suppression;
- Potable water for drinking, kitchen, sanitation (i.e. toilet flushing and washing)

Water will be abstracted from the Orange River at 80 000 – 100 000m³/ month or 0.96 to 1.2Nm³/annum through three river abstraction points (**Table 4**). The water will be pumped from the Orange River via water transfer pipelines to the respective processing plants into JoJo tanks and steel dams. Water from the tanks and dams will be pumped to the processing plants for use.

Table 4: Water abstraction points, use and storage facilities

Section	Abstraction Point	Pipeline length	Storage facilities	Usage liters /hour (l/hr.)
1	S 28°25'38.96" E 017°23'16.60" Using 11kwh pump	410m	10 000 liters in 4 JoJo tanks 150m ³ steel dam (existing)	5000 l/hr. for plant 5000 l/hr. dust control, wash bay 500 l/hr. - potable, sanitation
2	S 28°23'09.14" E 017°24'36.49" Install 40kwh pump	2.8km	JoJo tanks 500m ³ steel dam 2000m ³ tarp dam	40 000 l/hr. for plant & scrubber-Pan 1 10 000 l/hr. for plant - Pan 2 & 3 5000 l/hr. for dust control, wash bay 500 l/hr. for potable use, sanitation
3	S 28°21'18.87" E 017°24'1.28" Install 22kwh pump	±3km	JoJo tanks 150m ³ steel dam	Same water use anticipated as section 2.

9.7 Sewage and Wastewater

The mine currently (during prospecting) makes use of septic tanks (pit latrine) and French drains for disposal of effluent water from the contractors washing facility. These are located at the contractor’s area. For the mining operation the mine will continue to use these facilities. A honey sucker will collect/empty the system on a regular basis. The nearest sewage treatment plant where it can be removed to is located in Alexander bay.

9.8 Electricity Supply

The mine will continue to use power generators to supply electricity to the workshops, offices, and plants, sorting and dressing areas, accommodation areas and the water pumps.

9.9 Airstrip

Grasdrift currently has a 1.4km airstrip (Figure 9-7 Photo 7) with a concrete slab where a former control tower used to be located. This airstrip will be reused during the mining operation and fitted with a hanger and control tower. The area is remote and in case of any medical emergency such patient can be stabilized by onsite medical personnel and airlifted from site to the nearest medical facility.

9.10 Waste management

Domestic waste will be collected at the plant areas and contractors area in bins, collected and removed on a daily basis to a temporary waste storage area and removed off-site as and when mine bakkies/small trucks are able to transport off-site (potentially every 14 days) to the nearest registered landfill site i.e. Port Nolloth or alternatively feed into Sendelingsdrift waste pickup system.

Hazardous waste (hydrocarbons, old oil) would be collected in a designated area (in an extractor) in a bunded area next to fuel storage and removed by mine vehicles to Springbok. Further investigation into hazardous waste disposal sites closer to the site will be investigated.

9.11 Project labour requirements, operating hours and shifts

The mine will have a small labour force of approximately 150 employees.

Mining will initially be capped at one shift at 12-hours per day, until the existing labour quarter’s infrastructure has been revamped to accommodate more people. After that, production will be ramped up to a 24-hour day consisting of two shifts. The shifts will target production of 3 000 000 tons per annum. One shift consisting of 12- hours will produce 250 000 tons per annum. The idea is to finally have two shifts which will comprise 24 hours to reach full mine production to the remaining LOM.

9.12 Rehabilitation

The site is an isolated desert area comprising gravel terraces (i.e. low, perched) and desert gravel pavements (pebble deflation surfaces) next to the flood plain of the Orange River. It is considered a ‘primitive/remote’ area in the RNP with low and moderate sensitivity value. Refer to **Figure 9-18** below.



Figure 9-18 Surface cover at Grasdrift

Limited concurrent rehabilitation has been undertaken at the project site during prospecting since these areas will be reused for the purposes of the proposed mining right. Nabas intend to conduct the rehabilitation during the mining right period.

Future rehabilitation, as part of the mining right period, must take cognizance of the surrounding surface material and ensure that sufficient coarse material is retained for surface finishing i.e. coarse tailings

During the mining right period the objective of rehabilitation would be to:

Create a safe, physically stable rehabilitated landscape that limits long-term erosion potential and environmental degradation;

- To minimize pollution;
- Ensure interconnectivity between the rehabilitated landscapes with surrounding regionally biologically diverse areas;
- Rehabilitate the site back to desert and spread the surface with coarse tailings (pebble deflation surface);
- Any excess material left after backfilling / stockpiles can be shaped and covered with coarse tailings to mimic the former gravel terraces.
- Given the harsh environmental conditions and hardly any vegetation present onsite, no re-vegetation would be done. Succulent seeds dry and split open allowing it to fall out or catch the breeze. Propagation of succulents to the area would therefore need to be through wind blown over from the rugged mountains to the Orange River valley.
- Establish functional post-mining landscape for the identified final post-mining land use.

The nature of the shallow opencast mining operation result in the main disturbances taken place on surface. There are limited options available for the rehabilitation and decommissioning and must be implemented in a cost effective manner.

The proposed rehabilitation actions are therefore twofold i.e.

- Concurrent rehabilitation; afterwards
- Final decommissioning and rehabilitation

Concurrent rehabilitation would mainly include:

- Minimise material handling at plants and stockpiling by use of an in pit screen
- Direct backfill of tailings to excavations with process and over-sized materials (i.e. overburden, solid tailings, dry slimes) concurrent with mining
- Spreading of topsoil
- Grading the land to mimic the surrounding landscape (i.e. low to perched gravel terraces)
- Spreading coarse tailings over the rehabilitated and reshaped areas as surface finishing.
- Removal of alien invader species that may establish in the area

It is advised that in each mining section, the contractor must focus on first mining out one terrace area (i.e. A or B/ C/ J) and completely backfilling it before moving to the next terrace.

Final decommissioning and rehabilitation would include (depending on the final chosen post mining land use):

- The main access road to Grasdrift up to the southern extreme of the property and to the contractor's area should remain as a tourist route.
- All yellow fleet would be removed off site
- The processing plants would be dismantled/ removed off site /sold off
- Remaining infrastructure would be removed and sold as scrap metal
- Any remaining structures / infrastructure, including foundations, small temporary access roads of buildings should be removed and rehabilitated, unless the liability is taken over by another party.

- All areas disturbed from previous infrastructure should be backfilled/reshaped and covered with coarse tailings to mimic desert pavement.

Depending on the final post mining land use it may be decided to leave labour quarters, offices and security buildings intact including associated infrastructure (i.e. water, electricity, sewage).

Given the remote location of Grasdrift, the existing mine buildings and infrastructure could be used/converted to tourist facilities and accommodation and be included as a river rafting stopover sight with numerous recreational activities. Such a rest camp would accrue additional revenue for the community and Park.

9.13 Final post mining land use

Post closure land use (PCLU) is determined in consultation with stakeholders so that the PCLU meets the requirements of the stakeholders, within the context of this rehabilitation, decommissioning and closure plan. This activity is undertaken for the extent of the mining right area affected by mining activities and integrates stakeholder requirements while taking cognisance of risk mitigation.

According to the Park Management Plan (2018 – 2028) current diamond mining areas have a 'special management zone' i.e. future mining rehabilitation area to be **incorporated into underlying tourist use zone**. It would therefore be essential to determine the final preferred post mining land use with SanParks and the RJMC.

As specific consultation regarding PCLU has not been undertaken at this stage, for purposes of current planning and liability costing, general best practice measure complying with the Richtersveld specific remediation requirements will be adhered to.

The post mining land uses that could be considered include:

- **(1) Wilderness**
 - Returning Grasdrift entirely back to wilderness by removing all infrastructures, buildings and mine disturbances only leaving the main access road from the northern to southern extreme as a tourist route.
- **(2) Tourist facilities and accommodation 'Grasdrift Camp'.**
 - Rehabilitating all mined out and plant areas;
 - Convert existing mine buildings at the contractors area (i.e. labour quarters, offices, security building) to tourist facilities and accommodation;
 - Reuse the reduced water allocation from mine and existing infrastructure (i.e. water, electricity, sewage) for the purpose of 'Grasdrift Rest Camp'.
 - River rafters along the Orange River can also use it as a stopover, since it very close to Klipneus Eiland.

Because the site falls within the National Park any other future economic use would be in conflict with the Park zoning plan. Commercial grape farming was considered but in effect a no-go option i.e.

- **(3) Commercial grape farming**
 - It is successfully undertaken across the Orange River at Assenkehr.
 - The mine water supply and infrastructure would become available with mine closure and can be used for the cultivation of grapes.
 - The existing mine buildings (i.e. labour quarters, infrastructure) can be used for farm workers accommodation etc.
 - Access and logistical arrangements may however prove to be a challenge since there is no tarred main road to move product (different to diamond mining).

9.14 Project Schedule

The anticipated project schedule is provided in **Table 5**.

Table 5: Project Schedule

No.	Project Phase	Time frame
1	Construction / establishment	1 – 2 years
2	Operation	Expected life of mine is 30 years
3	Rehabilitation and closure	2 years
4	Post closure and aftercare	2 years
Total		36 years

10. NEMA listed and specified activities for the project

Table 6 (overleaf) details the specified and listed activities associated with the proposed Grasdrift Diamond Mine project.

The project requires a mining right in terms of section 22 of the MPRDA and triggers a number of listed activities (i.e. under GNR 325, 324, 327) published in terms of the NEMA EIA Regulations (GNR 326, as amended on 7 April 2017) and NEM: WA (i.e. GNR 921 Category A and B activities) requiring environmental authorisation and waste management license subject to a full Scoping and EIA process.

Nabas has applied for a mining right, integrated environmental authorisation and a waste management license to the DMRE in Springbok on 27 May 2022.

Table 6: List of activities associated with the proposed Grasdrift Diamond Mine project

NAME OF ACTIVITY	Extent (Ha or m ²)	LISTED ACTIVITY	APPLICABLE NEMA LISTING NOTICE GNR 327 (983) GNR 325 (984) GN R. 324 (985)	APPLICABLE WML AUTHORISATI ON
Section 22 of application for a mining right into MPRDA	2 691.1942 ha	X	GNR 325 Activity 17 GNR 325 Activity 15 ⁴ GNR 327 Activity 19 ⁵ GNR 324 Activity 12 ⁶ GNR 324 Activity 14 ⁷ WULA – S21c & i	
SITE ESTABLISHMENT				
Bringing machinery, equipment and heavy vehicles (HME’s) to site over Helskloof Pass.			Not listed	
Existing access and haul roads will be used from prospecting operations.	<1ha	X	GNR 324 Activity 4 GNR 324 Activity 12	
Containerised mobile units will be used as offices, staff accommodation and amenities. In future existing buildings and structures on site will be revamping.	6x12m containers 384m ² mortar buildings 500m ² Steel Structure	X	GNR 325 Activity 17 GNR 327 Activity 19 GNR 324 Activity 12 GNR 324 Activity 14	
An existing landing strip is in place at Grasdrift and will be fitted with a hanger.	1.1km length 2.7 ha	X	GNR 324 Activity 7	
Stripping of topsoil to establish infrastructure footprint areas and establishment of a topsoil stockpile.	<10 ha	X	GNR 325 Activity 15 GNR 324 Activity 12	
Establishment of parking areas	< 0.1ha	X	GNR324 Activity 12	
Ablution facilities	< 0.1ha	X	GNR 324 Activity 12 GNR 325 Activity 15 WULA - S21g	
Establish 3 Processing Plants, one in each mine section (Rotary Pans):	1.5 ha	X	GNR 325 Activity 17 GNR 325 Activity 15	

⁴ **The application property is 2692 ha in extent, and the mining area is bare.** But Mucina and Rutherford, 2006 characterises this area to comprise indigenous vegetation types i.e. Kwaggarug Mountain Desert, Richtersveld Sheet Wash Desert with Lower Gariep Alluvial vegetation in the Orange River floodplain. Therefore the activity is included.

⁵ If any of the mining excavations disturb historic stream courses flowing from site to the Orange River.

⁶ The application area falls within a the RNP, a protected area and critically endangered ecosystem.

⁷ The application submitted by NDI Geological Consulting Services included GNR 327 Activity 12 but the exclusion applies where if activity 14 under GNR 324 applies. The application area covers a geographical area i.e.protected area, critical biodiversity area and world heritage site.

Static Dabmar Screen 600tph Section 1: 2 x 14 Ft Pans with extractor 2 x 10Ft Pans Section 2: 1x 16Ft Pan with scrubber 2 x 16Ft Pans Section 3: Double 18Ft Pan Each plant would be > 0.5ha x 3			GNR 324 Activity 12 GNR 324 Activity 14	
Final Recovery Plant: (Bourevestnik LS-20-05-2N unit will be primary sorter and a Flow sort unit as concentrating sorter)	3 x > 0.5ha = 1.5ha	X	GNR 325 Activity 17 GNR 325 Activity 15 GNR 324 Activity 12 GNR 324 Activity 14	
Slimes/Tailings Dam at each processing plant: Slimes dams already exist at section 1 and 2 which would probably require upgrade and expansion. The slimes dam for section 3 must still be constructed.	3 x 2ha = 6ha	X	GNR 325 Activity 17 GNR 325 Activity 15 GNR 327 Activity 19 GNR 324 Activity 12 WULA – S21g	N/A ⁸
Water Storage: JoJo Tanks 10 000 litres in 4 tanks	<0.5ha		WULA – S21b	
Water Storage Dams 3 x steel dams (2x 150m ³ ; 1 x 500m ³) 1 x Tarp dam (2000m ³)	3 x 0.5ha= 1.5ha		GNR 325 Activity 15 GNR 324 Activity 12 WULA – S21b	
Water transmission pipelines from Orange River to plants. (throughput capacity < 20litres/sec) (Diameter <0.36m)	Section 1(410m) Section 2 (2.8km) Section 3 (3-4km) < 5ha	X	GNR 325 Activity 17 GNR 324 Activity 12 GNR 324 Activity 14 GNR 327 Activity 19 WULA – S21 c & i	
Diesel storage: 2 x 23m ³ storage tanks at each mine section (mine Sections 1, 2, 3) 1 x diesel trailer	6 x 23m ³ = 138m ³ (tanks) 0.5m ³ (trailer)	X	GNR 327 Activity 14 GNR 324 Activity 10 ⁹	
Power Generators	Unknown			
Establish Temporary waste storage areas. Volume of waste not known.	<50m ² each	X	GNR 325 Activity 17 GNR 324 Activity 12	X GNR 921, Cat A activity 10 and 12.
Contractors laydown area	< 0.5ha	X	GNR 325 Activity 17	

⁸ GNR 633 Category B, Activity 11 is no longer applicable. The NEMLA Act 2 of 2022 has amended the definition of waste **to exclude residue stockpiles and deposits**. Residue stockpiles and deposits will instead be regulated in terms of the National Environmental Management Act 107 of 1998 (NEMA). No waste management license is required.

⁹ Provisionally the application is for the storage of more than 80m³ of diesel, but because the storage takes place within a protected area, critical biodiversity area and may at the initial mining production stages store less than 80m³ but more than 30m³ this activity is included as a precautionary measure.

			GNR 325 Activity 15	
Fencing	<5ha	X	GNR 325 Activity 17 GNR 325 Activity 15 GNR 324 Activity 12 GNR 324 Activity 14	
Storm water management infrastructure	<20ha	X	GNR 325 Activity 15 GNR 324 Activity 12 GNR 324 Activity 14	
OPERATIONAL PHASE				
Removal of topsoil, overburden and excavation of gravel ¹⁰	>20 ha	X	GNR 325 Activity 15 GNR 324 Activity 12	
Stockpiling of topsoil and overburden on stockpiles for use as direct backfill. Topsoil and overburden would be stockpiled on the perimeter of excavations.	3 x < 0.5ha = < 1.5ha	X	GNR 325 Activity 17 GNR 325 Activity 15 GNR 324 Activity 12	
In pit screening of gravel materials		X	GNR 325 Activity 17	
Transport of gravel concentrate to processing plants				
Processing of gravel concentrate at Sections 1, 2 and 3 gravel plants.			GNR 325 Activity 17	
Abstract water from three abstractions points from Orange River for use at processing plants			WULA – S21a, S21c&i	
Stockpiling of fine and coarse tailings at plant area for later use as backfill and surface cover (coarse tailings).			GNR 325 Activity 17 WULA-S21g	
Dust suppression with river water and recycled water from slimes dam.	Unknown			
Disposal of fine tailings to slimes dams.				
Waste management / storage of waste at temporary waste storage areas and removal offsite.				
Use of ablution facilities (septic tank and French drains) by staff				
Use of power generators				
Use of diesel storage for refuelling				
Use of waste storage areas				
CONCURRENT REHABILITATION (part of operation)				

¹⁰ The mining site is located on desert gravel pavement and sand terraces. There is no natural vegetation. But Mucina and Rutherford, 2006 indicates the site overlaps with Kwaggarug Mountain Desert, Richtersveld Sheet Wash Desert with Lower Gariep Alluvial vegetation in the Orange River floodplain. The activity is therefore included.

Backfilling of mined out areas using tailings and subsequent cover with topsoil and coarse material.	Required for all disturbed areas	X	GNR 325 Activity 17 GNR 325 Activity 15 GNR 327 Activity 19 GNR 324 Activity 12 GNR 324 Activity 14 WULA-S21g	
Grading of land and terraces to mimic surrounding landscape.				
Remove alien’s invader species that may establish in the area.				
DECOMMISSIONING				
Remove yellow fleet offsite Dismantle/remove/ sell off gravel processing plants Demolish, remove remaining infrastructure off site and sell as scrap metal where relevant; Any remaining structures / infrastructure, including foundations, small temporary access roads of buildings should be removed and rehabilitated, unless the liability is taken over by another party. All areas disturbed from previous infrastructure should be backfilled/reshaped and covered with coarse tailings to mimic desert pavement. Ripping of compacted ground, sloping excavated areas. The main access road to Grasdrift up to the southern extreme of the property and to the contractor’s area should remain as a tourist route. Depending on the final post mining land use it may be decided retain existing mine buildings and services infrastructure (i.e. water, electricity, sewage) to convert to tourist facilities and accommodation / river rafting stopover sight. To be confirmed with RGBK and SanParks.		X	GNR 327 Activity 22	
Removal and eradication of alien invader species along Orange River floodplain and on rehabilitated areas.				
POST-CLOSURE				
Final post closure audit Apply for Closure Certificate in terms of section 43 of MPRDA to DMRE				

As mentioned previously, the need for a pollution control dam is highly unlikely given the nature of the activities except if otherwise recommended by the appointed specialist hydrologist as part of the management of clean and dirty water. It was previously indicated as required as per activity 16 of GNR 325 (listing notice 2), GNR 921, Category B (1) and (10).

The previously planned sewage treatment package plant (<1ha) activity 25 of GNR 327 (listing notice 1) will also not be required.

10.1 Description of the specified NEMA listed activities

A description of the Table 6 relevant specified activities as per GNR 325, 327 and 324 is provided below.

GNR 325 (984):

Activity 17 – Any activity requiring a mining right in terms of section 22 of the MPRDA (a) including associated infrastructure and (b) primary processing of mineral resource.

Activity 15 – The clearance of an area of 20 ha or more of indigenous vegetation.

GNR 327 (983):

Activity 14 – The development and related operation of facilities/infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80m³ or more but less than 500m³.

Activity 19 – The infilling or depositing of any material of more than 10m³ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m³ from (i) a watercourse.

Activity 22 – Decommissioning of any activity requiring a closure certificate in terms of section 43 of the MPRDA.

GNR 324 (985):

Activity 4 – The development of a road wider than 4 meters with a reserve less than 13.5meters in the (g) Northern Cape (ii) outside urban areas:

(aa) A protected area identified in terms of NEMPAA

(bb) National Protected Area Expansion Strategy Focus Area

(ee) Critical Biodiversity Areas identified by systematic biodiversity plans or bioregional plans

Activity 7 – The development of an aircraft landing strip and runways 1.4 kilometers and shorter in the (g) Northern Cape; (ii) Outside urban areas:

(aa) Protected Area identified in terms of NEMPAA

(cc) World Heritage Site

(ff) Critical Biodiversity Areas identified by systematic biodiversity plans or bioregional plans

(jj) Within 100m of edge of a watercourse/wetland or within a 100m from the edge of a watercourse.

Activity 10 – The development and related operation of facilities/infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 30m³ or more but less than 80m³ in the (g) Northern Cape (ii) outside an urban area:

(aa) Protected Area identified in terms of NEMPAA

(bb) National Protected Area Expansion Strategy Focus Area

(ee) Critical Biodiversity Areas identified by systematic biodiversity plans or bioregional plans

Activity 12 – The clearance of 300m² or more of indigenous vegetation except where such clearance is required as part of a maintenance plan in the (g) Northern Cape:

Any critically endangered or endangered ecosystem listed in terms of section 52 of NEMBA

Critical Biodiversity Area identified in bioregional plans

On land, where at the time of coming into effect of this Notice or thereafter such land was zoned open space, conservation or held an equivalent zoning.

Activity 14 – The development of:

Dams or weirs, where the dam or weir including infrastructure and water surface area exceeds 10m² or;

Infrastructure or structures with a footprint of 10m² or more where the development occurs:

Within a watercourse; or

In front of the development setback; or

Within 32m of a watercourse

(g) In the Northern Cape (ii) outside urban areas:

(aa) in a Protected Area identified in terms of NEMPAA

(bb) National Protected Area Expansion Strategy Focus Area

(cc) World Heritage Site

(ff) Critical Biodiversity Area identified in bioregional plans

GNR 921 in terms of NEM: WA:

Category A: Activity 10 - The disposal of general waste to land covering an area of more than 50m² but less than 200m² and with a total capacity not exceeding 25 000 tons.

Category A: Activity 12 – The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).

10.2 Water uses associated with the Grasdrift Mine project

Nabas will apply for a Water Use License Application (WULA) to the Department of Water and Sanitation in Upington in accordance the NWA the proposed Grasdrift Diamond Mine project for specified section 21 water uses. The WULA will be integrated with the mining right application process. The water uses to be applied for include:

- **S 21a – Abstraction of water from the Orange River for mine process and potable water**
 - 80 000 – 100 000m³ / month or 0.96 to 1.2 Mm³ / annum from three water abstraction points
- **S 21b – Storing of process water in four (4) dams and JoJo tanks**
 - 10 000 liters in 4 x JoJo tanks
 - 2x 150m³ and 1x 500m² Steel Dams
 - 2000m³ Tarp Dam
- **S21c and i** – Mining activities within the regulated area of the Orange River (water pumps and pipelines), mining and infrastructure within 100m of episodic streams.
- **S21g – Construction and operation of onsite waste disposal facilities i.e.**
 - Onsite sewage management facilities (septic tank, French drains)
 - 3 x Slimes / Tailings Dams
 - Stockpiles and backfilling

The project activities will take place within 100m of the Orange River but not beyond the 1: 100 year flood line therefore the WULA will include application for exemption / relaxation of the condition imposed by GN 704 regulation 4 on 'Restriction on Locality'. Infrastructure may also be located within proximity of historic stream courses flowing to the Orange River.

11. POLICY AND LEGISLATIVE CONTEXT

Table 7 (overleaf) describes the policy and legislative context applicable to the proposed Grasdrift Diamond Mine project i.e.

- Legislation
- International guidelines/policies
- Policies
- Plans and guidelines
- Spatial tools
- Municipal planning frameworks

The legal requirements stated in this report for the project and how Nabas complies with it are by no means a legal opinion but an interpretation of the legislation by the independent EAP.

Table 7: Relevant policy and legislative requirements

Item No	APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THIS LEGISLATION
11.1	Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) and its amendments	Application for a mining right was submitted to DMRE in term of section 22 of the MPRDA. This report complies with the DMRE scoping report template.
11.2	National Environmental Management Act (Act 107 of 1998) (NEMA) Section 2 – Principles of NEMA Section 24 – Listed activities requiring environmental authorisation	Application for environmental authorisation was submitted to DMRE specifying the section 24(5) listed activities applied for (refer to section 10 and 10.1 of this report). The principles of NEMA have been considered in this report.
11.3	2014 NEMA Environmental Impact Assessment (EIA) Regulations (GNR 326) (as amended on 7 April 2017) Regulation 21 – 24 and 40-44 Appendix 2 Regulation 22(b) (ii) - not applicable.	The EIA and public participation process is conducted in line with section 21 – 24 and 40-44 of the EIA Regulations. The scoping report has been prepared in compliance with Appendix 2 and is currently subject to a 30-day consultative process in line with Regulation 21(1). Regulation 22(b) (ii) is not applicable i.e. refusal of environmental authorisation on Scoping Report submission if “the proposed activity is in conflict with a prohibition contained in legislation” or any applicable protocol, or requirements. Nabas holds the prospecting right over Grasdrift since 1998 before the enactment of NEMPAA (refer to explanation in item no 11.4 below).
11.4	National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEMPAA) (effective 2004). Section 48 (1) – Prohibits commercial prospecting or mining activities in protected areas without the prior content of the Ministers of Mineral Resources and Environmental Affairs. Section 48 (2) - The minister of environment, after consultation with Cabinet members responsible for minerals and energy, must review all mining activities which were <u>lawfully conducted in a protected area prior</u>	Section 48 – According to the Protected Areas Register the site is located in the ARTP / RNP. The Richtersveld Cultural and Botanical Landscape WHS lies south of the project site. Nabas is in possession of the right to prospect /conduct trail mining over Grasdrift in the ARTP since 1998 before the enactment of NEMPAA in 2004 (refer to section 3 of this report confirming such). The EAP interprets such as ‘lawfully conducted in a protected area prior to 2004’. The prospecting right is a prerequisite for a mining right application interpreted as setting the precedent for mining. The current application for a mining right covers the same area as the prospecting right area, so the area of mining has not increased. Section 46 – Nabas has access to the application site as the holder of the prospecting right (refer to section 6, Figure 5-1). It is a recognized restricted diamond mining area in the eastern section of the ARTP.

<p>to 2004.</p> <p>Section 48 (3) - The minister must prescribe conditions for mining activities conducted in protected areas, declared after the commencement of NEMPAA under which those activities may continue in order to reduce or eliminate the impact of those activities on the environmental or for the environmental protection of the area concerned.</p> <p>Section 48 (4) - When apply section 3, the Minister must take into account the interests of the local communities and environmental principles referred to in section 2 of NEMA.</p> <p>It is the interpretation of the EAP that any prospecting and mining rights/ concessions which lawfully took place in a protected area prior to the enactment of the NEMPAA, may continue in such a protected area yet may not increase their prospecting/mining area.</p> <p>Further to the above, Section 46 of NEMPAA, related to access to a national park and world heritage site, states that:</p> <p>(1) Despite any other legislation, no person may without the written permission of the management authority of a national park, nature reserve or world heritage site enter or reside in the park.</p> <p>In addition, Section 50 of NEMPAA deals with commercial and community activities in a national park, nature reserves and world heritage sites with specific emphases on Section 50 (5) of NEMPAA wherein it is stated that no development may be permitted in a national park, nature reserve or world heritage site without the prior written approval of the management authority.</p>	<p>Section 50(5) –The RJMC and SanParks are being engaged as part of the EIA process public consultation process (refer to section 16.9 of this report). The RJMC would be consulted directly about mining in the ARTP/RNP (meetings during scoping report public review period). Nabas would engage/negotiate with the RJMC and SanParks to obtain consent/written approval to conduct mining in the Park.</p>
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	<p>Richtersveld National Park Proclamation (Government Notice 1969 / Government Gazette 13457 dated 16 August 1991)</p>	<p>The mining right application is within the RNP. The proclamation of the RNP is subject to conditions i.e. future applications for exploration and mining in the park after the proclamation will be considered on merit. The RNP is managed according to an approved management plan (2018 – 2028) (refer to item 11.6 below).</p> <p>Nabas was awarded the prospecting permit / right over Grasdrift in 1998 under the then Mineral Act of 1991. Grasdrift is a recognised current diamond mining area in the park.</p>
	<p>Richtersveld National Park Protected Area Management Plan 2018 - 2028</p>	<p>According to the RNP Management Plan 2018 – 2028 SanParks manages the current diamond mining areas in the park (i.e. Grasdrift, Aace, Jakkalsberg, Oena and Sendelingsdrift) according to section 48 of the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003).</p> <p>Section 7.2 of the management plan (page 56) state due to diamond mining within the Park, access to certain areas is strictly prohibited. According to the park zonation plan the site is located in a remote and primitive area (intrinsic wilderness characteristics) with low to moderate sensitivity value. The current prospecting area has been allocated a ‘special management zone – mining rehabilitation area’. The end of mine land use should therefore be ‘wilderness’ to later incorporate into the tourist zones of the Park. This scoping report considers this as a final post mining land use, refer to section 9.13.</p>
<p>11.5</p>	<p>National Water Act (Act 36 of 1998) (NWA)</p>	<p>A water use license is required for Section 21 a, b, c, i and g water uses triggered in terms of the NWA (refer to section 10.2 in the above sections of the report). The application will be submitted to the DWS regional office in Upington (Lower Orange River Catchment Management Agency). The application procedure would comply with the WULA and Appeals Regulations of 2017 (GNR 267).</p>
<p>11.6</p>	<p>Mine Water Regulations 704 of 1999 (GG – 20119)</p> <p>Regulation 4: Restriction on locality of mine infrastructure - 100m away or above the 1:100 year flood line</p> <p>Regulation 6: Capacity of clean and dirty water services</p> <p>Regulation 7: Protection of water resources</p>	<p>Regulation 4 - Mining activities would be located within 100m of the Orange River but above the 1:100 year flood line. It would be within a 100m of the ephemeral Oudannisiep River¹¹ and several dry drainage lines. An application for relaxation of the condition imposed by GNR 704 will be submitted as part of the overall WULA to DWS including application for Section 21 c & i water uses.</p> <p>Regulation 6 – The mine would not produce dirty water since materials are expected to be</p>

¹¹ Ephemeral means it only carries water after it rains. It might flow only a few days or just a few hours during a year. The Oudannisiep River last carried water in 1925.

		<p>inert (porrel = sand and water). However a stormier management plan (SWMP) would be prepared and implemented for the mine. The slimes dams would be upgraded/constructed to best environmental practice and in accordance with professional engineering designs and recommendations (incl. the required minimum freeboard of 0.8m) to be included as part of the WULA documentation.</p> <p>Regulation 7 – Geohydrological, Hydrological and Aquatic Biodiversity impact assessment studies would be conducted as part of the project to identify potential risks from the mine and recommend management measures to protect the nearby water resources.</p>
11.7	<p>National Environmental Management: Waste Act (Act 58 of 2008) (NEM:WA) and subsequent amendment act and NEM: Waste Amendment Act (Act 26 of 2014)</p> <p>Section 19 – (GNR 921) waste management activities requiring a WML.</p>	<p>The creation of temporary waste storage areas of <50m² each trigger waste management activity 10 and 12 under Category A of GNR 921 which require a WML.</p> <p>Backfilling, residue stockpiles and residue deposits no longer require a WML since it’s now excluded from the NEM: WA.</p>
11.8	<p>2015 Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits – regulated under NEMA.</p>	<p>This regulation is still in force and has been considered for the slimes dam and fine and coarse tailings stockpiles. Chemical characterisation would be done through laboratory testing however the porrel from the plant pumped to the slimes dam comprises sand and water therefore expected to be inert.</p> <p>The following would be done for the slimes dams:</p> <ul style="list-style-type: none"> • Detailed design report with drawings signed off by an Professional Engineer; • Construction Quality Assurance Plan • Confirmation of geochemical characteristics of the residue (test results).
11.9	<p>National Heritage Resources Act (Act 25 of 1999) (NHRA)</p> <p>Section 24 – Structures, features older than 60-years Section 35 – Archaeological sites and material Section 36 – Graves and burial sites Section 38 (1) – Notification to SAHRA; and Section 38 (3) Requires HIA</p>	<p>The project site is located south of the Richtersveld Cultural and Botanical Landscape WHS within the WHS buffer area. The application site has the following features:</p> <ul style="list-style-type: none"> • Graves were recorded in the Orange River floodplain • Nomadic pastoral livestock grazing takes place along the Orange River floodplain (mainly summer); <p>The Orange River floodplain is of high heritage priority and will be excluded from mining as a no-go area. A full Heritage Impact Assessment and Desktop Palaeontological Study will be conducted as part of the EIA Study. The SAHRA has been notified of the application by means of a notification upload onto SAHRIS. This report has also been uploaded onto SAHRIS for comment.</p>

<p>11.10</p>	<p>National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM: AQA) and Air Quality Amendment Act 20 of 2014.</p> <p>2009 National Ambient Air Quality Standards (NAAQS)</p> <p>(The NAAQS closely follows WHO interim targets (IT) for PM₁₀ specifically related to the 24-hour exposure period)</p> <p>2013 National Dust Control Regulations</p>	<p>The air quality impacts that may occur as a result of the increase in mining activities at the Grasdrift Mine relate to the increase in dust emissions and a resultant increase in ambient PM₁₀ concentrations and an increase in dust fallout in the surrounding environment. No air emission license (AEL) is required. However the NAAQS and NDCR published under this act are applicable to set specific limit values for compliance for dust fallout and PM₁₀.</p> <p>The NAAQS set a limit value and permitted frequency of exceedance for PM₁₀ i.e.</p> <ul style="list-style-type: none"> • 40 µg/m³ (exposure of 1-year with zero tolerance), • 75 µg/m³ (exposure of 24-hour with tolerance of 4 times per year). <p>It provides limit values for acceptable dust fall rates for residential and non-residential areas. Grasdrift is located in a rural district /non-residential area where the dust fallout rates as a 30-day average should not exceed 600<D<1200 mg/m²/day where the permitted frequency of exceedance is two within a year, not in sequential months. The dust fallout rates from the proposed Grasdrift operation</p> <p>The ambient air quality of the surrounding area may not exceed the above given limit value and permitted frequency as a result of the increased dust emissions from the mining at Grasdrift, same goes for dust fallout rates. An Air Quality Impact Assessment Study will be conducted for the project to determine if the project may exceed such limits and what management measures should be implemented to abate and suppress the emissions. The project area air quality is described in section 17.10 of this report.</p>
<p>11.11</p>	<p>GNR. 154 of January 1992: Noise Control Regulations (NCR) (published in terms of section 25 of the Environmental Conservation Act 73 of 1989 (ECA))</p> <p>SANS 10103: 2008</p>	<p>The proposed mine will generate noise from certain noise sources and may impact sensitive receptors i.e. tourists, cross border in Aussenkehr, Namibia. The noise generated at the proposed mine must adhere to the NCR's rating limits for rural districts. The noise level limits must not be exceeded during the phases of the proposed Grasdrift Mine project at sensitive receptors i.e. 45dB (daytime), 35 dB (night time).</p> <p>The ambient noise levels of the project area are discussed in section 17.11 of this report. A full Noise Impact Assessment Study would be conducted as part of the EIA process to determine if the mine activities would exceed these limit value during its phases and describe mitigation measures for adherence.</p> <p>The SANS 10103: 2008 standard has been used to measure and rate the environmental noise at Grasdrift.</p>

<p>11.12</p>	<p>National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA)</p> <p>Section 52 (1) – List of threatened and protected ecosystems (revised 2022 Red List of Ecosystems)</p> <p>Section 56(1) - Threatened or Protected Species Regulations</p> <p>South Africa also uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) IUCN Red List Categories and Criteria in the Red List of South African plants.</p>	<p>According to the revised 2022 Red List of Ecosystems, application area overlaps with a Least Concern Ecosystem falling within the RNP.</p> <p>The project site is situated within the ‘Desert Biome’. Several flora species listed under section 56 (1) may be present on the project site. Fourteen (14) provincially protected flora and two nationally protected tree species; <i>Euclea pseudebenus</i> and <i>Boscia albitrunca</i> may be present onsite.</p> <p>Several Faunal Species of Conservation Concern (SCC) in terms of the Threatened and Protected Species list of 2015 as it relates to NEMBA has potential distribution ranges that the encompass the project site i.e.</p> <ul style="list-style-type: none"> • Reptile – One SCC, Richtersveld Pygmy Gecko endemic to the area may be present. • Mammals – Six SCC (threatened) may be present • Avifauna – Three SCC (threatened) may be present. • Fish – One vulnerable species (Mozambique tilapia) may be present in the river reach <p>The aquatic and terrestrial biodiversity of the project site is described under section 17.8 - 17.9 of this report including the threatened / protected species that may occur.</p> <p>It is worth noting that the gravel terraces to be mined are barren. No mining would take place in the Orange River floodplain (remain above 1:100 year flood line) except for placement of pumps and water pipelines. Protected flora outside of the mining interest areas and infrastructure areas will be marked and left intact as much as possible. Both an Aquatic Biodiversity and Terrestrial Biodiversity Impact Assessment Studies would be conducted for the project to address the NEMBA related aspects. The Northern Cape Dept. Agricultural, Environmental Affairs, Rural Development and Land Reform would be consulted in this regard (former DENC).</p>
<p>11.13</p>	<p>National Forest Act, (Act 84 of 1998)</p> <p>Section 7 (1) - a natural forest</p> <p>Section 15 (1) – Protected tree permits for removal</p> <p>If any indigenous tree in a natural forest or protected trees require removal from a development site a permit needs to be obtained in terms of Section 7(1) and Section 15(1) from the Department of Environment, Forestry and Fisheries (DEFF) prior to such removal.</p>	<p>Two nationally protected tree species, <i>Boscia albitrunca</i> (<i>Shepards Tree</i>) and <i>Euclea pseudebenus</i> (<i>Cape Ebony</i>) are likely to be present onsite. I.e. Orange River floodplain area or close to the floodplain.</p> <p>The Orange River floodplain and riparian fringe would be restricted from mining therefore mining activities would avoid removal of indigenous and protected trees as far as possible. Instances where it cannot be avoided, the relevant permits for removal will be obtained from DFFE: Forestry Management and Regulation in Upington. This department is being consulted as part of the EIA consultation process.</p>

11.14	<p>World Heritage Convention Act 1999 (Act 43 of 1999) (WHCA) The WHCA incorporates World Heritage Convention into SA law and regulates the recognition and establishment of World Heritage Sites and management thereof.</p> <p>The act recognises that cultural heritage and the natural heritage are irreplaceable possessions, not only of the Republic, but of humankind as a whole and acknowledges that the loss, through deterioration, disappearance or damage through inappropriate development of any of these most prized possessions, constitutes an impoverishment of the heritage of all the peoples of the world and, in particular, the people of South Africa.</p>	<p>Richtersveld Cultural Botanical Landscape (UNESCO World Heritage Site) has full legal protection since 2007 and is located further south of the RNP. The site is located in its buffer zone.</p> <p>This act is only applicable if located if a development is located in the core area.</p> <p>Nonetheless, mining near or in WHS requires robust assessment based on ICOMOS Guidance.</p> <p>A Heritage Impact Assessment and Desktop Palaeontological Study would be commissioned as part of the EIA process. The reporting will follow the ICOMS Guideline in order to evaluate the impact of potential project on the Outstanding Universal Value (OUV) of landscape effectively.</p> <p>The SAHRA, McGregor Museum, Northern Cape Heritage Authority and the Northern Cape Dept. of Sports, Arts and Culture (dSAC) will be consulted during the EIA process.</p>									
INTERNATIONAL CRITERIA		Considered for potential mining related impacts on Aussenkehr, Namibia									
11.15	<p>2003 World Health Organisation (WHO) Ambient Air Quality Guidelines. (Namibia does not have NAAQS therefore reference is made to international criteria)</p>	<p>The WHO, 2003 ambient air quality guidelines are referenced with the NAAQS for this EIA process to determine the potential air quality impact from Grasdrift mine on the surrounding environment. The NAAQS closely follows WHO interim targets (IT) for PM₁₀. Refer to Item 11.10 above.</p> <p><i>Ambient air quality standards and guidelines for PM₁₀ (DEA, 2009)</i></p> <table border="1"> <thead> <tr style="background-color: #d9ead3;"> <th>Exposure period</th> <th>Averaging Concentration period (µg/m³)</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>1-year</td> <td>40¹</td> <td>SA NAAQS</td> </tr> <tr> <td>24-hour</td> <td>75²</td> <td>SA NAAQS & WHO</td> </tr> </tbody> </table> <p>1 Tolerance of 0 times per year 2 Tolerance of 4 times per year</p>	Exposure period	Averaging Concentration period (µg/m ³)	Source	1-year	40 ¹	SA NAAQS	24-hour	75 ²	SA NAAQS & WHO
Exposure period	Averaging Concentration period (µg/m ³)	Source									
1-year	40 ¹	SA NAAQS									
24-hour	75 ²	SA NAAQS & WHO									
11.16	<p>International Finance Corporation – 2007 General EHS Guidelines: Environmental Noise.</p>	<p>Refer to item no. 11.11 above. Noise prevention and control will be applied where predicted / measured noise impacts from the project may exceed the applicable noise level guideline at the most sensitive point of reception. The SA NCR are more stringent compared to the IFC noise level guideline i.e. 45dB (daytime) and 35dB (nighttime) viz. 55dB (daytime) and 45dB (nighttime).</p> <p>This guideline would be referenced and monitoring guidelines incorporated where relevant, yet the SA NCR applied since it's more stringent. Refer to section 17.11 of this report</p>									

		where the ambient noise for the project area is described.
11.17	IFC / ERBD Guideline / Standard on Workers' Accommodation	The workers accommodation is expected to be single quarters. Each worker supplied with a separate bed, electricity, water, sanitation facilities. A Medic (first aid) will be available onsite during the operation of the mine. Due to the remote nature of the site, there is also an airstrip in case of medical emergency where any personnel need to be airlifted from site to the nearest medical facility. The workers accommodation to be revamped is located on the Orange River (scenic) and has recreational braai areas. All standard IFC guidelines for workers' accommodation.
PROVINCIAL LEGISLATION		
11.18	Northern Cape Nature Conservation Act, 2009 (Act 9 of 2009) (NCNCA) Schedule 2	With reference to item 11.12 above. Fourteen (14) provincially protected flora may be present onsite listed under Schedule 2 of the NCNCA. A Terrestrial Biodiversity Impact Assessment Study would be undertaken to determine the presence, and the possibility of occurrence for all protected species, and the impact on overall terrestrial ecology. Permits must be obtained from DAEARDLR for any indigenous vegetation which is protected under the NCNCA, or the DFFE for protected tree species under the NFA.
LEGALLY BINDING CONVENTIONS / TREATIES AND PROTOCOLS RELEVANT TO ORANGE RIVER AND TFCA		
11.19	1890 Treaty between Britain and Germany on the International Border between South Africa and Namibia	South Africa maintains the border location as specified in the treaty of 1890, in accordance with the legal principle of uti possidetis ¹² i.e. high-water level of the northern bank/ eastern bank of the Orange River. The mining right application area is restricted to South Africa with the application area's most eastern border located on the left bank of the Orange River at the river high-watermark. The project does not spatially affect Namibia.
11.20	International treaty of Ais Ais Richtersveld Transfrontier Park (ARTP) of 1 August 2013.	The application site falls within the ARTP which encompasses the protected areas of the RNP. Mining remains the largest challenge to the park (i.e. in SA and Namibia) with several areas along the river under Exclusive Prospecting / Mining Licenses. The DFFE Directorate Transfrontier Conservation Area including the TFC structures (incl. Namibia) are being consulted as part of the EIA consultation process.

¹² A principle of international law which provides that newly-formed sovereign states should retain the internal borders that their preceding dependent area had before their independence.

11.21	Convention of Migratory Species (CMS) / Bonn Convention	<p>Avifauna SCC expected to occur within the project area are listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and is therefore applicable.i.e. Great White Pelican.</p> <p>The presence of wetland habitat within the project area contributes to a high likelihood of occurrence for this species. The Orange River floodplain is excluded from mining however an Avifauna Impact Assessment Study would be undertaken as part of the EIA phase to confirm its presence/possibility of occurrence and to determine the potential impact from mining on such species. Both Birdlife Africa and AEWa would be consulted as part of the EIA consultation process.</p>
11.22	Convention of African Eurasian Migratory Water bird (AEWA)	<p>The avifauna SCC expected to occur within the project area is also listed in the AEWa and is therefore applicable.i.e. Great White Pelican.</p> <p>Refer to 11.21 above.</p>
11.23	Orange-Senqu River Commission (ORASECOM) Agreement	<p>The Orange River is a shared water resource between South Africa and Namibia. The proposed mining entail several Section 21 water uses mainly abstraction of water. The main potential impacts to be investigated as part of the EIA process on the river would include:</p> <ul style="list-style-type: none"> • Siltation (TSS) • Water use by the mine and potential impact on the Namibian water users and other downstream water users. <p>Hydrological, Hydrogeological and Aquatic Impact Assessment Studies will be commissioned as part of the EIA Phase to gauge the significance of the potential impacts on the Orange River and its effect on downstream water users. Refer to ‘Environmental Attributes of site’ section 17.6 ‘Surface Water’ where this is addressed in the report.</p>
11.24	SADC Revised Protocol on Shared Watercourse Systems (2000) (came into force in 2003).	<p>The SADC Protocols will be considered i.e. Protect and preserve the river ecosystem, prevent introduction of alien species, protect and preserve aquatic ecosystem including impact on other water users cross border, near and downstream of proposed Grasdrift Mine.</p> <p>Refer to applicability stated under item no. 11.23</p>
PROVINCIAL AND DISTRICT BIODIVERSITY PLANS		
11.25	2016 Northern Cape Critical Biodiversity Areas (CBA)	<p>The project site falls within a protected areas (RNP) by implication a CBA. This is described in section 17.8 ‘Aquatic Biodiversity’ and 17.9 ‘Terrestrial Biodiversity’ of this report.</p> <p>Terrestrial and Aquatic Biodiversity Impact Assessment Studies would be conducted as part of the EIA process during the EIA Phase.</p>

11.26	Namakwa Critical Biodiversity Areas 2016 (Bioregional Sector Plan)	The mining right area according to the Bioregional Plan, fall within a CBA owing to its location within a protected area i.e. RNP. The Orange River is also considered a terrestrial migration corridor. This is described in section 17.8 ‘Biodiversity’ of this report.
MUNICIPAL AND PROVINCIAL PLANNING FRAMEWORKS AND PLANS		
11.27	Richtersveld Integrated Development Plan 2022/2027	<p>The IDP has been consulted in the preparation of this scoping report to describe the socio-economic environment and need for the project. According to the IDP the Namakwa District Municipality has identified key strategic development plans for possible future investment. When fully funded through provincial and national allocations, it will have major catalyst impacts within the region. The IDP targets economic growth from several economic sectors. In the Richtersveld alluvial mining is at the top of its list with the main aim to boost economic development, address unemployment and poverty. It further identifies several IDP projects requiring implementation in the RLM which the local authority cannot implement entirely from its own funds calling on mining groups to assist with funding. Nabas has been identified to assist with food security and farming (Ward 5) over the next five years as part of its SLP commitments.</p> <p>As part of the SLP Nabas Diamonds have therefore identified two important development areas i.e.</p> <ul style="list-style-type: none"> • Education (skills, bursaries) and Food Security to help boost economic development build resilience and address nutritional deficiencies in the communities.
11.28	Richtersveld Spatial Development Framework / Land Use Management Scheme, 2021	This plan refers to environmental management zones under Section 2 of which the application site falls within a protected area wherein the zoning plan set out in the RNP management plan applies.
11.29	Namakwa Specialist Economic Zone (SEZ)	The SEZ is mostly centred around the Aggeneys region with the focus on Vendanta Zinc / Gamsberg Zinc Mine with little spatial relevance to the project except for its transformative effect on the local, regional and national economies.
SPATIAL TOOLS		
11.30	DDFE Environmental Screening Tool https://screening.environment.gov.za/screeningtool/#/app/screen_tool/	DEA Environmental Screening Tool has been consulted and the national-web based environmental screening report has been generated for project site which sets out the applicable environmental sensitivities for the project site and requires specialist inputs to inform the EIA Study. The applicability has been verified and included as a requirement in the Plan of Study for the EIA to be commissioned in the EIA Phase. Refer to section 17 of this report providing a description of the environmental attributes associated with the site and how its compares to the screening tool recommendations including section 25.3 stating the specialist studies to be included as part of the EIA.

11.31	SANBI BGIS Online Mapping System (www.bgis.sanbi.org)	The SANBI BGIS system has been used to assist in determining the baseline environmental conditions of the project site.
11.32	Protected Areas Register (SAPAD 2022)	The protected areas register has been used to confirm the applicable protected areas overlapped by the application site.
ENVIRONMENTAL THEME SPECIFIC PROTOCOLS REQUIRED FOR SPECIALIST STUDIES AS PER THE DFFE SCREENING TOOL		
11.33	GNR. 320 of 20 March 2020, Procedures for the Assessment of Minimum Criteria for Reporting on Identified Environmental Themes GNR 1150 of 30 October 2020 - Protocol for the Specialist assessment and minimum report content requirements for environmental impacts on terrestrial and animal plant species SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports ICOMOS Guidance tool for preparation of Heritage and Paleontological Impact Assessment Studies	

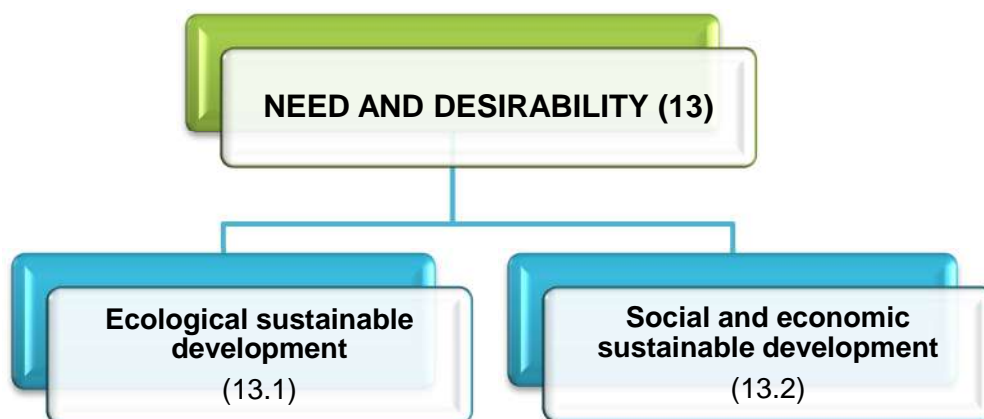
12. PERIOD FOR WHICH ENVIRONMENTAL AUTHORISATION IS REQUIRED

It is envisaged that the expansion of the existing and construction of additional site infrastructure for the proposed Grasdrift Diamond Mine project will take approximately 1-2 years. The mine will operate for 30-years. Final rehabilitation and post closure will respectively require an additional 2 years to complete. The environmental authorisation is therefore required for a period of 36 years.

13. NEED AND DESIRABILITY OF PROJECT

The concept of “need and desirability” relates to, amongst others, the nature, scale and location of development being proposed, as well as the wise use of land. The “need” primarily refers to time and “desirability” to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?).

Need and desirability is based on the principle of sustainable development. Defining it is a way of ensuring that the triple bottom line is achieved i.e. ecologically, socially and economically sustainable development. The DMRE, when considering the application, as a minimum, must have regard to the need for and desirability of the activity.



The Department of Environmental Affairs released a guidance document in 2017 (DEA, 2017) that deals with the Need and Desirability in terms of the EIA regulations. This document presents certain questions to engage with to determine the need and desirability of a proposed project – see **Table 8** and **Table 9** for the Need and Desirability of the project from an ecological and social perspective.

- Section 13.1 Table 8 - ‘securing ecological sustainable development and use of natural resources’
- Section 13.2 Table 9 - ‘promoting justifiable economic and social development’

Given the proposed Grasdrift Mine would have a restricted lifespan of 30 years and the likely success of rehabilitation, the mining operation is considered temporary. The proposed post mining land use would be the permanent land use (refer to section 9.13) i.e.

- Wilderness to be incorporated into the tourist use zone, but Grasdrift is not popular with visitors and needs to present some attraction; alternatively,
- Wilderness with a rest camp wherein the mining buildings are converted to tourist facilities, accommodation and used as a river rafter’s stopover.

13.1 Securing ecological sustainable development and use of natural resources

Table 8: Securing ecological sustainability - Need and Desirability consideration for the proposed Grasdrift Mine project

CONCERNS		RESPONSES
How will this development impact on the ecological integrity of the area?		
1.1 How were the ecological integrity considerations taken into account?		
1.1.1	Threatened Ecosystems	<p>The project site is located in the RNP on the bank of the Orange River in the eastern section of the Park. This area is 'less sensitive' comprising desert gravel pavement denuded of vegetation. It falls in an ecosystem of 'Least Concern'. The floodplain of the Orange River is however considered a critically endangered wetland.</p> <p>Given the formal protection status of the land and presence of the floodplain wetland, stringent environmental management measures will be implemented. Mining will be restricted above the river bank, riparian fringe and 1: 100 year flood line.</p>
1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	The Orange River is classified as least threatened and the floodplain wetland as critically endangered. The river and riparian zones will be excluded from mining and a buffer would be applied thereto. Refer to response provided under item 1.1.1 above.
1.1.3	CBA's and ESA's	The site falls within the RNP proclaimed to meet conservation targets for the Succulent Karoo Ecosystem and conserve endemic succulents and aloes. The site is however located in the eastern section of the Park comprising a desert environment (gravel pavement) therefore 'less sensitive'.
1.1.4	Conservation targets	
1.1.5	Ecological drivers of the ecosystem	<p>The main ecological driver is the Orange River. It also provides ecosystem services to Aussenkehr including RNP. Mining will take place next to the river but will be restricted above its 1-100 year flood line, bank and riparian fringe.</p> <p>Other drivers considered include Climate and landscape features i.e.</p> <ul style="list-style-type: none"> • Atlantic Ocean 100km west carrying dense fog far inland creating damp conditions to supply flora with necessary moisture. Winds are cold from the west (i.e. Atlantic oceans) and hot summer 'berg' winds from the east. Rainfall trends for Violdrift show virtually no rainfall with thunderstorms in the summer months with change of some winter rainfall from the coast (very low if any). • Rugged mountainous desert
1.1.6	Environmental Management Framework	It's located in the formally protected RNP in terms of NEMPAA.
1.1.7	Spatial Development Framework	The site falls within a protected area where the protected area zoning plan applies according to the Richtersveld SDF/LUMS, 2021. The RNP zoning plan zones Grasdrift as a 'mining rehabilitation area' set for eventual rehabilitation for incorporation into the tourism use zone.

CONCERNS		RESPONSES
1.1.8	Global and international responsibly relating to the environment (i.e. Ramsar, climate change)	The site falls with the RNP and forms part of the ARTP straddling both South Africa and Namibia (Treaty of 1 August 2013). The Orange River is a shared water source between South Africa and Namibia (i.e. ORASECOM agreement, SADC Protocols for Shared Watercourse Systems). The river and its riparian zone will be excluded from mining with strict environmental management to protect the ecosystem. The post mining land use is to rehabilitate the area back to wilderness for incorporation into the 'tourist zone'.
1.2	How will the development disturb or enhance ecosystems and /result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The Orange River floodplain, bank and riparian fringe will be restricted from mining (aquatic biodiversity) any potential risk for sedimentation will be controlled. Mining will focus on the barren gravel terraces where biodiversity is low (terrestrial biodiversity). Mitigation measures to control/avoid/prevent/remedy any identified biodiversity impacts are detailed in Table 29. Specialist biodiversity studies will be conducted to inform this question in the EIA phase.
1.3	How would this development pollute and or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The risk for groundwater and surface water pollution is low throughout the phases of the project i.e. fuel/oil pollution and mining will be focused on barren gravel terraces where biodiversity is low. Mitigation measures to control/avoid/prevent/remedy identified impacts are detailed in Table 29. The Orange River floodplain, bank and riparian fringe will be restricted from mining. Loss of biodiversity is not anticipated but will be assessed further through specialist investigations.
1.4	What waste will be generated by this development?	Domestic and small quantities of hazardous waste will be generated. Domestic waste will be collected in temporary waste storage areas and removed off site by mine bakkie/small truck every 14 days to the nearest registered landfill site i.e. Port Nolloth or alternatively feed into Sendelingsdrift waste pickup system. Hazardous waste (hydrocarbons, old oil) would be collected in a designated bunded area removed by mine vehicles to Springbok. Further investigation into hazardous waste disposal sites closer to the site will be investigated.
1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	Graves have been recorded in the river floodplain and Nomadic stock farmers graze along the floodplain. There is an important fossil site next to the site close to the section 3 gravel processing plant. The Nama and San have important living heritage associated with the Richtersveld. The floodplain would be excluded from mining as a 'heritage no-go zone'. The fossil site falls outside of the mineral interest area. The section 3 gravel processing plant will be located east next to this area.

CONCERNS		RESPONSES
		A preliminary heritage site inspection and Scoping Report has been generated (Appendix 14). The initial recommendations have included in section 17.4, 17.17.2 and 28.2 of this report. It will be subject to a full Phase 1 Heritage Impact Assessment and Desktop Palaeontological Study.
1.6	How will this development use and/or impact on non-renewable natural resources?	Minerals are non-renewable resources (NRR) i.e. diamonds. The application is to mine diamonds over 30 years. The Grasdrift mineral resource is expected to be mined out by 30 years and will be backfilled and rehabilitated for the final post mining land use i.e. ‘wilderness’. The Richtersveld community will own 20% stake in the mine through ‘Nabas Trust’. The mine will stimulate local entrepreneurship, improve the livelihoods of local community by sourcing 90% of the staff component (where possible) locally, purchase of goods and services locally. The opportunity cost from the natural resource is therefore shared between Nabas Diamonds and the Richtersveld community.
1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	The main natural renewable resource to be used at the mine is water from the Orange River for mineral processing and domestic use. The water requirement is 0.96 – 1.2 Mm ³ /annum not comprising more than 0.013% of the total flow during a significant dry year in the Orange River, therefore an insignificant impact. The porrel at the pan plants will be continuously reused to minimize the amount of slurry produced. Other water users in the vicinity of Grasdrift will be assessed during the EIA phase specialist Hydrological Assessment Study to determine the potential impact on water availability from a holistic perspective.
1.7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency?	The mine requires water, fuel and a 150 staff to operate. Therefore dependency on resources is not reduced except for electricity. The mine will use diesel generators for power supply and not connect to the South African ailing electricity grid due to a lack of infrastructure in the area. Temporary waste storage areas will be established for domestic and mine waste and will be taken up in the municipal landfill pick up system i.e. Port Nolloth / Sendelingsdrift and Springbok. But the volume of waste is anticipated to be low-moderate.
1.7.2	Does the proposed use of natural resources constitute the best use thereof?	Currently the land (natural resource) is formally protected as the RNP where income is derived from tourism revenue and recreational activities (i.e. fishing, river rafting). Mining a conflicting land use in a protected area. The application is to use 2 692 ha of the RNP to derive income from mining diamonds. The mine will have a 30-year life of mine (temporary) where after it will be rehabilitated and returned to ‘wilderness’ for incorporation into the tourism zone.
1.7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	No. To bring the mine into full production more fuel, water and staff is required.
1.8	How was a precautionary approach applied in terms of ecological impacts?	Full specialist Aquatic and Terrestrial Biodiversity Impact Studies will be commissioned as part of the EIA phase.
1.9	How will the ecological impacts resulting from this development impact on people’s environmental right in terms of the following:	
1.9.1	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance	Currently the only ‘people’ receptive to such impacts are the surrounding land uses on the Namibian bank of the Orange River and tourists travelling along

CONCERNS		RESPONSES
	(noise, odour, etc.), health impacts, visual impacts, etc.	access routes in the RNP i.e. Helskloof Pass. These have been addressed in section 17.6 (17.6.3 - 17.6.5), 17.10, 17.11, 17.12 and 17.13 of this report.
1.9.2.	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	
1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development’s ecological impacts will result in socioeconomic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to section 17.14 and 17.15 including section 28 of this report where these aspects are addressed.
1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	The target for the area is conservation being located in the RNP. The site is an isolated desert area comprising gravel terraces (i.e. low, perched) and desert gravel pavements (pebble deflation surfaces). The mining disturbances can however be rehabilitated successfully and the area returned to wilderness as the post mining land use for incorporation in the ‘tourist zone’ of the Park.
1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the “best practicable environmental option” in terms of ecological considerations?	The best practicable option to secure ecological integrity in the initial site layout plan is to restrict mining above the Orange River 1-100 year flood line, bank and riparian fringe. There may be a need for a setback/buffer zone. The Orange River is the main ecological driver in the region supplying water to Namibia and South Africa and providing ecosystem services to the communities residing alongside it all the way down to Oranjemund. All aspects of the environmental will be subject to specialist inputs in the EIA phase. The question would therefore be best answered once the studies are completed in the EIR document.
1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	<p>The project site is located in the RNP and the effect of the project must be considered in the spatial extent of the RNP. The Orange River is the main ecological driver in the Richtersveld. According to the Park management plan the cumulative abstraction of water for mine use is a threat including the threat to integrity of the alluvial vegetation. However the project water demand and use will comprise no more than 0.013% of the total flow during a significant dry year in the Orange River, therefore an insignificant impact, but the cumulative water use (other water uses) along the reach will be assessed as part of the EIA phase.</p> <p>The Park aims to ‘ensure the persistence of uniquely arid adapted biodiversity by maintaining, conserving and restoring ecological processes and reducing human impacts on the landscape an geology associated with the Karoo and Desert biome of the Park’. A Terrestrial – and Aquatic Biodiversity Impact Assessment Study will be undertaken to determine the potential negative cumulative ecological impacts in relation to the location of the project in the Park. There would be degradation of desert habitat and the risk for alien invasive species establishment however can be managed according to strict specifications in terms of an Environmental Management Programme.</p>

13.2 Promoting justifiable economic and social development

Table 9: Promoting justifiable economic and social development’ - Need and Desirability consideration for the proposed Grasdrift Mine project

	CONCERNS	RESPONSES
2.1	What is the socio-economic context of the area based on, amongst other considerations, the following considerations?	
2.1.1.	The IDP and any other strategic plans, frameworks of policies applicable to the area	The Richtersveld IDP 2022/2027 targets economic growth from several economic sectors. In the Richtersveld alluvial mining is at the top of its list with the main aim to boost economic development, address unemployment and poverty. Grasdrift will employ 150 staff and purchase goods and services from the local community which will help address unemployment and alleviate poverty.
2.1.2	Spatial priorities and desired spatial patterns,	Not applicable. The site is located in a protected area with approved management and zonation plan. The project site falls within a current diamond mining area with restricted public access to be rehabilitated for inclusion in the Park tourist zone as per the RNP management plan 2018 – 2028.
2.1.3	Spatial characteristics, and	The project site is located with the RNP which is a protected area. Mining is a conflicting land use in protected areas. According to the RNP Management Plan the current diamond mining areas (incl. Grasdrift) are set for future rehabilitation to ‘wilderness’ to be incorporated back into the Park ‘tourist use zone’. It mining use is therefore temporary will be rehabilitated for future incorporation into the tourist use zone.
2.1.4	Municipal Economic Development Strategy (“LED Strategy”).	According to the Richtersveld IDP, their area LED projects requiring implementation in the RLM which the local authority cannot implement entirely from its own funds calling on mining groups to assist with funding. Nabas has been identified to assist with food security and farming (Ward 5) over the next five years as part of its SLP commitments.
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area?	This is addressed in section 17.15, 17.5.4, 20, and 21 including section 28.1.
2.2.1	Will the development compliment the local socio-economic initiatives, or skills development programs?	Nabas Diamonds intends to adhere to corporate responsibility principles, which include fulfilling responsibilities to the communities surrounding the mine and from their labour sending areas. This will be done through the Local Economic Development (LED) programs, which are a requirement of the Grasdrift Mine SLP. After careful analyses of the social and economic challenges in our four (4) target communities and taking into consideration the objectives of the Integrated Development Plan 2022/2027 of the Richtersveld Municipality, Nabas Diamonds identified two

		<p>important development areas. These development areas are Education and Food Security. These areas would boost not only economic development but also build resilience and address nutritional deficiencies in the communities. The SLP also outlines the proposed recruitment, skills development program, adult basic education and training including an internships and bursaries.</p> <p>Nabas Diamonds will formulate and implement a Skills Development Plan which will focus on the transfer of skills to employees, to further their capacity in the mining industry, and equip them with alternative skills for after mine closure.</p>
2.3	<p>How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p>	<p>The unemployment rate in the local community is high. There is also a need to road maintenance, further education including upgrading of amenities. Nabas currently sources 90% of its staff, supplies and goods from the Richtersveld communities and will maintain this as far as possible throughout the mining right as specified in its SLP. Nabas Diamonds intends to use contractors for its operation and the contractors appointed will be responsible for the employment, but it is projected that approximately 150 employees will be employed. The community will also own 20% stake in the mine through Nabas Trust which funds they can spend towards their specific needs outside the SLP commitments to be undertaken by Nabas.</p> <p>The draft SLP has also been discussed at the community meetings undertaken during November 2022. The SLP its initiatives and proposed LED projects are based on the community needs and will be finalised in consultation with the community.</p>
2.4	<p>Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?</p>	<p>Grasdrift will be medium scale operation with two contractors and a staff compliment of 150. The life of mine will be 30 years. It is possible that two generations will benefit from the social and economic benefits of the project. The mine, if available, will employ skilled workers (more senior) from the community and will educate and train the youth. Unskilled employees will be recruited from local communities. They will be registered for suitable Learnership programs for relevant qualifications in the mine. The recruitment will focus on women and the youth. The Learnership Programs will be structured in such a manner that the local youth will appreciate the value of mining as well as the challenges in mining.</p>
2.5	<p>In terms of location, describe how the placement of the proposed development will:</p>	
2.5.1	<p>Result in the creation of residential and employment opportunities in close proximity to or integrated with each other,</p>	<p>Not applicable. The site is located in a National Park. The staff will be sourced from the local Richtersveld community already established in the area with staff accommodated on site during shifts and transported off site to their homes every 14 days.</p>
2.5.2	<p>reduce the need for transport of people and goods,</p>	<p>The project is located in a remote area with no transport infrastructure except for existing access routes through the Park. People, goods and supplies will need to be transported to site on a regular basis over Helskloof Pass or Akkedis Pass. The need for transport is only reduced through the proposed frequency of travel which is every 14 days staff is moved off site instead of commuting on a daily basis.</p>

2.5.3	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	Not applicable.
2.5.4	compliment other uses in the area,	Mining is a conflicting land use in a protected area. However Grasdrift is already a publicly restricted area for tourists, is not particularly popular with tourists. With successful rehabilitation of the mining area it can be incorporated in future, as per the RNP management, be incorporated into the tourist use zone. The movement of mine traffic through the Park would however need to be strictly regulated to avoid a negative impact on tourist experience. Currently the surrounding land owners on the Namibian bank of the Orange River engage in table grape farming including two resorts. The mine will affect the sense of place of the two resorts and tourists experience due to annoyance impacts i.e. visual, lights, noise and dust. Silverlands Namibia states that dust caused by the mine poses a significant threat to the company's ability to produce an export quality product. Aussenkehr grape farms and tourism facilities employ a higher number of people than proposed by the mine. Mitigation measures as prescribed for noise and dust if effective should not pose a socio-economic impact to the resorts. The views of resorts may still be affected on a temporary basis, but the level and duration of impacts should be significantly reduced if mitigated. The aim would therefore be to have a wet gravel extraction and processing method with gravel plants and floodlights requirements located far from Orange River. Aussenkehr informal settlement is also across from the mine site that is reliant on the Orange Rivers ecosystem services i.e. fishing, bathing, recreational. No mining is proposed in the Orange River and would be restricted above the 1:100 year flood line, riparian fringe and riverbank. It is therefore not anticipated that the community's benefit from the river ecosystem services would cease. The impact on the aquatic ecosystem will be investigated through a Wetland Impact Assessment Study to be undertaken during the EIA phase to gauge these impacts. If the mine operation is strictly operated and monitored according to the Environmental Management Programme impacts should be low.
2.5.5	be in line with the planning for the area,	
2.5.6	for urban related development, make use of under-utilised land available with the urban edge,	Not applicable.
2.5.7	optimise the use of existing resources and infrastructure,	The current mine plan does optimize the existing infrastructure established during the prospecting operations. Much of the infrastructure will be reused during the mining operation therefore was not rehabilitated during the prospecting phase.
2.5.8	opportunity costs in terms of bulk infrastructure	Not applicable.

	expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement)	
2.5.9	discourage "urban sprawl" and contribute to compaction/densification,	Not applicable.
2.5.10	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	Not applicable.
2.5.11	encourage environmentally sustainable land development practices and processes,	<p>Agriculture and conservation are considered more sustainable land use practices and processes than mining; however agriculture is a no-go option in the National Park. Grasdrift is not popular with tourists except for the occasional river rafter, but decides to stop over at Aussenkehr where resorts are available.</p> <p>By implementing concurrent rehabilitation, the impact of mining will be minimized (i.e. direct backfilling of mined out areas) including final overall rehabilitation. The advice in section 9.12 of this report it that in each mining section, the contractor must focus on first mining out one terrace area (i.e. A or B/ C/ J) and completely backfilling it before moving to the next terrace. In this manner the extent of disturbances is limited.</p>
2.5.12	Take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	Grasdrift Mine is the location for the strategic mineral resource to be mined but does not need access to rail or any port. There is no product to be hauled.
2.5.13	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	<p>Grasdrift has a high economic return potential for diamond mining given the confirmed mineral resource and the Richtersveld community will own 20% share in the mine. The pastoral grazing and conservation (tourism) also provide revenue to the Richtersveld community however would be far less than the return from mining.</p> <p>The pastoral grazing will be maintained along the Orange River floodplain during the mining operations. Once the mining right area is rehabilitated it can be returned to wilderness and incorporated in the tourist use zone.</p>
2.5.14	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	This has been addressed in sections 17.14 and 17.15 of this report. A Phase 1 Heritage Impact Assessment Study and Socio-Economic Impact Assessment Study will be undertaken during the EIA phase to determine the impact.
2.5.15	In terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	This is not applicable. The mine site is in a remote area in the far eastern corner of the RNP. Labour will be sourced from the Richtersveld community already residing in the project area.
2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	

2.6.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	<p>The current knowledge is based on a screening and site verification exercise including inputs from stakeholders received during 5 November to 5 December 2022. In-depth field investigations and further engagements still need to be undertaken to produce a full Socio-Economic Impact Assessment Study during the EIA phase which confirms the socio-economic impacts.</p> <p>It is not anticipated that mining at Grasdrift will result in financial losses to the RNP.</p>
2.6.2	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	<p>Enough information was gathered during the initial stakeholders inputs on what the perceived impact of mining could be on the RNP and surrounding land uses on the Namibian bank of the Orange River from annoyance impacts i.e. sense of place impacts, noise, dust, light, traffic. Initial specialist input was gathered wherein it is anticipated that the impact would be low-moderate. These initial inputs will however be confirmed through in-depth specialist studies during the EIA phase wherein the noise propagation and dust fallout is modeled to determine the zone of influence and if these receptors would in fact be affected and to what extent. It is however considered based on the proposed mitigation measures that the impact can be contained to site and have a low impact on surrounding land uses wherein no ‘socio-economic impact may be felt by such land uses’.</p>
2.6.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	<p>The current cautious approach applied included moving the section 2 and 3 processing plants as far as technically possible from the Orange River. Secondly to commission full specialist studies for visual, noise and air quality aspects which may cause annoyance to surrounding lands uses? These specialist inputs will be used to inform the EIR.</p>
<p>2.7 How will the socio-economic impacts resulting from this development impact on people’s environmental right in terms following:</p>		
2.7.1	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimize, manage and remedy negative impacts?	<p>This is addressed in section 17.16 of this report and will be subject to a full Community Health Impact Assessment Study during the EIA phase.</p>
2.7.2	Positive impacts. What measures were taken to enhance positive impacts?	<p>The proposed Grasdrift Project per se is unlikely to have a major impact related to communicable diseases if these are mitigated effectively. This can, be mitigated by Health Systems Strengthening (HSS) to improve TB case detection and case management in local dispensaries; developing and maintain site-based TB policies and programs; as well as outbreak preparedness and response plans.</p> <p>Access to jobs, income, goods and services can enhance mental health and well-being and reduce stress among the community. Having a sense of control over one’s life is crucial for mental well-being, so mining projects can improve mental health by reducing poverty, increasing self-esteem and empowering local communities.</p> <p>The Aussenkehr is located across from the mine site. In the event that community members are exposed to dust fallout it will result in increased incidences of mild/ sinusitis, asthma / or bronchitis sometimes even pink eye. However the dust fallout is anticipated to be low with</p>

		the suggested mitigation measures and the likelihood of these health issues to materialize is low.
2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development’s socio-economic impacts will result in ecological impacts (e.g. over utilization of natural resources, etc.)?	<p>An over utilization of natural resources is not anticipated. The mine will use a maximum total water demand of 1.2 Mm³/annum from the Orange River, not comprising more than 0.013% of the total flow during a significant dry year (10th percentile). Other water users in the vicinity of Grasdrift will be assessed during the EIA phase specialist Hydrological Assessment Study to determine the potential impact on water availability from a holistic perspective.</p> <p>The mined out areas will be rehabilitated. The mine will be located in the far eastern section of the RNP and should not anticipate resulting in loss of tourists. The mine traffic along Helskloof Pass will however need to be strictly regulated as not to detract from the visitor’s experience of the Park. The impact on water availability from the Orange River will be negligible and the mined out areas will be rehabilitated (direct backfilling of mined out areas).</p> <p>The impact on surrounding land uses on the Namibian bank of the Orange River has been discussed in item 2.5.4 and 2.5.5 of this table.</p>
2.9	What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?	<p>Mineral processing plants for the mine have been moved as far as technically possible from the Orange River (>2km) for annoyance impacts. Mining should be restricted above the 1-100 year flood line of the Orange River and its riparian fringe and bank should be protected since it has recreation value and can act as a should be restricted from mining to</p>
2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?	<p>The 2018 Mining Charter proposes that communities should be allocated certain shares in mines. The percentage of shares granted is totally dependent on the board of directors. Nabas' intention is to award 20% share of Nabas Diamonds to Nabas Trust (Richtersveld Community Trust) as soon as the mining right is issued and the mine is in production.</p> <p>The main/core environmental management option is to protect the Orange River ecosystem and to restrict mining above its flood line and riparian fringe. The river bank must also be protected. By protecting the Orange River and floodplain the grazing patterns of the Nama herders remain accessible during the mining operation.</p>
2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	<p>The Orange River is the main ecological driver and resource in the Richtersveld. The Nama herders will have continued access to graze along the Orange River floodplain. As per item 2.10 above the Richtersveld community will own a 20% stake in the mine in lieu of rental since the gravel resource falls on their land.</p> <p>Aussenkehr informal settlement is also across from the mine site that is reliant on the Orange Rivers ecosystem services i.e. fishing, bathing, recreational. No mining is proposed in the Orange River and would be restricted above the 1:100 year flood line, riparian fringe and riverbank. It is therefore not anticipated that the community’s benefit from the river</p>

		ecosystem services would cease. The impact on the aquatic ecosystem will be investigated through a Wetland Impact Assessment Study to be undertaken during the EIA phase to gauge these impacts.
2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	A Community Health Impact Assessment Study will be commissioned as part of the EIA phase. The initial inputs are addressed under section 17.16 of this report.
2.13	What measures were taken to:	
2.13.1	ensure the participation of all interested and affected parties,	<p>Please refer to section 16 of this report for the 'Public Participation Process followed' and the Plan of Study under section 25 (subsection 25.7) detailing the public participation plan for the EIA phase of the project.</p> <p>The Richtersveld community is notified through Newspaper advertisements in the Gemsbok News and Plattelander, placement of site notices in the four local towns including Port Nolloth and Alexander bay. For the Scoping Report notices will also be placed in Aussenkehr. Notifications are also sent the Richtersveld CPA including municipal satellite offices.</p>
2.13.2	provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, ensure participation by vulnerable and disadvantaged persons,	
2.13.3.	promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	
2.13.4	ensure openness and transparency, and access to information in terms of the process,	
2.13.5	ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and	
2.13.6	Ensure that the vital role of women and youth in environmental management and development were recognized and their full participation therein was promoted?	
2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	This is not applicable to the project.
2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	The Mine Health and Safety Act 29 of 1996 provides for protection of the health and safety of employees and other persons at mines and is overseen by the DMRE.
2.16	Describe how the development will impact on job	

	<p>creation in terms of, amongst other aspects: 2.16.1. the number of temporary versus permanent jobs that will be created, 2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area), 2.16.3. the distance from where laborers will have to travel, 2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and 2.16.5. The opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).</p>	<p>2.16.1 The mine will have two contractors who will employ a staff component of 150. The total permanent jobs are expected to be 103 of which the rest may be temporary.</p> <p>2.16.2 According to the project SLP, Nabas intends to conduct a skills audit in the surrounding communities to determine which skills are available and which community members can be employed by the mine, 1 month before the mine goes into production.</p> <p>2.16.3 The labour from the local communities will not commute to site on a daily basis but will stay in labour accommodation onsite during their shifts. The mine will transport staff on and off site every 14 days.</p> <p>2.16.4 The job opportunities are created in the Richtersveld however the annoyance impacts may potentially affect receptors on the Namibian bank of the Orange River. With the implementation of mitigation measures the impacts are anticipated to be low.</p> <p>2.16.5 The proposed operation of Grasdrift Mine is not anticipated to result in job losses in other sectors (SanParks, agriculture). The proposed mine will create 150 job opportunities. According to agricultural land uses on the Namibian bank of the Orange River, they employ over 15 000 (might be more) permanent and seasonal workers. If the mine has an impact on their socio economic environment (table grape farming through dust deposition) the 150 mine jobs created will impact on 15 000 agricultural jobs. However if all mitigation measures for air quality, noise and visual including rehabilitation are implemented the risk to impact on the socio-economic conditions of the table grape farming across the river is low. However the concern is being investigated further through specialist investigations i.e. visual, noise, air quality, socio-economic which will inform the outcome and rating of this impact during the EIA phase.</p>
<p>2.17</p>	<p>What measures were taken to ensure: 2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and 2.17.2. That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p>	<p>2.17.1 South African legislation, guidelines, polices and regulations (limits) are applicable for the project. Where annoyance impact may affect receptors in Namibia, and there are no Namibian legislation to regulate such, international best practice guidelines were sought and compared to SA legislation to come up with a set limit value. Refer to section 11, table 7 of this report.</p> <p>2.17.2 The public participation process is detailed under section 16 of this report and explains how organs of state, commenting authorities and Namibian authorities are being included in the consultation process and given an opportunity to comment.</p>
<p>2.18</p>	<p>What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest and that the</p>	<p>NEMA is designated within the framework of the Constitution (Section 24 – right to have a protected environment for the benefit of present and future generations). A full EIA process is being followed in terms of the NEMA EIA Regulations of 2014 (as amended in 2017) to determine the potential impact from the project on the social and environmental aspects of</p>

	<p>environment will be protected as the people’s common heritage?</p>	<p>the project site/area. The EIA process will deliver an approved EMPr to reduce the potential environmental impact of the project. The entire objective of the process is to ensure that the environment is protected. A transparent public consultation process is followed to ensure that the public can contribute to the formation of the EIA Study plan of study and impacts to be considered and assessed as part of the process.</p> <p>The potential impact from the project is anticipated to the low. Majority of the screened impacts can be managed to acceptable levels (low, very low).</p>
<p>2.19</p>	<p>Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?</p>	<p>The mitigation measure proposed are tried and tested and have been proposed through initial specialist inputs, conform to SABS standards and guidelines set through national legislation and international good practice i.e.</p> <ul style="list-style-type: none"> ▪ Dust abatement at plants, placement of gravel plants as par as technically possible from the Orange River ▪ Silt management through slimes dams ▪ To prevent or manage hydrocarbon spillages such handling and storage must be bunded as per SABS standards etc. ▪ Direct backfill of mined out areas and covering with coarse material <p>The typical legacy/burden from diamond mining in the Richtersveld is unrehabilitated sites. It is therefore critical that the applicant internally monitor rehabilitation and appoint independent parties to monitor and audit rehabilitation progress at Grasdrift of which the results need to be submitted to the DMRE.</p> <p>Once the LoM for Grasdrift is reached the closure certificate can only be granted if the required documents, including a closure plan and an environmental risk report, are furnished and the environment has been satisfactorily rehabilitated according to the DMRE.</p>
<p>2.20</p>	<p>What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?</p>	<p>The EIA process will deliver a comprehensive EMPr that will recommend the mitigation and monitoring measures to be implemented through the project phases to control/remedy/avoid or prevent the identified impacts and address any potential emergency incidences.</p> <p>Each mine is responsible for rehabilitating their mined areas and addressing their environmental consequences according to the approved EMPR and Rehabilitation and Closure Plan that complies with the relevant legislation. The law requires three rehabilitation plans viz.</p> <ul style="list-style-type: none"> ▪ ‘Annual Rehabilitation Plan’ – includes regular activities to be carried out during the operation period of the mine; ▪ ‘Final Rehabilitation Plan’ – includes the final rehabilitation and ‘post mining land use’ after the mine’s closure. ▪ ‘Post-closure Plan’

		<p>A financial provision for the rehabilitation is to be included in the plans which must be paid to the DMRE in terms of the NEMA: Regulations relating to Financial Provision for Prospecting, Exploration, Mining or Production Operations GNR No. 1147. The mine is then required to submit the Annual Performance Plan to DMRE which measures and audits the rehabilitation progress. The rehabilitation plans and financial assessment will be included as part of the Grasdrift Mine project's EIA documentation specifically in the EIR and EMPR documents.</p>
<p>2.21</p>	<p>Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?</p>	<p>Refer to section 15 of this report. Alternatives being considered include:</p> <ul style="list-style-type: none"> ▪ Layout alternatives to be guided by the specialist study outcomes ▪ Operational aspects alternatives related to the movement of HME's to site either across the Orange River through the Park over Helskloof Pass. ▪ No-go option <p>The layout for the mine has already been set to place gravel plants as far as technically possible from the Orange River to reduce any annoyance impacts on surrounding land uses on the Namibian bank of the Orange River. The impact over Helskloof Pass from moving HMEs will be further assessed in the EIA phase in terms of the impact on ecology and visitors experience.</p> <p>Based on the limited previous rehabilitation that was done at Grasdrift (refer to section 9.12, Figure 9-19), rehabilitation can be done successfully but must take cognizance of the surrounding surface material and ensure that sufficient coarse material is retained for surface finishing. If the rehabilitation is strictly implemented according to the EMPR and Rehabilitation and Closure Plan the impacts should be low.</p>
<p>2.22</p>	<p>Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?</p>	<p>Refer to section 17.15, 20 and 28.1 of this report. The only cumulative socio-economic impact that would need to be considered as part of the project EIA is that of the current and proposed alluvial diamond mining within the borders of the RNP and how it affects the tourist's sense of place and visitors experience. The alluvial diamond mining has however not seemed to result in a loss of income/revenue to the Park given the legacy of co-existence of alluvial diamond mining and conservation in this area. Grasdrift is also located in a remote section of the Park not popular with tourists. This will be assessed as part of the specialist Socio-Economic Impact Assessment Study during the EIA phase.</p>

14. DESCRIBE THE PROCESS FOLLOWED TO REACH PREFERRED SITE

The process followed to reach the preferred site plan/layout has not been concluded and would continue through the course of the EIA process. The site plan will still be reviewed and updated based on specialist field investigations and recommendations. The final surveyed mining plan will be presented in the EIR and EMPr report and will be subject to another consultative process.

The site has existing established infrastructure and requires additional mine infrastructure to ramp up to full production. The process followed to date to reach the preliminary site plan includes:

- Mining Works Programme :
 - Divide mine in three sections;
 - Establish plant in each mine section, use of existing infrastructure already established during the prospecting operation to be used and expanded for the proposed mine.
- In November 2022, the EAP reviewed the draft mine plan, conducted a desktop review of environmental features, current and surrounding land uses;
- Issues raised by I&APs during the public registration period from 5 November to 5 December 2022.
- Site inspection conducted by the EAP and Specialists on 18-19 November 2022 to Grasdrift to confirm:
 - The environmental and any heritage features present,
 - Current land uses and prospecting activities and infrastructure onsite
 - Confirm the type of surrounding land uses, distance and setting of such land uses in the landscape;
- Initial specialist baseline inputs based on the November 2022 site inspection and desktop investigations.

Based on the above process followed, the site plan locates the additionally required site infrastructure as follows:

I&AP issues:

- Gravel processing plants have been placed as far as technically possible from the Orange River to attenuate noise, dust and the visual impact on sensitive receptors on the Namibian bank of the Orange River i.e. grape farming, tourist facilities (I&AP issues).

Environmental features:

- Mining is restricted above the 1: 100 year flood line / river floodplain to minimise the potential impact on the Orange River (siltation) and riparian habitat;
- Protect the Orange River floodplain given its high heritage and cultural significance i.e. Nama livestock farmers graze the river floodplain and due to recorded graves.
- Locating slimes dams and stockpiles away from runoff channels to manage potential silt discharge/load to the river.¹³

¹³ The old dry slimes dam was the initial slimes dam for prospecting activities. However such infrastructure in a drainage line is not allowed. The applicant was advised accordingly and the use thereof was discontinued. A new slimes dam was established close to Seciton 1 plant.

15. ALTERNATIVES CONSIDERED

I.e. 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:

15.1 Property on which or location where it is proposed to undertake the activity

The locality of the proposed mining right area is dictated by the available diamondiferous gravel deposit. No locality alternatives have/would be considered i.e.

- Grasdrift is located in the RNP and is the first gravel splay downstream of Augrabies and has a vast volume of diamond gravel in the form of both Proto and Meso terraces. On the Lower Orange River, downstream from Grasdrift, diamond size declines. Grasdrift has large average stone sizes, nearly double that of all the other operations downstream (i.e. past and present). The large size and gem quality of the diamonds are unparalleled. As mentioned, all the other gravel terraces downstream from Grasdrift are already being mined.
- The mineral resource has already been delineated and quantified at Grasdrift through an extensive prospecting program (i.e. drilling and bulk sampling) from 1998 and 2018-2019 proving it's feasible to mine over a 30-year life of mine.
- Nabas is only able to prospect and apply for a mining right over Grasdrift because it's in possession of the prospecting right (old order) since 1998 over the property, before NEMPAA came into force in 2004. The application area for the mining right is also restricted to the same area as the prospecting right since the area may not be increased under the provisions of NEMPAA.

15.2 Type of activity to be undertaken;

E.g. Incineration of waste rather than disposal at a landfill site/ Provision of public transport rather than increasing the capacity of roads

No alternative activity is considered. The gravel terraces are next to the Orange River and the maximum mining depth would be 20 meters hence conventional open cast mining methods i.e. loading, hauling and mineral processing by means of Standard Rotary Pan Plants and Final Recovery Plants are proposed. It is the known, most practical and cost effective approach to mine gravel deposits next to the Lower Orange River. i.e. "tried and tested".

15.3 Design or layout of the activity;

Design: E.g. Different architectural and or engineering designs

Layout: E.g. Consideration of different spatial configurations of an activity on a particular site (e.g. Siting of a noisy plant away from residences).

Mine layout options would be investigated during the course of the EIA process based on the specialist field investigations and recommendations. Final plan would be included in the EIR and EMPr document.

The current mine plan is mainly dictated by the following:

- Location of the gravel deposits
- Approach to mine the property in three sections with a static plant in each servicing the mineral deposit around them.

- The existing infrastructure already established during the prospecting phase. Much of the roads, plant and mining equipment required for the mining operation established during the prospecting operation would be used and expanded for the proposed Grasdrift Mine operation.

Nabas still needs to establish additional infrastructure to bring the mine into full production and has considered the following in the placement of such infrastructure:

- Gravel processing plants have been placed as far as technically possible from the Orange River to attenuate noise, dust and the visual impact on sensitive receptors on the Namibian bank of the Orange River i.e. grape farming, tourist facilities.
- Mining is restricted above the 1: 100 year flood line / river floodplain to minimise the potential impact on the Orange River (siltation), allow Nama livestock farmers to continue to graze the river floodplain and to protect heritage and cultural significant aspects identified in the floodplain.
- Locating slimes dams and stockpiles away from runoff channels to manage potential silt discharge/load to the river.
- The existing and proposed slimes dam may also be upgraded/constructed to comply with best environmental practice standards/guidelines specified by the appointed Professional Engineer.

15.4 Technology to be used in the activity;

E.g. Option of achieving the same goal by using a different method or process (e.g. 1000 megawatt of energy could be generated using a coal-fired power station or wind turbines.

No technology alternatives are considered. Nabas will screen out the sand before passing through the gravel processing plant and a close circuit system will be used to decrease the amount of slurry being pumped to slimes dams and water usage through the plant.

This method/technology reduces the fines and sand reporting to the rotary pans, substantially lowering the volume of water required for gravel processing and decreasing the size and costs of its slimes dams.

Nabas will also use a Bouvestnik LS-20-05-2N unit as primary sorter which ensures more efficient recovery of diamonds.

15.5 Operational aspects of the activity; and

The only operation aspects of the activity where alternatives are being considered include the movement of HME's to Grasdrift i.e.

- Across the Orange River from Namibia to Grasdrift during dry season. Pro's and con's i.e.
 - Limited only to dry season
 - Costly exercise
 - No impact Helskloof Pass, road usage by tourists
- Driving the HME's over Helskloof Pass through the RNP. The pro's and con's i.e.
 - More cost effective, can be done any time of the year
 - May impact on general road usage by tourists
 - May potentially impact the general road condition, but is maintained by Nabas
- Potential to trample vegetation alongside the gravel road

The options available to move HME's to site would be considered, assessed and discussed further with SanParks and the RGBK during the EIA process.

15.6 The option of not implementing the activity / no-go option.

I.e. this is the option of not executing the activity/project

This entails comparing the status quo of the environment (if no project is implemented) against the effect of permitting the project.

From a land use perspective mining is a conflicting land use in a protected area, however the RNP is the exception where a number of mines already operate within its boundary given its proclamation conditions. Once the life of mine for these operations is reached the mining areas are to be rehabilitated back to 'wilderness' for incorporation into the Park 'tourist zones'. The mining operations are therefore considered temporary and the post mining land use permanent.

The type of mining proposed (i.e. alluvial diamond mining) poses a low to negligible risk to groundwater and the porrel (sand and water) generated during gravel processing is inert and managed through slimes dams (recycled/evaporated) to contain potential silt runoff to surface water. The overall risk to the environment is therefore low and can be managed through responsible mining and strict environmental management and monitoring.

If the project is not permitted, the prospecting disturbance and infrastructure (incl. brick buildings) will be demolished and rehabilitated. HME's will need to be taken off site through the RNP over Helskloof Pass . Grasdrift would subsequently be incorporated into the tourist use zone of the RNP as per its management plan (2018 – 2028), which is currently restricted for public access. None of the potential 'low-moderate' significance negative impacts associated with the proposed Grasdrift Mine will take place.

The positive impacts from the project will also not be realized and the benefits to the Richtersveld community will fall away. i.e.

- 20% shares in the mine in the form of the Nabas Trust
- Current and future employment
- Skills training and adult education relevant to positions available at the mine
- SLP contribution and proposed Local Economic Development projects

The economic gain for the Richtersveld community from the project is therefore evidently greater than not implementing it. The coexistence between mining and the RNP conservation agenda can be achieved for the benefit of the community. However as mentioned, strict environmental management and monitoring must be implemented by Nabas for such co-existence.

The no-go option is therefore no preferred.

16. PUBLIC PARTICIPATION PROCESS FOLLOWED

The public participation process (PPP) is a key requirement of the EIA process. For this application it needs to satisfy the requirements of both the NEMA EIA Regulations (Regulation 40-44) and NWA by including the proposed project water uses to be authorised by the DWS as part of the shared information.

The PPP identifies potential I&APs on the project and provide an opportunity for the expression of public views on the environmental and social impacts of the application. All public views on impacts are documented, addressed and responded to in the EIA process and incorporated into the Scoping Report and EIR for consideration by the DMRE.

The proposed Grasdrift Diamond Mine project EIA process makes provision for three rounds of public consultation. i.e.

- ROUND 1 during the Scoping Phase comprising the below steps.
 - **Step 1:** Identify the relevant project PAC's, affected receptors, organs of state and I&APs.
 - **Step 2:** Inform (through public notices) and consult such parties to identify issues of concern through BID and community engagements.
 - **Step 3:** Review, consider and respond to issues raised by I&APs and incorporate into Scoping Report.
 - **Step 4:** Release Scoping Report for 30-days comment to allow I&APs opportunity to verify that issues have been recorded.
 - **Step 5:** Host any necessary focus group meetings / stakeholders engagements as required for the EAP to further inform the Scoping Report
 - **Step 6:** Incorporate all public submissions into the Scoping Report and submit to DMRE for consideration.
- ROUND 2 during the EIA phase wherein the Draft EIR and EMPR is released for 30-day public review and comment including a second round of public engagements.
- ROUND 3 during the decision-making phase wherein the I&APs are notified of the DMRE's decision and provided with a copy thereof and the opportunity to appeal such decision (if one wanted to).

16.1 DMRE consultation

Firstly, the DMRE Springbok regional office was engaged through email on 27 October 2022 requesting a 50-day extension for the submission of the Scoping Report. The request was granted on the following day until 2 February 2023. Given the project locality and I&AP issues raised condonation for the submission of the Scoping Report was requested and granted until 31 March 2023.

16.2 Identification and registration of I&APs

The EAP is required to provide access to information during the EIA process and must consult with the relevant interested and affected parties. For the proposed Grasdrift Diamond Mine project these parties consist of:

i. Competent authority

- DMRE Springbok Regional Office is responsible for the environmental authorisation, waste management license and awarding the mining right;
- The DWS in Upington (Orange River Proto) is the responsible authority for issuance of the WULA;

ii. Landowners and Person in Control of Land

- The mining right property comprises a portion of the remainder of the Farm No. 18 located in the RNP, managed as a contractual park jointly by **SanParks** and the Richtersveld community represented by the **RJMC** elected members.
- The Richtersveld community (i.e. Kuboes, Sanddrift, Eskteenfontein, Lekkersing) is the landowner and represented by **Richtersveld Sida !Hub Communal Property Association** (CPA).
- The CPA is under administration of the **Director General of the Department of Agriculture, Land Reform and Rural Development**.

iii. Surrounding Landowners

- The closest developed area that may be affected by the mining operation is across the Orange River in Namibia at Aussenkehr (i.e. vineyards, tourism and Aussenkehr informal settlement) comprising the following stakeholders:
 - Commercial table grape farmers:
 - Silverlands Namibia and Archill Island Investment Pty Ltd (commercial grape farming), Namibia Grape Company (Capespan), Cape Orchards Services
 - Tourism facilities:
 - Norotshama River Resort
 - Silverlands camp site/chalets
 - Namibia Water Corporation (across and downstream of site)
 - Aussenkehr community through Regional Council of Karasburg West Constituency (Regional Councillor)
 - Kharas Regional Council (Governor – Keetmanshoop)
 - Namibian Ministries:
 - Agriculture, Water and Land Reform (incl. associated directorates)
 - Environment, Forestry and Fisheries (incl. associated directorates)
 - Namibia Chair for the Ai Ais Transfrontier Conservation Area
- The Richtersveld community reside in the small towns of Kuboes, Sanddrift, Eskteenfontein and Lekkersing but would not be impacted by the mining since these towns are remote from the project site. But they are considered the landowners, host and labour sending community.
- The Richtersveld World Heritage Site is further south of the mining right area and its management committee is being consulted since the site falls in its buffer zone.

iv. Local and District Municipality incl. Ward councillors

- Richtersveld Local Municipality (Port Nolloth)
- Namakwa District Municipality (Springbok)
- Councillors for Ward 1 (Ryno Thomas) and Ward 2 (Marlene Fredericks)

v. All organs of state which have jurisdiction in respect of the activity

- National Dept. Forestry, Fisheries and Environment (DFFE): (Directorates Protected Areas Planning, Transfrontier Conservation Areas)
- DFFE: Protected Areas, Multi-Lateral Agreements (World Heritage Site)
- National DWS: Director – Africa Shared Watercourses

- National DWS: Deputy Director-General International Water Cooperation
- National DWS: Leader for Orasecom (Chief Director Integrated Water resource planning)
- Orasecom – Executive Secretary, Environmental and Water Resource Quality Manager
- Dept. Agriculture, Environmental Affairs, Rural Development and Land Reform (Springbok and Kimberley) (DAEARDLR)
- Dept. Sports Arts and Culture (SAC), Namakwa District Manager (Springbok)
- South Africa Heritage Resources Agency engaged through SAHRIS upload
- South Africa Ai Ais Transfrontier Conservation Area representative (DFFE)
- Northern Cape Heritage Resource Agency / Ngwao Boswa Kapa Bokoni Heritage Authority
- DFFE: Directorate - Forestry Management (Upington)
- Dept. International Relations and Cooperation including Chief Surveyor General

vi. Any other persons (summarised rest can be viewed on the attached I&APs Database)

- Livestock farmers in the RNP and along the Orange River floodplain
- Downstream water users
- River rafting ventures upstream from the site
- Site Plan (Environmental Consultants operating in the project area)
- Mines downstream from the site (i.e. Oena, Lower Orange River Diamonds, Alexkor, Roch Pinah, Namdeb)
- RNP Desert Botanical Gardens Curator (IUCN and SANBI Red List Accessor)
- NGO's

As per the regulatory requirements an I&AP database has been opened for the project and relevant landowners, organs of state, occupiers of the land, adjacent land owners, local and district authorities including organs of state have been pre-identified and registered on the project database and notified of the project. The broader public was also given the opportunity to register and participate in the EIA process by means of public notices on 4 November 2022 calling for registration of I&APs until 5 December 2022. Refer to **Appendix 5 for the I&AP Database**. A further opportunity to register including review and comment on this Scoping Report is provided from **28 February to 28 March 2023**.

16.3 Public Notification of EIA process

The PPP commenced with the announcement of the project EIA process and call for registration of I&APs on 4 November 2022. An advertisement was published in the Plattelander (Afrikaans) on 4 November 2022 and the Gemsbok News (English) on 11 November 2022, with onsite notices placed in the project area in the following places:

- Sendelingsdrift - Total Filling Station, Kleinbegin Kafee Mini Mark, RNP entry gate, RNP reception
- Sanddrift - Drankwinkel, Saad Afzal Traders
- Kuboes – Post Office, Saad Afzal 2 Shop, Johan Hein VGK Primary
- Alexanderbay – Rondom Ons 2 shop, Engel Filling Station, Eco-Rambo Store
- Port Nolloth – Municipal office, crèche
- Lekkersing – Family shop and community hall
- Eksteenfontein – Community Hall and Saal Afzal Traders
- Vioolsdrift Border Post – Brug Kafee

Copies of the newspaper tearsheets and site notice photos are provided under **Appendix 6**.

16.4 Direct notification

With the release of the public notices, the stakeholders and I&APs were informed of the project by means of a Background Information Document and Stakeholder Notification Letter sent directly (via email) to the pre-identified list of I&APs including any subsequent I&AP registrations. An electronic copy of the BID was also placed on the Naledzi website for public download. Printed copies of the BID were placed at public libraries in the project area i.e.

- Sendelingsdrift, Lekkersing, Eksteenfontein, Kuboes, Port Nolloth; and the
- Alexanderbay CPA Offices

These public notifications were provided in English and Afrikaans. A 30-day comment and registration period on the BID was provided from 4 November until 5 December 2022.

Refer to **Appendix 7** for copies of the BID.

Several stakeholders and organs of state submitted their comments during this initial registration period are included in **Table 10** overleaf.

16.5 Initial public engagements

- **15 November 2022** - A focus group meeting took place with the Richtersveld CPA at their offices in Alexander bay.
- **16 – 17 November 2022** - Community engagement sessions took place in the small towns of Lekkersing, Eksteenfontein, Kuboes and Sanddrift.

The meetings were hosted in Afrikaans. The proceedings of these meetings were recorded and the minutes (also in Afrikaans) were distributed to the CPA and representatives, attendees (where emails where available) and the municipal satellite offices in the respective towns. The comments and inputs received during these public engagements have also been included in **Table 10** overleaf.

The Afrikaans minutes and completed attendance registers are included under **Appendix 8**.

16.6 Release of Scoping Report for public review

This Scoping Report is currently available for 30-days public review and comment from 28 February to 28 March 2023. An electronic copy has been made available for public download from the Naledzi website. Printed copies have been placed at the same public venues as the BID i.e. Sendelingsdrift RNP Parks Office, libraries in Sanddrift, Lekkersing, Eksteenfontein, Kuboes, Port Nolloth and the Alexander bay CPA Offices. In addition Naledzi has placed a hard copy of the report at Aussenkehr Public Library.

Registered I&APs and organs of state including the general public have been notified of the availability of the Scoping Report and where it can be obtained, through the following means:

- Direct emailed notifications to registered I&APs, Richtersveld CPA, relevant ward councillors and municipal satellite offices in the small towns on 28 February 2023..

- Public notices in the Gemsbok Newspaper and Plattelander on 3 March 2023 including placement of onsite notices in respective towns including Aussenkehr already on 28 February 2023.
- Distribution of hard / electronic copies to key commenting authorities i.e.
 - Namakwa District Municipality
 - Richtersveld Local Municipality
 - DAEARDLR (Kimberley, Springbok)
 - DWS (Upington – Orange Proto Catchment Management Agency)
 - DFFE (Protected Areas Planning, Transfrontier Conservation Areas, Protected Areas, Multi-Lateral Agreements (World Heritage Site))
 - Dept. Sports Arts and Culture Namakwa District
 - Ngwao Boswa Kapa Bokoni Heritage Authority (Kimberley McGregor Museum)
 - Upload the report electronically onto the SAHRIS online system

16.7 Target Meetings during Scoping Report review period

Targeted meetings (either virtual / one-on-one) will also be held with key commenting authorities and key stakeholders as required during Scoping Report review period i.e.

- Engagement with the RGBK, SanParks
- Richtersveld CPA representatives requested a site inspection with Nabas and Naledzi.
- DFFE: PAME has requested a site inspection with the EAP and SanParks (Park Manager)
- Engagement with Richtersveld Local Municipality, Namakwa District Municipality
- Engagement with key stakeholders (Aussenkehr) and commenting authorities (virtual, email, telephone)

16.8 Way forward

The results of the engagement tasks and public submissions received will be incorporated into the Scoping Report and submitted to the DMRE once the public review and comment period lapses on 28 March 2023.

I&APs will be notified of the commencement of the EIA phase (once DMRE accepts the Scoping Report). The specialist studies will be finalised and the draft EIR and EMPR will be prepared and released for 30-day public review and comment. Registered I&APs, stakeholders and commenting authorities would receive a notification letter announcing the availability of the report. Community engagements sessions and targeted meetings would be arranged to present the findings of the EIR and EMPR during this period. Details therefore would be available during the EIA phase.

Upon the lapse of the draft EIR and EMPR public review period, the reports would be finalised to incorporate the public inputs and submitted to DMRE for decision making. I&APs would be notified once the decision (newspaper advertisements, direct notification) is issued and the opportunity to appeal the decision. A copy of the decision would be sent to registered I&APs and made available on the Naledzi website.

16.9 Comments and Responses (Summary of issues raised)

Table 10: Summary of issues raised

LIST OF INTERESTED AND AFFECTED PARTIES (List of names of persons consulted in this column and Mark with X where those who must be consulted were in fact consulted)	DATE COMMENTS RECEIVED	ISSUES RAISED	EAP'S RESPONSE TO ISSUES
AFFECTED PARTIES			
Landowners			
Department of Agriculture, Land Reform and Rural Development administers CPA	X Email Phone	1 November 2022 (telephonically) Mr Itumeleng Mashune DALRRD Deputy Director	Before any engagements may take place with the Richtersveld community, the DALRRD and Richtersveld CPA must be engaged in a meeting.
Richtersveld Sida !Hub Communal Property Association (representing Kuboes, Sanddrift, Eskteenfontein, Lekkersing)	X Email Phone Meeting	15 November 2022 Focus Group Meeting	Issues raised by CPA representatives are detailed below. These are not quoted verbatim. For full minutes refer to Appendix 10 of this report.
Comments from the CPA and its attending members (Farie Cloete, Annemarie De Wet, Ryno Thomas, Ryno Farmer, Henley Strauss)			
<ol style="list-style-type: none"> 1. Do prospecting rights expire, if so when? Has the DMRE issued the renewed prospecting right? 2. Is Nabas allowed to proceed with the prospecting activities whilst the EIA process is underway? 3. What is the timeline until the mining right is issued? Why is the EIA timeframe for Grasdrift Diamond Mine so short compared to Boegoebaai? 4. When do companies apply for a water use license for prospecting activities? 5. The Social Labour Plan must be explained. The CPA is interested in how the community would benefit from the mine. 6. The mine slimes dams must be fenced off to prevent livestock fatalities due to previous incidents at other mines. 7. Livestock farmers graze along the Orange River banks until the month of May, even at Grasdrift. The farmers must have access to the Orange River especially in the summer months. The mine must undersign a document promoting right of access for livestock farmers to graze along the Orange River bank. 8. The RNP Management Plan must be considered in the EIA study and it must be noted that the mining right area falls within the World Heritage Site 			

buffer not the core area.

9. The CPA members want to visit the mining area together with Naledzi, Nabas and the contractors to understand the site and process better.
10. Who represents Nabas Diamonds and when does the 20% shareholding in the Nabas Trust take effect? How would the shares be measured and paid?
11. The community has too many trusts that overlap each other. Can the Richtersveld Mining Company serve as a trustee?
12. The EMPr must make provision for the community to conduct bedrock sweeping at the mine. The mine must also provide the required accommodation.

Several issues were also raised relevant to the Social Labour Plan:

- On what grounds can the DMRE reject the SLP? How can the community monitor the SLP?
- The communities need:
- Upgrading of infrastructure viz. water system (brackish water), buildings
- Clean and sufficient drinking water
- Open scholarships for matriculants
- Scholarships should be available to attend nursing and teachers colleges instead of game rangers. SanParks should provide game ranger training not the mine.
- Access to computers
- Transportation for scholars on daily basis from the villages to schools.
- Community soup kitchens must be supported.
- Job opportunities at the mine must be available to the local communities.
- The community wants an opportunity to do 'bedrock sweeping' at the mine and would also require accommodation at the mine site.
- Greenhouse projects would only work in Sanddrift, Kuboes supplied with fresh water from the Orange River. Eksteenfontein and Lekkersing have a water shortage. Available water is brackish.
- Eksteenfontein and Lekkersing lack clinic sisters and a local ambulance, regional services cannot respond to medical emergencies (towns too remote).
- Education is an issue in the towns. The mine should contribute by paying allowances to assistant teachers in the towns. The Dept. Education doesn't pay the teachers regularly therefore they leave.
- Once the mine is in full production, the CPA want to meet again with Nabas as it is looking for a partnership and funds to build tarred roads to the villages.

Responses to CPA members during meeting:

1. The Nabas prospecting right was valid until 31 March 2021. Nabas applied for its renewal before it expired in 2021 and waits the DMRE's response. According to section 18 (5) of the MPRDA, the prospecting right is still in force until such application is granted / refused by the DMRE.
2. Yes. The prospecting activities will continue whilst the EIA process is underway. Production would be increased, should the DMRE issue the mining right.
3. The EIA process is regulated at 300-days. Naledzi has applied for a 50-day extension for submission of the Scoping Report. DMRE is expected to issue the decision on the applications in November 2023. The mining right will follow. Kindly note mine related applications do not allow the EAP to do preparation and prior community consultation. Everything must happen within the 300-350 days. In non-mining related developments, the EAP can do preparation and community consultation before submitting the application allowing the EAP more time to complete the EIA process.

4. The WULA is integrated with the prospecting right application. According to NDI Geological Consultants, Nabas applied to the DWS for the extraction and use of 18, 000m³/annum from the Orange River prior to 2017. New WULA Regulations were issued in March 2017 involving WULA submission through the eWulaas system. DWS requested the re-submission of the WULA documents via the eWulaas system in August 2022 before submitting the mining right WULA. The DWS ref. no. is WU20432.
5. The SLP was explained at the FGM meeting.
6. All slimes/tailings dams built and operated by a mining right holder must be fenced in line with the Mine Health and Safety Act and other applicable legislation.
7. Livestock farmers have access to Grasdrift. This arrangement can continue and entered as a condition in the EMPr. Provision can also be made for the signing of a "Memorandum of Understanding" between Nabas and livestock farmers. The document may describe the broad outlines as agreed by the parties. This will address the potential impact on the livestock farmers' livelihood, culture and heritage.
8. The RNP management plan has been taken into consideration as well as the location of the mining area in terms of the WHS.(Refer
9. The site inspection would be accommodated during the Scoping Report review period. Arrangements will be communicated to the CPA in January – February 2023.
10. Nabas is made up of three shareholders i.e. Global Diamond Resources SA (45%), Agnobest 4 (Pty) Ltd (35%) and Nabas Trust/Richtersveld community (20%). The intention is to allocate the percentage shareholding to the trust once the mining right has been issued. Nabas will involve the community to elect Trustees and to discuss the trust conditions and terms viz. shareholding and value.
11. The community has to decide on that. Trustees must bear the interest of the community and fulfill certain conditions viz. may not work for the state, not have a criminal record, must live in community etc.
12. Nabas confirmed that 'Bedrock sweeping' is not provided for in the MWP therefore would be unlawful and poses a significant safety risk for the community.

Response to the SLP issues:

- An SLP can be rejected if the community has not accepted the plan or been consulted including if the value of projects is lower than the mine's performance.
- The mine must submit an annual performance assessment report against the SLP to DMHE on or before every 31st March, so that the plan's progress can be measured. The community can request a copy of the report from the mine or DMHE.
- The SLP currently provides for bursaries for people to be trained as rangers for employment by SANPARKS. We will then have to specify that there is a need for open scholarships.
- It is suggested that Nabas appoint and pay a Community Liaison Officer (CLO) to set up a database of available skills and employees within the community for possible appointments at the mine. Only if it can be proven that the mine cannot source the skill locally, then the mine can advertise it for outlying areas.
- The above suggested SLP projects were listed and sent to CPA and communities for input and confirmation. Once the list is finalised, NDI will discuss it further with Nabas to decide what can be added to the SLP.
- Post meeting note: The funding and building of tarred roads to the small towns are the mandate of the Dept. of Public Works and Richtersveld Local Municipality and in many cases funded by the Municipal Infrastructure Grant (MIG). The mine can only commit 1% of its overall income to the SLP projects. The Richtersveld community can choose to use its allocated trust funds (20% shares in the form of Nabas Trust) to finance such.

Lawful occupiers of land				
Richtersveld Joint Management Committee (a.k.a.RJMC). Members: Lucius Moolman (Chair) Abraham Cloete (Lekkering), Henrico Strauss (Eksteenfontein), Nikodemus Swartbooi (Kuboes), Renske Klaase (Sanddrift)	X Email	21 November 2022 Official letter Sent to Naledzi on 29 November 2022.	See below comments from RGBK.	Naledzi confirmed receipt of the registration on 30 November 2022 and responded via email on 27 February 2023 as below.

Comments from RJMC:

1. The RNP is a contractual park shared with the Richtersveld community. Included in the agreement is that nomadic livestock farming including cultural and heritage aspects in the park should be preserved and protected.
2. The risk of illegal mining (Zama’s) as a result of exposed bedrock at the mine site holds a significant safety risk for local communities, livestock farmers including the future of the park and tourists.
3. The current road condition is owed to its use by mine trucks and heavy mine vehicles. This remains a concern for the community, park tourists, and livestock farmers.
4. With reference to the RNP Management Plan, no new mining or further mining expansion would be allowed.
5. Before we can support anything, the RJMC would like to negotiate with Nabas regarding the future of their social contribution, job opportunities and support and contribution to the RNP.

Response to RJMC:

1. Livestock farmers currently have access to Grasdrift. This arrangement will continue through the operation of Grasdrift Mine. Nabas already intends to assist livestock farmers with the provision of water points in the RNP. A Heritage Impact Assessment and Desktop Palaeontological Study will be conducted for the proposed mining right area as part of the EIA process. Based on the preliminary site inspection of 18 November 2022 the Orange River floodplain is of high priority heritage area to be conserved as a no-go zone for mining.
2. The mine site is remote from the Richtersveld communities and the mine will maintain security through its Life of Mine. The mine will also undertake concurrent rehabilitation including final decommissioning and rehabilitation (complete closure) of mined out areas according to an approved Rehabilitation and Closure Plan. The bedrock (i.e. diamond trap sites) would therefore be closed.
3. Nabas has assisted with the road maintenance during the prospecting operation and will continue to do so during the mine operation. Road repairs would be made to Helskloof Pass using materials from the existing quarries on the route as required.
4. Grasdrift is a recognised restricted diamond mining area in the RNP as documented in the RNP Management Plan 2018 – 2028 to be managed according to section 48 of the NEM: PAA. The proposed mining right area covers the same area as the registered prospecting right area (portion of the remainder of the Farm No. 18). The area has therefore not been expanded.
5. Such negotiations (i.e. social contribution, jobs, support and contribution to the RNP) would need to form part of the Nabas Social Labour Plan consultations conducted by NDI Geological Consultants. Naledzi will make provision in our planned engaged with the RJMC that the relevant parties are present to discuss these issues for consideration in the SLP.

<p>Ai Ais Richtersveld Transfrontier / National Park are managed jointly by SanParks and the Richtersveld community represented by the Richtersveld Joint Management Committee (a.k.a.RJMC).</p> <p>SanParks</p>	<p>X Email</p>	<p>30 November 2022 Official letter</p>	<p>SanParks registered as an I&AP and submitted concerns and issues regarding Grasdrift mine as detailed below.</p>	<p>Naledzi confirmed receipt of the registration on 29 November 2022 and responded via email on 27 February 2023 as below.</p>
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Comments from SanParks, Mr Brent Whittington – RNP Park Manager (not quoted verbatim)

1. RJMC is a joint management committee created during proclamation of RNP 1991 and should be consulted directly about mining within the RNP.
2. Livestock farming along the Orange River must be allowed to continue.
3. Endangered riparian vegetation is protected by Dept. Agriculture, Environmental Affairs, Rural Development and Land Reform and other legislations for its tourism value.
4. Traffic and dust over Akkedispas and Helskloofpas from road users is and will have a direct impact on the vegetation adjacent to the roads as well as tourists visiting the park.
5. It is requested that the following topics be included in the MR application:
 - a. Strict regulation of vehicle movement, traversing hours, speeding and overall courtesy to community members and visitors to RNP;
 - b. Nabas must intervene in monitoring and regulating mining contractors and their staff with regards to general RNP rules and regulations;
 - c. Concerns around safety of mining staff, visitors to the RNP as well as RNP staff due to the geographical local and distance from adequate medical facilities remains a concern.
 - d. Driving, riding off road in extremely sensitive riparian vegetation, up hill tops and mountain slopes not only cause irreplaceable damage to the environmental but also post serious safety risks.
 - e. The risk of illegal diamond mining remains as a result of exposed bedrock and it is hereby requested to include closure plans and the security thereof should the mine close down or close for care and maintenance.
 - f. Road maintenance and current conditions of the road between Alexander Bay and Sendelingsdrift, and between Sendelingsdrift to Grasdrift remains a concern. The conditions are aggressively aggravated due to increased traffic especially by heavy vehicles. The roads have a detrimental effect on SANParks official vehicles, private vehicles, visitor vehicles, community vehicles as well as mining vehicles.
6. Implications of mining activities and by products on the RNP include:
 - a. Effects on the fresh water ecosystem, riparian vegetation, alluvial plains, slopes and mountains as well as natural systems.
 - b. Tourism activities, accommodation
 - c. Degraded and damaged road infrastructure
7. Prior to implementation of the mining right SANParks request urgent intervention on the above topics which currently affect human, environmental and economic sustainability of the Park and Region.

Naledzi response:

1. The RJMC would be engaged during the Scoping Report public review period.
2. Livestock farmers currently have access to Grasdrift. This arrangement will continue through the operation of Grasdrift Mine. Nabas already intends to assist livestock farmers with the provision of water points in the RNP.

3. No mining is proposed within the Orange River 1: 100 year flood line, riparian fringe or bank. An Aquatic Biodiversity Study would be conducted as part of the EIA study to determine the potential impact of the project on the river and its riparian zone.
4. The dust fallout impact on vegetation would be assessed as part of the project Air Quality Impact Assessment and Terrestrial Biodiversity Study. The general mine traffic generated on and off site would increase from 17 vehicle trips/week to 51 vehicle trips/week. This is about 10.2 trips/day per day of which majority will be light vehicles. Impact on tourist road use along Helskloof Pass will be assessed further.
5. Topics for inclusion in the MR application:
 - a. The road usage, monitoring and regulating mine staff and contractors and to what rules they need to comply would need to be incorporated in the EMPR.
 - b. Grasdrift mine would have a medic onsite / first aid personnel. The airstrip will be refurbished (i.e. hanger and control tower) so that in case of any medical emergency such patient can be stabilised and airlifted from site to the nearest medical facility.
 - c. Recommendations would be included to restrict these activities with provision only made for checking pumps and water transfer pipelines and the bringing of mine equipment to site across the Orange River from Namibia (but a once off activity and then removed with closure).
 - d. The EIA process EIR and EMPR documents will include the statutory Rehabilitation and Closure Plan for the mine. This document would also be available for public review when the EIR and EMPR are released. The law requires three rehabilitation plans as part of this document viz.
 - i. Annual rehabilitation plan (regulator activities carried out during operational phase)
 - ii. Final rehabilitation plan (showing the final rehabilitation end 'use of land' after mine closure)
 - iii. Post-closure plan to measure rehabilitation progress and any remaining impacts to be addressed.
 - iv. The mine would be required to submit an Annual Performance Plan to DMRE which measure and audit the rehabilitation progress.
 - e. Nabas would make provision for regular maintenance of Akkedis and Helskloof Pass during its operational period as required. The road from Alexander bay to Sendelingsdrift is the responsibility of the Richtersveld Local Municipality and Dept. Public Works and has been identified in the municipal IDP 2022/2023 to be resurfaced again up to Kuboes.
6. The implications (i.e. effects on aquatic ecosystem, terrestrial biodiversity) and impact on tourism activities would be assessed as part of the EIA process (i.e. specialist studies). The recommended interventions and management measures required to address these implications would be recorded in the draft EIR and included in the EMPR as prescribed environmental and social specifications to be followed by Nabas.
7. According to a recent letter by SanParks there has been “very good support and collaboration between Nabas and the Park operations including assistance with road maintenance, law enforcement incidences, conservation and community.” The aspects requiring intervention would be assessed as part of the EIA process and stringent management measures and monitoring would be recommended in the EIR and EMPR for proposed mine for adherence by the mining right holder.

RNP Nursery and Richtersveld Desert Botanical Gardens Curator IUCN and SANBI Red List Assessor Pieter van Wyk	X Email	5 December 2022 Comments and Registration form via email	Registration as I&AP and submission of comments. See below comments.	Naledzi confirmed receipt of the registration on 30 November 2022 and responded via email on 27 February 2023 as below.
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Comments from Pieter van Wyk (not quoted verbatim for full details refer to Appendix 10):

It's of great concern that another section of the RNP will be lost due to mining.

Ecology:

1. The Western Richtersveld ecosystems are showing partly to total collapse of the ecosystems due to the impact mining has had and is having.
2. The Eastern Richtersveld/Gariep desert in the RNP has remained untouched with little interference on the ecology. This mining activity will change this without any doubt and cause mass destruction of the environment.
3. **Dust** from the mine will have a direct impact on Springbokvlakte, Tatasberg, Kokerboombkloof, Mount Terror as well as Rosyntjieberge.
4. **Tourism:** Broadening of roads, off-road driving, movement of people through wilderness area will destroy the wilderness area and have an immense negative impact on tourism.
5. **Paleontology:** The mine site is next to a very important fossil site which will be negatively impacted.
6. **Livestock** shepherds use the area as grazing pastures seasonally. These people will be displaced (the true owners of land).
7. **Mining in RNP:** LOR has caused immense damage over past two years, having devastating impacts on the park status.
8. The project in the eastern side of the RNP will lead to failure of implementing the NEMBA and NEMA acts and SanParks mandate. It will lead to mass financial loss of tourists, negative impact on local Nama people living in the park (already displaced from NW corner of the Park by mines).

Response by Naledzi:

Thank you for your valuable comments.

- **Ecology:** The concern around the collapse of RNP biodiversity is highly understandable given the extensive mining taking place in the western parts of and along the parks. However in the case of proposed Grasdrift Diamond Mine the application property where the mining interest areas lie comprise desert gravel pavement, terraces and sand, devoid of vegetation therefore 'less ecologically sensitive compared to the rest of the Park', except for the Orange River floodplain (alluvial vegetation). The Orange River floodplain would be restricted from mining. To address this concern a full Terrestrial Biodiversity Impact Assessment Study (incl. fauna, flora, avifauna, vegetation, and habitat) and Aquatic Biodiversity Impact Study will be conducted as part of the EIA Study to determine the potential impact of the project on the ecosystem and biodiversity at site. We have also taken the liberty of furnishing our specialist with your contact details to ensure that their specialist studies incorporate the current information available from SanParks for the site.
- **Dust:** An Air Quality Impact Assessment (AQA) Study will be conducted as part of the EIA Study to determine the potential impact and recommended management measures. It must however be highlighted that the predominant wind direction at Grasdrift is south-southwesterly (SSW) which is towards Aussenkehr. There is a low probability of it affecting these mountains and places except for vehicle entrained dust along the access road passing through Springbokvlakte where vehicle speeds of 40km/hr. should be enforced on the Park roads. Nabas will also install abatement equipment at each processing plant to lower dust emissions with frequent dust suppression on roads and open areas. The AQA will consider these potential impacts.
- **Tourism:** Please note that no roads in the RNP will be widened for the purposes of the mine as per section 9.5 of this report. It is understood that SanParks forbids it. Mine vehicles from Grasdrift mainly only travel on and off site every 14 days along Helskloof Pass. Off-road driving (i.e. floodplain) would be limited to the absolute minimum (bringing the heavy mine vehicles, checking pumps). Grasdrift is not popular among tourists and

is already a restricted diamond prospecting area.

- **Paleontology:** Thank you for sending us the Google kml files showing the location of this important fossil site. We have documented it and sent it to the Archaeologist and Paleontologist for consideration in the Heritage and Palaeontological Impact Assessment Study for the project. The fossil site is located next to the western boundary of the proposed mining right area. The specialist would need to make recommendations in this regard. It has been recorded under section 17.14 of the Scoping Report.
- **Livestock shepherds:** Livestock farmers currently have access to Grasdrift and would continue to have under the proposed mining right. Nabas already intends to assist livestock farmers with the provision of water points in the RNP.
- Grasdrift is a remote area with restricted access for tourists. Prospecting operations currently take place at Grasdrift. Kindly note that the EIA process will consider all the relevant NEMBA and NEMA requirements and ensure that all sensitive features are demarcated for protection i.e. Orange River floodplain, riparian fringe, flora including heritage and cultural features of importance. Specialist studies with regard to sensitive environmental aspects will be undertaken for the project. The recommendations by specialists would be applied and the environmental specifications to be observed by the mine will be including in the EMPr for adherence. Strict environmental management will be imposed on the mine given its location in a protected area.

Landowners on adjacent properties (across the Orange River in Namibia)				
Silverlands Namibia & Archill Island Investment Pty Ltd Commercial Grape Farmers Aussenkehr, Namibia – Mr. Kevin Liddle	X Email	7 November 2022 Emailed comments	See below comments.	Naledzi confirmed receipt of the registration on 7 November 2022 via email and responded to the comments on 10 January 2023 as below.

Comments raised by Mr Kevin Liddle

- **Dust** - Grapes are exceptionally sensitive to dust and all farms in Aussenkehr have very significant mitigation measures. The dust created by the mine poses a significant threat to our ability to produce an export quality product. The current mining activities are already creating unwanted and damaging dust.
- **Noise and Light Pollution** – The mine is in line of sight of tourist housing and campsite. The open cast mine will detract this experience. Current security lights (i.e. Safety vehicles, strong floodlights) cause light disturbance.
- **Water Quality** – The river water quality cannot be compromised by the proposed mine as it is used to grow export quality fruit.

Response by Naledzi:

- **Dust** – No ambient air quality/ dust fallout monitoring is currently conducted at the Grasdrift Mine. There is therefore no data to comment on the dust currently generated at the Grasdrift. We can however confirm the dust source is from the existing prospecting processing plant in the southern portion of the mine site. Nabas is using water sprayers to allay dust in this area and undertakes to fit a dust extractor to the plant to lower the dust emissions.

Noting the adjacent vineyards, the proposed mine layout plan locates processing plants as far as technically possible (2-3km away) from the Orange River and table grape farming to mitigate the increase in dust fallout (refer to section 9.4, Figures 9-9 and 9-10 of this report). Nabas is also undertaking to install abatement equipment at each of the processing plants i.e.

- Section 1 plant would be fitted with a dust extractor;
- Section 2 plant would be fitted with a wet scrubber;
- The section 3 area to be mined has little fine materials in the gravels. Less dust is expected to be generated in this area and dust abatement is to be confirmed (likely also a wet scrubber).

Given the dust concern, an Air quality Impact Assessment Study will be commissioned as part of the EIA Study to:

- Identify the specific dust sources of the project;
- Identify the affected receptors
- Quantify the emissions resultant from the project and predict the dust fallout using dispersion modelling and meteorological data;
- Identify the potential impact on receptors and to recommend any additional required mitigation measures for dust fallout i.e.
- Implementation of frequent dust suppression on roads and open areas;
- Establishment of wind breaks and dust shields at high dust sources (i.e. mineral processing areas)
- Recommend and include a Fugitive Dust Management Plan and Monitoring Programme for Grasdrift Mine.

With the placement of processing plants distant from the Orange River, installation of the above abatement equipment, management and monitoring program, the dust impact can be significantly lowered.

- **Noise and light-** Naledzi will commission both a Noise - and Visual Impact Assessment Study to determine the noise and visual impact on sensitive receptors (i.e. homesteads, tourism). These studies would be included in draft EIR and EMPr. Based on initial observations the most significant noise source at the mine will be the offloading of bulk material into heavy mobile equipment. As with dust fallout management, it's likely to be recommended that the noise emitting operations be placed as far inland as possible to attenuate the noise by increasing distance to receptors.
- **The visual impact** from the mine is likely to be experienced within the Orange River Corridor (i.e. river rafting tourists, visitors to Silverlands and Norotshama Resorts incl. homesteads) and be mitigated through:
 - Additional dust suppression measures
 - Protection of river banks and riverine vegetation which might involve setbacks;
 - Screening of mine processing plants possibly using material stockpiles.

Regarding light disturbance; it would be recommend that floodlighting is angled away from the river and the use of bund between plants and the river. With implementation of these measures the impact should be significantly reduced.

- The impact from the mine on the Orange River water quality is expected to be negligible. Facilities (i.e. slimes dam, overburden dumps, tailings) are expected to be inert. The most significant quality impact would be silt discharge / load to the river to be managed by restricting mining above the 1:100 year flood line and locating slimes dams and stockpiles away from runoff channels including adequate storm water management. Hydrocarbon storage including services and washbays would be bunded and its runoff will pass through an oil separator.

A Geohydrological and Hydrological Impact Assessment study will be commissioned as part of the EIA Study to be included in the draft EIR and EMPr document.

Namibia Grape Company (Capespan) Commercial Grape Farmers	X Email	No comments received yet.		
Norotshama River Resort CC & Exotic Investments Aussenkehr, Namibia Manager – Mr Renaldo Brand	X Email Phone	5 December 2022 Emailed comments	See below comments.	Naledzi confirmed receipt of the registration on 5 December 2022 via email and responded to the comments on 27 February 2023 as below.

Comments from Mr Brand:

- The predominant wind direction in the area is south to a South Easterly that means that the Aussenkehr farm area would be covered in dust affecting properties, grape farming and living conditions.
- Increased rainfall and soil erosion caused at mine.
- Birdlife will be affected by mine noise.
- Light pollution from mine spot lights.
- The proposed mine site is upstream from Aussenkehr. Any water contamination from mine could leave Aussenkehr without good quality water.
- Economic impact of mine on grape farms and associated tourism facilities along Orange River. How financially viable is the mine? Nabas to justify profitability of mine against profitability of grape farms and potential impact the mine will have on the grape farming and associated tourism facilities.
- The mine will impact the sense of place of the Norotshama Resort (i.e. quiet and beautiful view of Richtersveld). Aussenkehr grape farms and tourism facilities employ a higher number of people than the mine.

Response by Naledzi:

- Please refer to response provided to Mr Kevin Liddle above on the dust aspect.
- A storm water management plan would be prepared for the project and include recommendations for storm water management infrastructure to be built as part of the mine plan to prevent erosion.
- This aspect would be assessed as part of the Avifauna Impact Assessment Study to be conducted for the project.
- Please refer to response provided to Mr. Liddle above with regards to light pollution. A Visual Impact Assessment Study would be conducted as part of the EIA process.
- The impact from the mine on the Orange River water quality is expected to be negligible. The tailings/porrel is expected to be inert (i.e. water and sand). A Hydrological Impact Assessment Study would be commissioned for the project.
- The nuisance impacts (i.e. noise, dust and light pollution) from the mine stated to potentially have an economic impact on the grape farming and tourism activities across the river would be assessed through specialist investigations as part of the EIA process i.e. Noise-, Visual and Air Quality Impact Assessment Studies. Such impacts can generally be mitigated to acceptable levels and the economic impacts can be avoided. It is also not the objective of Nabas to threat the economic wellbeing of these land uses but conduct responsible mining by abiding by all necessary prescribed environmental specifications to minimise its impact.
- The mineral resources statement for the proposed Grasdrift Diamond Mine has found that there is a vast resource of diamond gravel available at Grasdrift to establish a full scale mine for the period of 30 years. The Richtersveld community would also own 20% stake in the mine in the form of a trust and benefit from social contributions and upliftment in line with the mine Social Labour Plan. For Naledzi and the socio-economic specialist to

<p>conduct such a comparison, the grape farms and Norotshama Resort must be prepared to share financial statements on its profitability and quantification of workforce including social contribution in the area. The proposed Grasdrift Mine according its Mining Works Programme has more than 250, 000 carats of high-value diamonds available. If the EIA studies finds that its impact on surrounding lands uses can be adequately managed there is no reason as to why these land uses cannot co-exist.</p>				
Municipal Councillor				
Ward 1 – Richtersveld Local Municipality Ryno Thomas	X Email Phone Meeting	15 November 2022 Richtersveld CPA Focus Group Meeting	Ryno Thomas is a CPA representative. Refer to comments provided during CPA meeting.	
Ward 2 – Richtersveld Local Municipality Marlene Fredericks	X Phone Email	No comments received yet.		
Municipality				
Namakwa District Municipality	X Email	No comments received yet.		
Richtersveld Local Municipality	X Email	No comments received yet.		
Organs of State (Roads Department, Eskom, Telkom, DWS)				
National DWS: Director – Africa Shared Watercourses	X Email	No comments received yet.		
National DWS: Deputy Director-General International Water Cooperation	X Email	No comments received yet.		
National DWS: Leader of Orasecom (CD-Integrated water resource planning)	X Email	No comments received yet.		
Northern Cape DWS: Orange River Proto Catchment Management Agency (Upington) Baja N.	X Email	23 December 2022 Official letter	See comments below. Not quoted verbatim. For full details refer to Appendix 10.	Naledzi confirmed receipt of the comments and responded on 10 January 2023.
<p>Comments from DWS:</p> <ul style="list-style-type: none"> ▪ Any Section 21 of the NWS water use activities associated with the project must be authorised by the DWS i.e. taking water from the Orange River (21a), onsite waste disposal facilities (21g) and mining activities on the left bank of the Orange River (S21c & i), storing of water in dams (S21b). ▪ Slimes/tailings dam / PCD must have designs drawn up by an engineer (i.e. details and ECSA registration number) and be submitted to DWS as part of the WULA. ▪ All fuel tanks and pipe installations must be done according to the SABS standards. Secondary containment features must be installed around the filler 				

point. Inform the DWS within 24 hours of accidental spillages and conduct immediate cleanup procedures and dispose of at permitted hazardous landfill site. A remediation report for clean-up measures must be submitted to DWS for comment before implementation.

- Groundwater management and monitoring must form part of the risk management plan (incl. borehole monitoring points for level and quality monitoring only).
- Construction waste must be managed and disposed at a registered waste disposal site. Minimise waste and alternative methods for waste management must be investigated.
- Storm water must be managed and the management plan forwarded to the local authority for approval.
- An ECO must be appointed to ensure the activity does not lead to environmental degradation, especially the water resources.
- Storage facilities must be stored in concrete/cement lined surface with berm walls and contain any spillages.
- Domestic waste from site must be removed/disposed by the applicant/landowner/site manager. DWS requires the signed copy of the waste control and monitor method statement from the mine.
- No mining is permitted within the wetland. A wetland functional assessment is required, should the developer be within the 500m buffer of the wetland.
- Note section 19(1) of the NWA. Any pollution incidents originating from the mine shall be reported to DWS Regional Head within 24 hours.

Response by Naledzi (not quoted verbatim refer to Appendix 10):

- Nabas will apply for a WULA for the project associated Section 21 water uses to the DWS Upington Regional Office and include the required engineering designs. The above recommendations would be adhered to and where relevant included as part of the EMPr management measures.
- Noting the groundwater monitoring requirements, kindly note the site is located on a poor aquifer region; with low to negligible yielding aquifer with poor water quality (i.e. aquifer has low susceptibility for contamination). No groundwater was intersected in any of the prospecting boreholes up to a depth of 30m; mining will only progress down to 20m deep. No boreholes were recorded at the mine site or within a 1km radius thereof. It is anticipated that the ground water impacts the mine would be low. This would however be confirmed in the Geohydrological Assessment to be commissioned for the project.
- No mining will take place within the floodplain wetland of the Orange River. Project activities will however within 500m of the Orange River floodplain wetland. A Wetland Functional Assessment will be commissioned for the project and included as a requirement in the Draft Scoping Report and findings will be included in the EIR.

Northern Cape Dept. Sports Arts and Culture (SAC): Namakwa District District Manager - Springbok	X Email	No comments received yet		
SAHRA via SAHRIS upload Natasha Higgitt	X	No comments received yet		
Ngwao Boswa Kapa Bokoni Heritage Authority	X Email	No comments received yet		

Northern Cape DFFE: Directorate : Forestry Management Upington	X Email	No comments received yet		
Dept. International Relations and Cooperation (DIRCO)		To be consulted during Scoping Report public review period.		
Namibia Chair for Ai Ais Transfrontier Conservation Area	X Email	No comments received yet.		
Communities				
Lekkersing	X	16 November 2022 Community Meeting	Refer to below comments.	Refer to below responses given at the meeting.

Comments by Lekkersing community (those who attended the meeting):

Mr Cloete

1. The application falls on our communal land that would be officially transferred to the Richtersveld CPA in the coming year (2023) in terms of the 'Transformation of Certain Rural Areas Act 94 of 1998 (TRANCA). The CPA is under administration of the Minister of Land Affairs. It is worrying that Naledzi met with the CPA who does not currently have a say over the land.
2. The park agreement clearly states only existing mines may continue, no new mining rights will be allowed. Nabas has applied for a new mining right on an area where they only hold prospecting rights.
3. The application area falls within the buffer area of the world heritage site (WHS). The RNP and WHS hosts many endangered plant species. What impact will the mine have on such species?
4. Is Nabas in possession of a water use license for its prospecting activities? Where do they source their water? There recently was a notice in the Gembok newspaper wherein Nabas is applying for a water use license.
5. Who represents Nabas Trust and who are the trustees?

Abraham Matthys

6. If endangered plants are found onsite what would happen?
7. Why is Nabas not present at the meeting?

Response by Naledzi:

1. The meeting was requested by the representative of the Minister of Land Affairs, Mr Itumeleng Mashune. The EIA information is not exclusive and available to any I&APs.
2. Nabas holds the prospecting right over Grasdrift prior to 2004, before the enactment of NEMPAA and have been conducting trail mining over this area for several years. The 'mine' will increase its production right once/if the mining right is issued.
3. Biodiversity studies as well as a Heritage Impact study would be conducted as part of the EIA study to determine the impact on vegetation and any cultural or heritage resources. Kindly note there is no vegetation on the mining interest area except on the banks and Orange River floodplain. No mining will take place in the floodplain.
4. Nabas abstracts water from the Orange River. According to NDI Geological Consultants Nabas submitted a WULA to DWS before 2017 requesting to abstract 18 000m³/annum. When the WULA Regulations were issued in 2017, the new eWulaas online application system became mandatory. The

DWS requested NDI in August 2022 to submit the WULA documents again via the online application system before the water use application for the mining right can be submitted. (DWS Reference no. WU20432).

5. Nabas has had a trust in place since 2006 with the intention to allocate 20% share of the mine in the form of a trust to the Richtersveld community once the mining right is awarded. The trust deed is yet to be granted therefore the trustees currently consist of the company secretary, accountant and lawyer. Nabas will involve the community to elect trustees once the deed is granted and the landownership has been transferred to the community.
6. The relevant specialist would confirm whether there are endangered plant species on the site. If so, certain buffer zones would have to be applied to protect such species. However as mentioned there is no vegetation on the mining area, except the river bank and floodplain.
7. Naledzi manages an independent PPP with the aim to provide and collect information for the purposes of the EIA study. Naledzi believes that the community must be able to express their views freely without feeling intimidated by an applicant. If necessary, the applicant would be invited to future engagements.

The SLP discussions are not reiterated here since it falls outside the ambit of the EIA process and is facilitated separately by Nabas and NDI Geological Consultants.

Eksteenfontein	X	16 November 2022 Community Meeting	Refer to below comments.	Refer to below responses provided at meeting.
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Comments by Eksteenfontein community (those who attended the meeting):

Donavan Smit

1. I'm against mining. Many promises are made during the application process but are not observed. How will the community benefit from the project?

Willem Diegaardt

2. Why is SANParks not present at the meeting? The application area falls within the RNP.
3. Who are the directors of Nabas? Why is only 20% stake allocated to the community?
4. It is said that Nabas pays rent for the prospecting area to the local municipality but is R 3 million in arrears.
5. It is said that Nabas is prospecting at the site, but the current infrastructure is for mining.

Dimitri Farmer

6. There are many alleged illegal diggers against the Orange River, but the DMHE does not support the community to stop them.
7. Which access roads would be used? Does Nabas have a slimes dam license? Who manages Nabas's 'sorting plants'?
8. Previous mines along the Orange River have not done the required rehabilitation.

Response by Naledzi:

1. The community would own a 20% stake in the mine in the form of a Trust 'Nabas Trust' and would also benefit from the mine's contributions to the community in terms of the Social and Labour Plan i.e. job opportunities, skills development, education, food security. The SLP details would be shared and consulted by NDI Geological Consultants with the community.
2. SanParks was notified in writing of the project and public meetings i.e. letter and BID was sent by email. They acknowledged receipt and stated they would submit written comments on the BID. Naledzi intend to engage SanParks and as soon as the Scoping Report is released for public review.
3. Naledzi deals with Director Mr Mushtaq Jhatam from Nabas Diamante (Pty) Ltd. The 2018 Mining Charter does not specify the percentage of shareholding to be allocated to the community; it depends on the mining company. Nabas' intention is to transfer 20% shares to the community in the

- form of a trust once the mining right is issued. Dividends would be earned once the mine is production.
4. Naledzi is only involved in the EIA process and cannot make any statements regarding Nabas’ rental agreements or payment history.
 5. Post meeting note: There is currently no lease agreement for the prospecting area, since the mine is only prospecting at this stage. It is also not anticipated that there would be any lease agreement during the proposed mining right period because the community would own a 20% stake in the mine. Therefore the statement is incorrect.
 6. Nabas is only conducting mining trails (i.e. in relation to diamond yield) at Grasdrift and is limited with regard to the tonnages they can process. There is currently only one processing plant on site. Production can only be increased once/if the mining right is issued hence this application process.
 7. Nabas is in possession of a legal prospecting right granted by the DMRE for their prospecting operations at Grasdrift.
 8. Access to the mine is via Helskloof Pass or Akkedis Pass. (EAP comment: the current arrangement with SanParks is to move mine traffic only over Helskloof Pass). A slimes dam require a Section 21g water use license and would form part of the mining right water use license application for the project. Nabas operates their sorting/processing plants. Two contractors would simultaneously mine the area and bring their own equipment to site.
 9. Each mine is responsible for rehabilitating their mined areas and addressing their environmental consequences according to the approved EMPR and Rehabilitation and Closure Plan that complies with the relevant legislation. The law requires three rehabilitation plans viz.
 - ‘Annual Rehabilitation Plan’ – includes regular activities to be carried out during the operation period of the mine;
 - ‘Final Rehabilitation Plan’ – includes the final rehabilitation and ‘post mining land use’ after the mine’s closure.
 - ‘Post-closure Plan’

A financial provision for the rehabilitation is to be included in the plans which must be paid to the DMRE in terms of the NEMA: Regulations relating to Financial Provision for Prospecting, Exploration, Mining or Production Operations GNR No. 1147. The mine is then required to submit the Annual Performance Plan to DMRE which measures and audits the rehabilitation progress.

The rehabilitation plans and financial assessment will be included as part of the Grasdrift Mine project's EIA documentation specifically in the EIR and EMPR documents.

The SLP discussions are not reiterated here since it falls outside the ambit of the EIA process and is facilitated separately by Nabas and NDI Geological Consultants.

Sanddrift	X	17 November 2022 Community Meeting	Refer to below comments.	Refer to below responses provided at meeting.
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Comments by Sanddrift community (those who attended the meeting):

Jacob Fredericks:

1. Is Nabas present at the meeting?
2. Are there already mine operations on site, if so, has an impact study been done for it?
3. Who audits that Nabas do not process more than the permitted tonnage?
4. Who are the directors of Nabas Diamonds? Before 2004 there were other directors than those applying now for the mining right.
5. According to SanParks the roads may not be widened for the purposes of mining. How will the mine machinery move over Helskloof Pass? The roads are too narrow.

6. How would the water abstraction for the mine from the Orange River affect the people downstream?

Response by Naledzi:

1. No. An independent PPP is being followed gathering information and public inputs independently from the applicant. The public should be able to express their opinion freely without the presence of the applicant. If necessary, the applicant would be invited to future meetings.
2. Nabas is currently conducting prospection activities at Grasdrift under it prospecting right (NC 501PR) and mining infrastructure was established as part of the prospecting operations. To obtain the right Nabas would have done a separate EIA process.
3. DMRE requires Nabas to submit an annual prospecting progress report to the DMRE. DMRE also conducts compliance audit site inspections.
4. Mr. Mushtaq Jhatam represents Nabas Diamante (Pty) Ltd. As far as we know, Nabas is the holder of the prospecting right and mining right applicant.
5. According to Nabas, the oversized machinery would be brought to Grasdrift across the Orange River from Namibia at Aussenkehr. The necessary permits would be arranged with the Namibian authorities.
6. A Hydrological Impact Assessment Study would be carried out as part of the EIA process which would determine the potential impact. The findings will be included in the EIR and released for public review.

The SLP discussions are not reiterated here since it falls outside the ambit of the EIA process and is facilitated separately by Nabas and NDI Geological Consultants.

Kuboes	X	17 November 2022 Community Meeting	Refer to below comments.	Refer to below responses provided at meeting.
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Comments by Kuboes community (those who attended the meeting):

Albert Robertse:

1. The community is against mining as so many promises are made by mining companies but not observed. The Richtersveld community does not benefit from any job opportunities.

Hilda Le Roux:

2. The Richtersveld is a rich diverse botanical landscape host to a number of endemic plant species. These species must be protected and may not be lost due to mining at Grasdrift.
3. The area is devoid of vegetation due to previous mining and lack of rehabilitation. What is the rehabilitation plan for Grasdrift once mined out?
4. How can we be assured that Nabas would implement the rehabilitation?

Josef De Wet

1. Nabas must assist livestock farmers during drought i.e. provide lucerne, fix water pumps/provide water points.

Response to comments by Naledzi:

2. The community would benefit from job opportunities that would become available at the Grasdrift Mine. This is addressed in the Social and Labour Plan for the project.
3. The mining interest area at Grasdrift is devoid of vegetation comprising gravel terraces. Vegetation mainly present in the Orange River floodplain and bank, where no mining is planned. Regardless is well known that the gravel terraces may host several endemic plants and therefore Naledzi would carry out several biodiversity impact assessment studies as part of the EIA process i.e. terrestrial, aquatic, avifauna and fauna. The findings would be

- included in the EIR and where necessary buffer zones would be recommended to protect any such species (should they occur).
4. The mining process would include concurrent rehabilitation wherein all tailings material (i.e. sand, oversized stones, fine materials from plant) and overburden would be used as direct backfill to rehabilitated mined areas. Also refer to response provided to Eksteenfontein attendees ‘Response by Naledzi, item 8’.
 5. The community can request the Annual Performance Plan from the DMRE or Nabas.
 6. According to Nabas, they intend to assist in provide water points for livestock in the RNP.

Refer to Appendix 11 for the SLP issues raised and responses by NDI and Nabas thereto.

Dept. Land Affairs				
	x			
Traditional Leaders				
N/A				
Dept. Environmental Affairs				
National DFFE: Protected Areas and Management Effectiveness (PAME) Karl Naude , Thivhulawi Nethononda	X Email	12 December 2022 Official letter	Registration as I&AP and below comments by Thivhulawi Nethononda.	Naledzi confirmed receipt and responded on 9 January 2023. See below response.

Comments by DFFE: Directorate PAME: (not quoted verbatim refer to Appendix 10)

1. Mining is a restricted activity according to NEMPAA. Mining lawfully conducted in areas in subsection 1(a), (b) and (c) before NEMPAA took effect in 2004, will be allowed to continue with strict conditions. We refer the developer to NEMPAA section 48.
2. The EAP to confirm the date when the prospecting right was issued. If issued in 2017 the entire prospecting activities conducted from 2019 is illegal. Both the EAP and the mining company need to provide the proof that the mining activities happened lawfully before the act took effect in 2004.
3. No development contemplated in section 50(5) of the act shall be implemented in any areas other than an area specifically designated for such development in the management plan.
4. The Directorate objects to the project based on the above mentioned issues, until proof is provided that current mining activities are being conducted legally.

Response by Naledzi

1. Nabas was first issued with the prospecting permit (PP23/98) over Grasdrift on 10 July 1998 under the Mineral Act of 1991. With the promulgation of the MPRDA of 2002, Nabas applied for the old order right to be converted to a prospecting right (new order right) before the permit expired in 2003. The new order prospecting right (NC501PR) was granted on 1 December 2005 and issued at the DMRE Titles Registration Office on 15 March 2017. Nabas again applied for its renewal before March 2021 and await DMRE’s decision. According to section 18(5) of the MPRDA the right remains in force until the DMRE grants/refuses the application. Proof was submitted to DFFE.

<p>2. Section 7.9 of the RNP Management Plan 2018 - 2028 (page 59) state that diamond mining currently takes place at Aace plant, <u>Grasdrift</u>, Jakkalsberg, Oena and Sendelingsdrift. Section 7.2 of the management plan (page 56) state due to diamond mining within the park, access to certain areas is strictly prohibited; these areas include Aace plant, <u>Grasdrift</u>, Jakkalsberg, Oena and Reuning. SanParks manages the current diamond mining areas according to section 48 (2) of the NEMPAA. According to the park zonation plan the current diamond mining areas (including Grasdrift) are allocated a ‘special management zone – mining rehabilitation area’. Grasdrift is therefore a recognized restricted diamond mining area in the RNP and has already been incorporated in the park management plan.</p> <p>3. With the above provided explanation and provision of copies of permits/rights it is evident that Nabas have been conducting prospecting (trail mining) lawfully in the RNP since 1998 and have been incorporated in the RNP Management Plan 2018 – 2028.</p>				
<p>National DFFE: Directorate: Transfrontier Conservation Areas Willeen Olivier (Biodiversity Officer)</p> <p>South Africa Ai Ais Transfrontier Conservation Area representative (DFFE) Ms Aruna Seepersadh (Director: TCA also SA)</p>	<p>X Email</p>	<p>2 December 2022 Official letter</p>	<p>Request to be registered as I&AP. The below comments were submitted.</p>	<p>Naledzi confirmed receipt and responded on 10 January 2023. Refer to below response.</p>
<p>Comments from DFFE: TCA: (not quoted verbatim refer to Appendix 10 for full details)</p> <ol style="list-style-type: none"> 1. If the application is legal, please note the application is in area designated as the Ai /Ais-Richtersveld Transfrontier Park (ARTP). The following must be taken into account: River forms the international boundary. Any impact on the river is to comply with the Revised Protocol on Shared Watercourses in the SADC (7 August 2000). 2. The following stakeholders are to form part of consultation process: <ol style="list-style-type: none"> a. TFC structures to form part of consultations including submission to Park Management Committee. b. ORASECOM c. DWS dealing with shared watercourses on SADC level d. Studies to include possible pollution sources for Orange River (incl. chemicals released in mining process, spread of alien invasive species). <p>Response from Naledzi: (not quoted verbatim refer to Appendix 10 for full details) Proof has been provided as per above response to DFFE: Directorate PAME.</p> <ol style="list-style-type: none"> 1. Protocols will be considered i.e. Protect and preserve the river ecosystem, prevent introduction of alien species, protect and preserve aquatic ecosystem including impact on other water users cross border, near and downstream of proposed Grasdrift Mine. 2. A Hydrology Study, flood line assessment, storm water management plan including aquatic biodiversity and wetland study would be conducted for the project. A chemical test of the porrel generated at the processing plants, waste material will be conducted (expected to be inert). 3. These stakeholders have been included on the I&AP Database and are included as part of the consultations. 				

National DFFE: Protected Areas, Multilateral Agreements (World Heritage Site)	X Email	No comments received yet.		
Northern Cape Dept. Agriculture, Environmental Affairs, Rural Development and Land Reform (DAEARDLR) Springbok Kimberley	X Email	No comment received yet.		
Other Competent Authorities				
Regional Council of Karasburg West Constituency Regional Councillor	X Email	No comments received yet		
Kharas Regional Council Governor - Keetmanshoop	X Email	No comments received yet		
Namibian Ministry Agriculture, Water and Land Reform	X Email	No comments received yet		
Namibian Ministry of Environment, Forestry and Fisheries	X Email	No comments received yet		
Other Stakeholders				
Orasecom Executive Secretary Environment and Water Resources Quality Manager	X Email	No comments received yet.		
Namibia Water Corporation (downstream water user) Jolanda Kamburona	X Email	5 December 2022 Emailed comments	Register NamWater as I&AP i.e. Jolanda Kamburona Fillemon Aupokolo	Naledzi confirmed receipt of the registration and provided the below response on 10 January 2023.
<p>Comments from NamWater:</p> <ul style="list-style-type: none"> The impacts of abstracting water from the Orange River for mining and portable consumption should be carefully examined. NamWater, National bulk water supplier, supplies water from the Orange River to Aussenkehr and Rosh Pinah, which are located opposite and downstream of the proposed mine, respectively. The water supply to these towns may be jeopardized, particularly in years with minimal precipitation. Possible contamination of the Orange River due to the mining activities. <p>Response by Naledzi:</p> <ul style="list-style-type: none"> In order for us to determine the potential impact of the mining activities on NamWater supply we would require some information: <p>We have general confidence in where all NamWater's abstraction on points are but would like to request you to forward us the kml files of all your registered abstraction points across from and downstream of the project site;</p>				

<p>To understand NamWater’s current annual, seasonal demand and projected (let’s say around 2030) we would need the following information:</p> <ul style="list-style-type: none"> ○ Current: October – March (? m³ / Megalitres); April – September (? m³ / Megalitres) ○ Future (around 2030 or other year): October – March (? m³ / Megalitres); April – September (? m³ / Megalitres) <ul style="list-style-type: none"> ▪ Kindly note alluvial diamond mining has a low contamination potential because the tailings ‘porrel’ comprise water sand. The most significant water quality impact to be considered is silt discharge/load to the river which can be managed by locating mine infrastructure, slimes dams and stockpiles away from runoff channels and above the 1-100 year flood line. ▪ A Hydrological, Flood line Assessment, Storm water Management Plan, Aquatic Biodiversity and Wetland Impact Assessment would be conducted as part of the EIA Study. Although expected to be inert, chemical testing of the porrel and waste material will be conducted to address the National Water Act requirements and I&AP concerns. 				
<p>Quzette Bosman Social & EAP Geo Pollution Technologies (Pty) Ltd Windhoek, Namibia</p>		<p>Registered based on referral of I&APs in Aussenkehr.</p> <p>10 November 2022 Emailed comments.</p>	<p>Refer to below comments raised.</p>	<p>Naledzi confirmed receipt of the comments and responded on 28 November 2022.</p>
<p>Comments by Quzette Bosman:</p> <ol style="list-style-type: none"> 1. Additional pressure on governmental services - For example; how will labourers be stopped to cross the river into Aussenkehr and using recently installed clean water services etc.? 2. Socially deviant behaviour and social change processes due to additional persons in the area. How many people are we talking about to be established in this area? Please provide a method statement for an SIA – qualitative and quantitative assessment. 3. How will corruption be addressed in all phases of the project? 4. Communicable disease spread, especially TB and HIV. It is mentioned that community health will be assessed - please detail what the method statement will be and if Namibian agencies would be contacted? 5. Water Use License Application - will a copy be made available? 6. Where will the planned 3 tailings be? 7. What is the plan in terms of dust from then and operations? 8. Where will the pollution control dams be? 9. It states that mining will be done along the Orange River -Have the flood lines been considered? Surely the flow of this International River will be altered and impacted at least. How will this matter be resolved since the international boundary is linked to the Orange River? 10. The community of Aussenkher is greatly reliant on the river's ecosystem services. How will the proposed project influence the river and related ecosystem services? - Not fish assessments etc. - ecosystem services. 11. What recourse will existing economically productive units have, if any, when their operations are influenced by mining? Mining is possibly located over areas where existing users have established their infrastructure for abstracting water. 12. Poaching – cumulative consideration. 				

13. Hydrology assessment - will the mine engage with the Namibian Ministry of Agriculture, Water and Land Reform: Hydrology?
14. Please correct your map in the BID - Aussenkehr NOT ASSENKEHR. Also, please use geo-referenced maps for your site plan. Surveyed diagrams incorporated into a GIS system etc. What is the green on the locality map - not legible, also - no key? Please consider "principles of cartography" in all future mapping - This just keeps everyone on the same and correct page.
15. Will flow diagrams be done? The area is known for flash-floods, how will the mine prevent impacts due to such events, especially in works along the river? Flood line assessment for which area? Mining only or diverted river etc. Or how will diversion of International River are prevented?
16. What will the parameters be of your groundwater assessment and will you consider the paleochannel, on the Namibian side - if any - will Namibian specialists be used?
17. Since mining is indicated to be conducted in Namibia (Section 3), has the Namibian Government been consulted? Which ministries? What about prospecting licenses of Namibians over this area?
18. What international best practices will be considered for this project?
19. Heritage - will Namibian resources be considered?

Response by Naledzi:

Please note we have informed the Aussenkehr community, Regional Councillor, tourism including agricultural ventures across the river from project site, downstream water users and Namibian authorities given the proximity of the international border. The mining right area is restricted to South Africa. No mining will take place in the Orange River / within its floodplain (above 1: 100 year flood line). The floodplain is included in the application area to avoid opportunistic applications by other companies below the flood line. Mining interest areas are limited to gravel terraces mapped in the scoping report. Nabas is already present at Grasdrift through its prospecting activities. There is therefore existing infrastructure that will be reused for the proposed mining right activities.

1. Nabas has been present at Grasdrift under its prospecting since 1998 (correction). The Mine Security Rules strictly prohibit crossing the river into Namibia. No such incidents have been recorded to date. The mine will maintain security through the LoM. The mine will have a small labour force, projected to be a max. of 150 employees of whom 90% of the labour force will be sourced from the Richtersveld communities already residing in the area. The mine has its own water supply and is applying to the SA DWS for additional water supply for process and potable water for Grasdrift Mine.

A percentage of the labour force is already operating onsite under the prospecting right. It is foreseen that majority of the workers will commute to and from work with labour quarters (exist on site but to be refurbished, single quarters) provided for a few mine personnel. The accommodation would meet IFC standard for workers accommodation. Access to the mine will be controlled and workers will stay onsite during their shifts. There will be strict security measures. There would be a medic onsite / first aid personnel. The terms of reference for the SIA are detailed in the scoping report.

2. Please clarity and expand on your statement. Corruption is seen as dishonest / fraudulent behaviour wherein someone uses their position of power to benefit themselves at the expense of others. Are you referring to the government departments of South Africa and Namibia which have decision-making powers about the application, or to the conduct of the private sector? And in what sense? Addressing corruption in general falls outside the scope of the EIA process and within the criminal law. The EIA process in South Africa is governed by legislation, and if any corruption is suspected within the process there are avenues that can be used to appeal against the process. The EIA process is transparent and all documents are in the public

domain.

The application process for the mining right, environmental authorisation and WUL is reviewed, scrutinized and decided on by DMRE and DWS in SA. All plans, reports and licenses are legally binding on the holder and will be audited by external auditors and the DMRE and DWS. In addition preventative measures are in place under SA legislation through compliance audits (environmental, social responsibilities, SLP, financial audits etc.). The Environmental Management Inspectorate (EMI) or the Green Scorpions, as they are known to the public, are government officials from national, provincial and local government, including the parks authorities, who are responsible for compliance and enforcement activities with environmental legislation.

3. Nabas Diamonds is a registered company in possession of a valid prospecting right now applying for a mining right over the same area at the DMRE Northern Cape (Springbok), and the company is following the correct procedures according to South African law. An anti-corruption and bribery policy that will provide systems for the reporting and investigations of allegations of attempted bribery or inappropriate gains can/will be developed.
4. Your concerns have been conveyed to the Community Health specialist for consideration however, the mine security will be maintained to prevent labour force from crossing the border by implication preventing the spread of communicable diseases. However to be considered, is that communicable diseases are a greater societal problem globally, and therefore controlling them is not only the responsibility of the applicant but also respective governments. The ToR for the Community Health Impact Study is detailed in the scoping report.
5. Yes. Its availability will be communicated to registered stakeholders.
6. Please refer to sections 9.4.1 'Mining Method' and 9.4.3.2 'Slimes / Tailings Dams' of this scoping report and Appendix 4 for the Mine Layout Plan.
7. Please refer to section 9.4.3.7 'Dust management' of the scoping report also note that the mine plan places the processing plants and infield screen as far as technically possible from the Orange River/grape farming (2km away).
8. It was stated this would be confirmed in the scoping report. Please refer to sections 9.4.3 'Proposed Infrastructure', section 10.1 'NEMA specified activities' wherein it is stated that the need for a PCD is highly unlikely however yet to be confirmed by the Hydrologist as part of the Storm Water Management Plan. It will be confirmed in the draft EIR.
9. This has been clarified in the above text. The 1: 100-year flood line will be delineated and mapped as part of the Hydrological Impact Study to be superimposed on the Mine Site Plan to be included in the EIR.
10. An Aquatic Biodiversity Impact Assessment Study (river and wetland) will be commissioned for the project and will determine the potential impacts of the project on the river, floodplain and ecosystem services. However, no physical mining will take place in the river. The most significant surface water quality impact from this type of mining is siltation discharge/load to the river (TSS) which can be managed.
11. Mining is limited to RSA. It will not impact any abstraction point infrastructure on the northern/eastern bank of the Orange River. Please provide us with more information about the nature and activities of the existing economically productive units to allow us to ensure that the impact assessment considers all potential impacts on existing productive units?
12. Please expand on this concern. Are there any specific poaching activities that you refer to, such as poaching in the RNP, poaching of game/plants/in general? Do you have information about current poaching activities that can be fed into a baseline assessment to assess cumulative impacts from? If poaching is a current concern, it must be acknowledged that a number of parties can be involved in poaching, from SA and Namibian sides, and it's the responsibility of law enforcement agencies in both countries to eliminate this societal issue. From the mine side, security measures will be strictly

<p>upheld and staff educated through toolbox talks about the criminal nature of poaching. It must, however be highlighted there are no plains game on the mine property, only goats from livestock farmers grazing in the river floodplain during summer.</p> <p>13. The ministry has been included in the stakeholder process. The mine abstraction points are on the RSA river embankment and the water use license and issuing thereof will be from the DWS: SA in Upington. The Hydrological Assessment will consider the water volume abstracted from the river at the specific point of mining and how it would affect current users.</p> <p>14. It's a typing error. We take note of your comments on the BID maps. The map used was provided by a surveyor in Cape Town through the project geologist. The map aims to assist the general public with orientation. You are welcome to engage with us if you need further technical clarification on the maps. The green shading represents the RNP.</p> <p>15. No river diversion is proposed. The flood line assessment will be done for the west/left bank of the Orange River. The Hydrological Assessment will assess the storm events and include a Storm Water Management Plan including flood line assessment.</p> <p>16. Parameters are detailed in this scoping report and do not include Namibia, only SA. The groundwater table is beyond 30m deep at the project site. The maximum depth of mining would be 20m therefore no groundwater would be struck.</p> <p>17. Mining is restricted to SA, therefore not applicable.</p> <p>18. The project will follow SA legislation. Where international best practice is required i.e. noise, air quality etc. it has been stated in the section 11 of the scoping report under 'policy and legislative context'. Responsible business practices and initiatives, including 'The Responsible Jewellery Council' will be considered by Nabas. The SA Minerals Council forms part of the ICMM. Best practice standards as prescribed by the ICMM may be considered.</p> <p>19. No mining will be done in Namibia; therefore this application does not affect any Namibian heritage resources.</p>				
Willem Louw	X Email	11 November 2022 Emailed comments	I would like to register as an I&AP. Kindly forward me the scoping report and EIA report.	Naledzi responded on 02 November 2022 stating the registration is confirmed and notification of the availability of reports would be sent to registered stakeholders.
Lower Orange River Diamonds Mine (LOR) Peter van Rooyen - Legal	X Email	8 November 2022 Comments & registration form	Water Pollution	Naledzi confirmed receipt.
Lower Orange River Diamonds Mine (LOR) Jamie Ambrosini Environmental Manager	X Email	24 November 2022 Comments and registration form	Registration as I&AP	Naledzi confirmed receipt.
Steve van der Westhuizen Site Plan Consulting	X Email	7 November 2022 Emailed comments 17 November 2022 Sanddrift Public Meeting	Registration as I&AP. Will there be any river diversions? Just confirm the exact location of the international border between	Naledzi confirmed the registration. There will be no river diversions. The mining activities would be restricted to SA above the

			SA and Namibia. Have the Namibian authorities been notified?	Orange River flood line. The Chief Surveyor of SA confirmed in February 2021 it maintains the border according to the 1890-Anglo-German Treaty indicating the high water mark of the Northern/Eastern bank of the Orange River, not the middle of the river. Naledzi will consult DIRCO again during the scoping phase.
Pete Siegfried Consulting Geologist	X Email	4 December 2022 Emailed comments	I would like to register as an I&AP. I am a consulting geologist working on various placer diamond deposits over the last 30-years and have a direct interest in the development of the project having been involved in the exploration and mining of many deposits along the lower Orange River.	Naledzi confirmed receipt of the registration on 4 December 2022.
Dr Kirsten D. Day Advocacy Officer Bird Life SA	X Email	9 November 2022 Emailed comments	Registration of I&APs and below comments raised.	Naledzi responded on 24 November 2022 via email as per the below.
Comments from Bird Life SA (not quoted verbatim refer to Appendix 10):				
<ol style="list-style-type: none"> 1. BirdLife South Africa’s concerns about development along the Orange River relating primarily to water quality and downstream impacts affecting birds and habitats along the river, and at the estuary given that it is a critical coastal wetland because of the overall numbers of wetland birds it supports and because of its role as a migration stopover. BirdLife South Africa is also concerned that environmental laws aimed at protecting vulnerable species and their habitats and supporting biodiversity, are upheld by those responsible for doing so. 2. On reading the BID, we have noted that the proposed mining area is situated within the boundaries of the Ai-Ais/Richtersveld Transfrontier Park, which is also a National Park in South Africa and a Biodiversity Hotspot. In respect of this locality, our enquiries are as follows: 3. Why are the requirements of section 48 of NEM: PAA which explicitly prohibit prospecting and mining activities in National Parks, not being adhered to? 4. Why are there no mention of the key provisions and relevance of NEM: PAA in the description of applicable legislation in the BID? 				

5. How it is that initial prospecting activities (in 2019) were permitted within the boundaries of the Park in contravention of section 48 of NEMM: PAA?
6. Are there circumstances of reasons why section 48 of NEM: PAA should not apply? Also pertinent is the overriding provision in section 7 of NEMPAA which specifies that any conflict between sections of NEM: PAA and any other national legislation. NEM:PAA prevails in matters to do with protected areas (section 7(1)(a)).
7. In respect of access to the site for prospecting and other activities, can you verify that written permission was obtained from the management authority of the park, to enter the national park, as required in terms of section 46 (1) of NEM:PAA?
8. To engage stakeholders in this application, if it has no prospect of proceeding due to prohibitions in law, goes against the section 2 principle of NEMA and the code of ethics in the Rule Book prescribed for practitioners by EAPASA.

Response to Bird Life SA:

1. Kindly note that no mining will take place within the Orange River or its floodplain (above 1:100 year flooding). A Surface Water-, Aquatic Biodiversity including Avifauna Impact Assessment Study would be commissioned for the project to identify and evaluate the potential impacts on water quality, aquatic ecosystem and birds from the mining operation. The most significant water quality impact to be considered is silt discharged to the river (TSS) which can be managed by applying a buffer area to the river floodplain, locating dumps, and slimes dams away from runoff-channels (riparian no-go areas) including adequate storm water management (but low rainfall area i.e. average of 40mm/annum). Hydrocarbon storage will be bunded including service and wash bays of which its runoff will pass through an oil separator. It is worth noting that the Grasdrift Mine site is 186km upstream from the Orange River estuary with a low possibility of additional impact on the estuary, given the current location of alluvial diamond mining 30km upstream from the estuary, nonetheless, no additional siltation load should be tolerated.
2. Nabas was already in possession of the prospecting right for alluvial diamonds over the application area before the enactment of NEM: PAA. Nabas applied for renewal to the DMRE but due to internal processes the renewal was only issued in 2017. In terms of s48 (2) the minister of mineral resources must review all mining activities which were lawfully conducted in a protected area prior to 2004. S48 (3) states the minister must prescribe conditions for mining activities conducted in protected areas, before the commencement of NEM:PAA under which those activities may continue in order to reduce or eliminate the impact of those activities on the environment or for the environmental protection of the area concerned. NEM: PAA does therefore make provision for prospecting and mining that legally took place before the enactment of the law to continue in a protected area but the mining area may not be increased. The Nabas mining right application therefore covers the same area as the original prospecting right area. The prospecting right has set the precedent for the mining right. In the case of the RNP Management plan, the closure objective must be to rehabilitate the area back to 'wilderness'.
3. This was conveyed at the public engagements and is detailed in the scoping report.
4. Please refer to response under item 1.
5. See response under item 1.
6. Please be advised that Nabas has access as the holder of a prospecting right area (same area as the prospecting right application). Access to current diamond mining areas in the RNP is strictly prohibited. Accordingly, no permission is required. Post note: Consent would however be sought from SanParks and the RJMC for the mine operation in the RNP.
7. As explained, this was conveyed to the Richtersveld-Nama community through public engagements and they are fully aware of the above provision

under MPRDA and NEMPAA. The Richtersveld-Nama people will own a 20% stake in the mine in the form of a Trust. Additional clarification on the legal provisions are provided in the Scoping Report

8. It is hereby confirmed that the application for environmental authorisation for the mining right is legal as explained above and has been accepted by the DMRE. No new applications are permitted in the RNP.

17. Environmental attributes associated with the site

This section provides a description of the environment that may be affected by the proposed diamond mining and its logistics and the manner in which the activity may affect the environment. The receiving environment consists of different component such as the biophysical, social, economic, heritage and cultural aspects.

Information pertaining to the receiving environment and its social surroundings has been sourced through the following means:

- Desktop analysis, literature review and use of Geographic Information Systems
- DFFE Environmental Screening Tool Report (STR)
- Site inspection to Grasdrift by Naledzi and appointed specialists on 18 November 2022;
- Specialist baseline inputs and inputs received from key stakeholders

The STR is required when applying for environmental authorisation (i.e. Regulations 16 (1) (b) (v) of the EIA Regulations). It provides detail on the environmental sensitivity including specialist studies that may be applicable to a project site, based on the national sector classification and the site sensitivity. The STR is generated from the DFFE national web-based screening tool and is attached under **Appendix 9**.

According to the STR the project site is linked to several sensitivity themes detailed in **Table 11**. Naledzi and our team of specialist (**Table 12**) verified the land use and sensitivity themes through a site inspection. The STR findings and inspection results (i.e. EAP, specialist inputs) have been considered and included in the description of the biophysical environment in the sections below.

Table 11: Screening Tool environmental sensitivity themes applicable to Grasdrift

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Biodiversity: Terrestrial & Aquatic	Animal Species	Palaeontological Plants Species	Agricultural Archaeological Cultural
Applicability: <ul style="list-style-type: none"> ▪ Rivers, wetlands ▪ Freshwater ecosystem priority area ▪ National Park ▪ Endangered Ecosystem ▪ FEPA sub catchment ▪ Richtersveld Cultural and Botanical Landscape 	Applicability: High and moderate avifauna species may be present <ul style="list-style-type: none"> ▪ Great White Pelican ▪ Caspian tern 	Applicability: <ul style="list-style-type: none"> ▪ Features with low palaeontological sensitivity ▪ Sensitive species 855 	Applicability: <ul style="list-style-type: none"> ▪ Low potential land type ▪ Archaeology - Nothing noted.

Table 12: Specialist support in describing the biophysical environment and identifying implications

Specialist, Date of input	Aspect
Dr Jürgen's Jacobs, 2001	Geotechnical Report and description of mineral deposit
The Biodiversity Company, 2023	Land Capability, Soils, Terrestrial and Aquatic Biodiversity
Sustainable GeHydrological Solutions, 2022	Hydrological, Geohydrological, Storm water Plan, Flood line Assessment
Safetech, 2022	Noise
Environmental Planning and Design, 2022	Landscape and Visual
Afzelia Environmental Consultants, 2022	Socio-Economic
Niara Environmental Consultants, 2022	Community Health
EcoElementum, 2022	Rehabilitation and Closure objectives
Umoya-Nilu, 2022	Air Quality, Dust fallout
Ubique Heritage Consultants, 2022	Paleontology, Archaeology and Cultural

17.1 Current Land Use

The project site is a remote desert environment (Grasdrift) in the far eastern section of the protected Richtersveld National Park. Public access is already restricted to this area due to current diamond prospecting activities by Nabas (refer to section 9.2 and 9.3 of this report). Nomadic stock farmers also camp and graze along the Orange River floodplain during summer as part of their cultural movement pattern.

Grasdrift has a history of diamond exploration due to the availability of diamond mineralisation i.e.

- 1981 – 1982 Namex (Pty) Ltd (subsidiary of Octha);
- 1998 Global Diamond Resources (a subsidiary of Nabas Diamonds).
- 2018 -2019 Nabas Diamonds. The prospecting continues, but results are favourable to date.

17.2 Topography

Grasdrift is located in the lower Orange River valley, 65 km downstream from Violdrift, across from Aussenkehr, where the Orange River cuts through the rugged mountainous desert terrain of the Richtersveld before reaching the Atlantic Ocean, 186km downstream at Alexander Bay.

The Orange River is the only perennial river in the region and flows south to north along the eastern boundary of the project site at an elevation of 100-116m absl. From the river the land slopes upwards towards the foot of the rugged mountains in a relatively flat slope of 1: 50. The site is therefore tucked away behind the rugged mountains tilted towards the river and Aussenkehr. There are extensive alluvial gravel beds that extend from the river to the mountains. The episodic Oudannisiep River and numerous smaller dry watercourses intersect the site from the mountains flowing across the gravel terraces to the Orange River.

Due to current prospecting activities the natural ground profile has been altered in the southern section of the project site.

The distinctive topographical features of the site are summarised in **Table 12**.

Table 13: Description of topographical features onsite

Landscape position	Elevation absl	Description of topographical feature	Mining activity
River Corridor (Eastern boundary)	100-116m	Orange River Wide river channel and associated riparian vegetation with a wide sand/gravel floodplain on the edges which it slopes, in some areas, rise in the order of 10m high.	NO
Natural Lowland Central section	117m - 200m	10km stretch of alluvial gravel terraces along the river, lacking vegetation, that extend from the river to the mountains Proto terraces present as perched koppies/terraces Meso terraces	YES
Natural Upland	130 - 285m	Rugged mountains	NO

Mining will be restricted to the alluvial gravel terraces above the 1:100 year flood line, bank and riparian zone of the Orange River. No infrastructure, except for water pumps and pipelines would be located within a 100m of the Orange River.

The river riparian zone and bank would be left in intact to protect the river edge and to act as a screening measure between sensitive receptors on the Namibian river bank and mining activities.

The Meso terraces would be excavated to a maximum depth of 20m. The overburden, waste and tailings material from the process would be used as direct backfill of excavated areas, levelled and covered with coarse material to mimic the surrounding landscape as part of rehabilitation. Any surplus material would be shaped to mimic gravel terraces along the river.

The Proto terraces present as perched koppies (some approximately 80-135m high) would not be mined to ground level, only the top 15-20m would be mined and processed, where after the terraces would be shaped with overburden to have soft edges and subsequently covered with coarse material.

17.3 Climate description

Grasdrift has a hot desert climate and receives almost no rainfall. The area has two seasons which includes a short winter from May to July and very hot summer from August to April. During summer aridity is high and can reach maximum temperatures of up to 50°C. If it rains, it may rain in winter but more often in summer, in the form of thunderstorms. Given the low altitude of the site frost should be very rare.

Temperature, Precipitation, Evaporation

The closest weather station to Grasdrift is 65km upstream at Vioolsdrift (28.77°S 17.62°E at 170m abs). According to the last 30 years of simulated historic climate and weather data obtained from ‘Meteoblu’ (Table 14) the area is characterized by hot daytime summer temperatures and cool nights. The annual average maximum temperature is 30.9 °C, with an average maximum temperature above 30 °C from October to April with the hottest days recorded in January (43 °C). Temperatures drop from May with the nights becoming cold from June to August (Table 14).

The annual average rainfall for the area is 40mm (Table 14). Evaporation losses exceed the annual rainfall with a mean annual evaporation (MAE) of 2400mm (Symons Pan).

Table 14: Average monthly temperature, rainfall and evaporation for Vioolsdrift (simulated historical climate and weather data for Vioolsdrift-meteoblu)

Monthly average				
Month	Hottest Day (°C)	Maximum (°C)	Minimum (°C)	Rainfall (mm)
Jan	43	37	18	3
Feb	43	37	19	5
Mar	41	36	18	4
Apr	38	32	15	7
May	34	27	11	4
Jun	29	23	7	2
Jul	30	23	7	2
Aug	33	25	8	2

Sep	38	29	11	2
Oct	40	32	13	3
Nov	42	34	15	4
Dec	42	36	16	2
Mean average	37	30.9	13.1	40mm

Rainfall storm events

This aspect is described under section 17.5 ‘Surface Water’ subsection 17.5.2 ‘Rainfall and Design Storms’ as it is an aspect related to surface water run-off.

Wind

The hourly wind speed and direction data for the Richtersveld are presented in the annual wind rose in **Figure 17-1**. The predominant wind directions are south-southwesterly (SSW) to southwesterly (SW) and north-northeasterly (NNE) and northeasterly (NE). Generally winds in these directions are light with the majority of hourly winds less than 5.5 m/s. Stronger winds reaching more than 10 m/s do occur, mostly in winter and causing sandstorms (*Umoya-Nilu, 2022*).

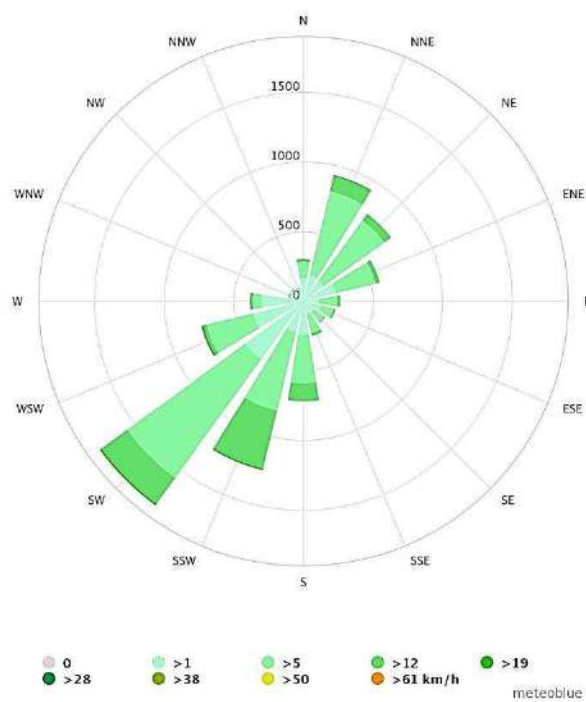


Figure 17-1: Annual wind rose for Richtersveld
(Simulated historical climate & weather data for Richtersveld – meteoblue)

The climate data for the Grasdrift area infer the following for the proposed mine operation:

- Given the desert environment, rainfall reporting to the local tributaries on the Grasdrift site will infiltrate (permeable soils) and evaporate and are therefore dry with the exception of rare flash flood events.
- The high evaporation rate would increase water loss in the slimes dams and may result in a high salt loads in water reused for process water and dust suppression.
- Hot desert climate of the area reduces the land potential and will require regular dust suppression;
- The light SSW to SW winds over Grasdrift may blow dust fallout toward Aussenkehr and cause a nuisance to tourist facilities and pose a risk to grape farming.

17.4 Geology

The geology for Grasdrift has been extensively described in the Nabas Diamonds Resources Statement including the Mining Works Programme submitted as part of the mining right application to the DMRE and is therefore only briefly described in this section on a local scale.

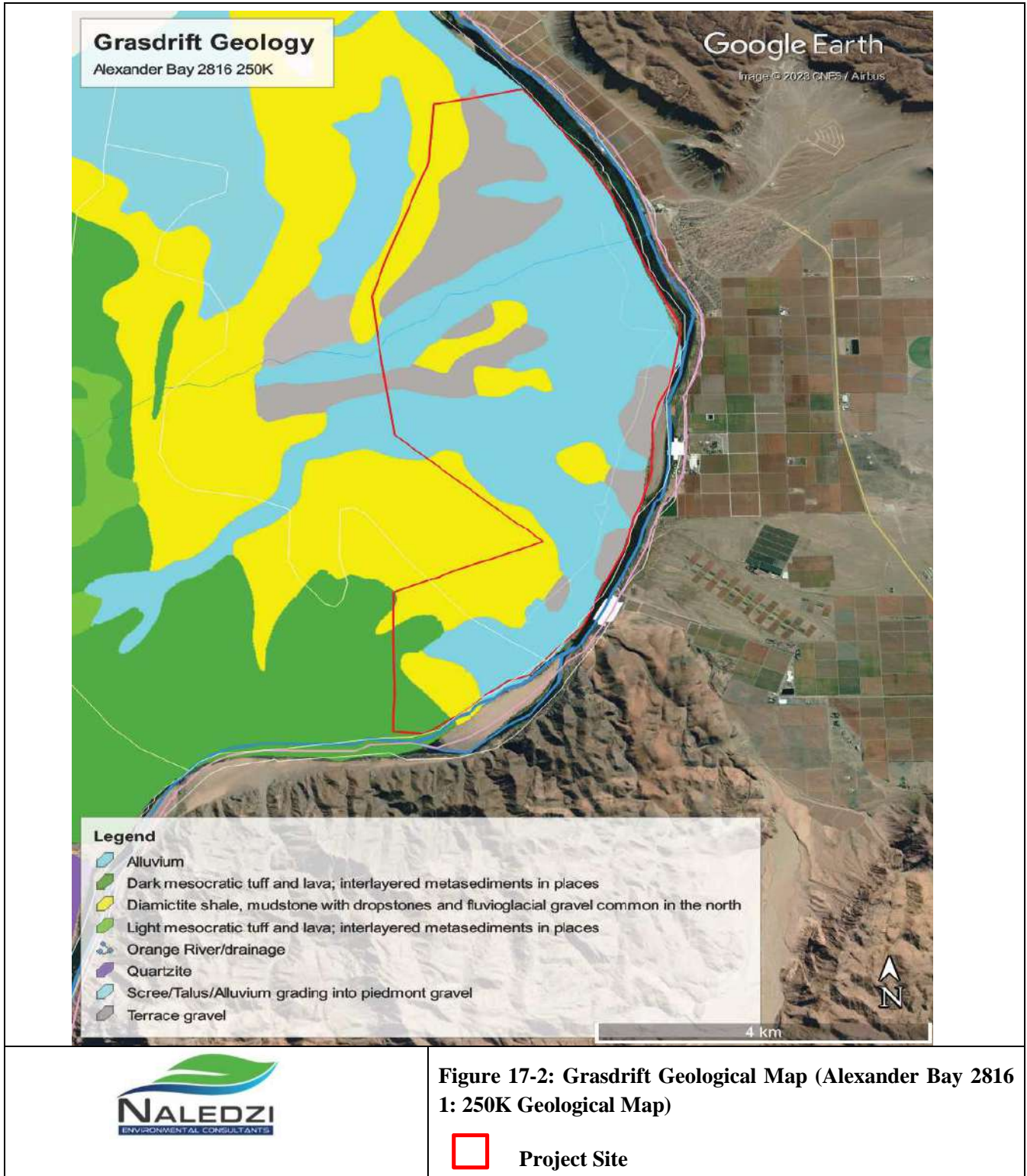
The site is composed of two geological formations, mostly the Dwyka Formation in the Karoo Sequence with a small portion of De Hoop Subgroup in the southern section of the application site. According to the Alexander Bay 2816 1:250 000 geological map, the site is underlain by Dwyka Formation comprising scree/Talus/Alluvium grading into piedmont gravel followed by terrace gravel of various sizes underlain by bedrock. The small portion of the site in the southern extreme underlain by De Hoop Subgroup comprise lava, tuff and conglomerate (**Figure 17-2**).

The gravel deposit of interest is present as Proto (perched koppies) and Meso terraces (Figure 9-1, section 9.1 of this report). The diamonds would be concentrated at fixed-trap sites of which a couple exists at Grasdrift i.e. riffles, large boulders and a classic bar head.

At the Proto terraces trap sites such as riffles and /or bar heads could be intersected. But the un-concentrated grade would be the highest at the terraces. A large portion of the Meso terrace has been covered by talus/scree from the surrounding mountains and parts of it has washed away by the dry streams, most notable being Oudannisiép River. There is a bar head that has been pegged to bedrock at Meso terraces A – C which is a potential fixed trap site. Terrace B, bedrock changes to competent sandstone but remains a good potential trap site. The energy of the system declines in the upstream part of Terrace D. However small areas of economic interest (i.e. palaeo-riffle) in the water intake area on Terrace H and Terrace K, immediately downstream of tributary inputs, exist (refer to Figure 9-5).

The geology data for the Grasdrift area infer the following for the proposed mine operation:

Given the geological characteristics of the site, the gravel deposits would need to be mined through a shallow open cast operation requiring the excavation of the gravel down to bedrock, down to a depth of 20m to expose the potential trap sites. The first 20-25m of the perched Proto terraces would also be excavated and processed.



17.5 Soils and Land Capability

Soils

Grasdrift comprise extensive coarse-grained gravels and sandy gravels deposited by the Orange River. The mining interest areas (i.e. Meso terraces), as per the geological description, are covered by talus/scree from the surrounding mountains but rarely covered by sand, which makes it easier to mine. Topsoil is nearly absent from site.

Landscape units were identified using the 1: 250 000 South African Land Type Data (Land Type Survey Staff, 1972-2006, ISCW of the ARC). Each land type displays terrain form, soil pattern and climate. The three land types associated with the project site is Ia77, Ib121 and Ic143 (**Figure 17-3**). These land types are associated with the following soils:

- **Ia77** - Bare rock, Mispah, Dundee, Oakleaf, Hutton, coarse deposits and stream beds;
- **Ib121** – Bare rock, Mispah Hutton and Dundee
- **Ic143** – Bare rock, Hutton, Clovelly, Mispah, Dundee and Oakleaf.

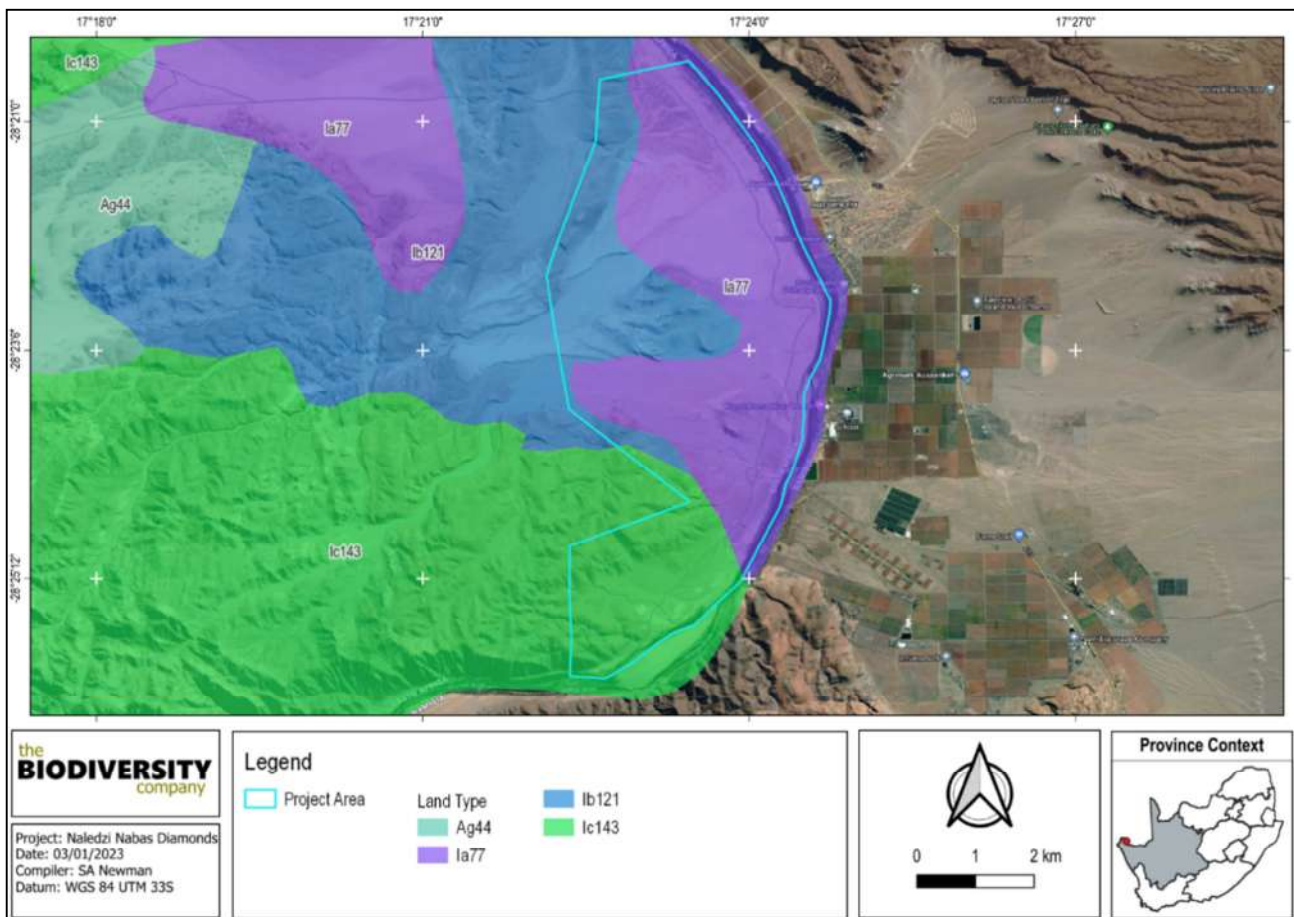


Figure 17-3: Land types associated with the project site (image courtesy of The Biodiversity Company)

The terrain units for each land type and expected soil for each land type are illustrated in **Figure 17-4** and **Table 15** respectively.

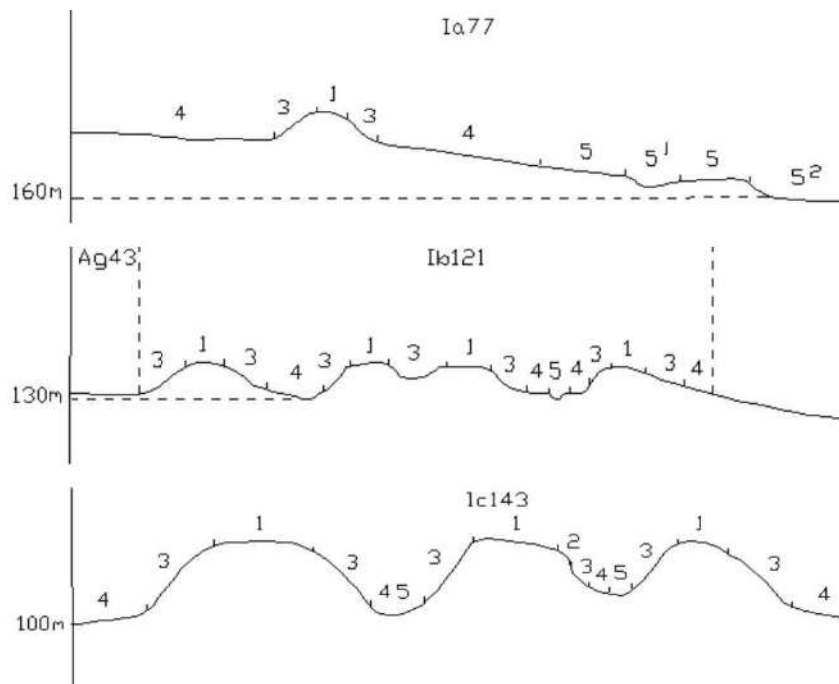


Figure 17-4 Illustrations of the land type terrain units (Land Type Survey Staff, 1972 – 2006)

Table 15: Soils expected at the respective terrain units within each of the land types (Land Type Survey Staff, 1972 - 2006)

Ia 77 Terrain Units											
1 (2%)		3 (4%)		4 (30%)		5 (40%)		5(1) (20%)		5(2) (4%)	
Mispah	80%	Mispah	80%	Oakleaf	60%	Dundee, Oakleaf	90%	Coarse deposits	90%	Stream beds	100%
Bare rock	20%	Bare rock	20%	Hutton	30%	Coarse deposits	10%	Dundee, Oakleaf	10%		
				Coarse deposits	10%						
Ib 121 Terrain Units											
1 (15%)		3 (60%)		4 (15%)		5 (10%)					
Bare rock	80%	Bare rock	80%	Mispah	55%	Mispah	30%				
Mispah	15%	Mispah	15%	Hutton	30%	Hutton	30%				
Hutton	5%	Hutton	5%	Bare rock	15%	Dundee	30%				
						Bare rock	30%				
Ic 143 Terrain Units											
1 (15%)		2 (5%)		3 (75%)		4 (3%)		5 (2%)			
Bare rock	90%	Bare rock	100%	Bare rock	85%	Bare rock	50%	Dundee, Oakleaf	100%		
Mispah	10%			Hutton, Clovelly	10%	Hutton, Clovelly	30%				
				Mispah	5%	Mispah	20%				

Land Capability

According to the Department of Agriculture, Forestry and Fisheries (DAFF, 2017) national raster file the land capabilities associated with the project site range from very low to low (**Figure 17-5**) across the project area i.e..

- Land Capability 1 to 5 (Very low, Very low/Low to Low Sensitivity);

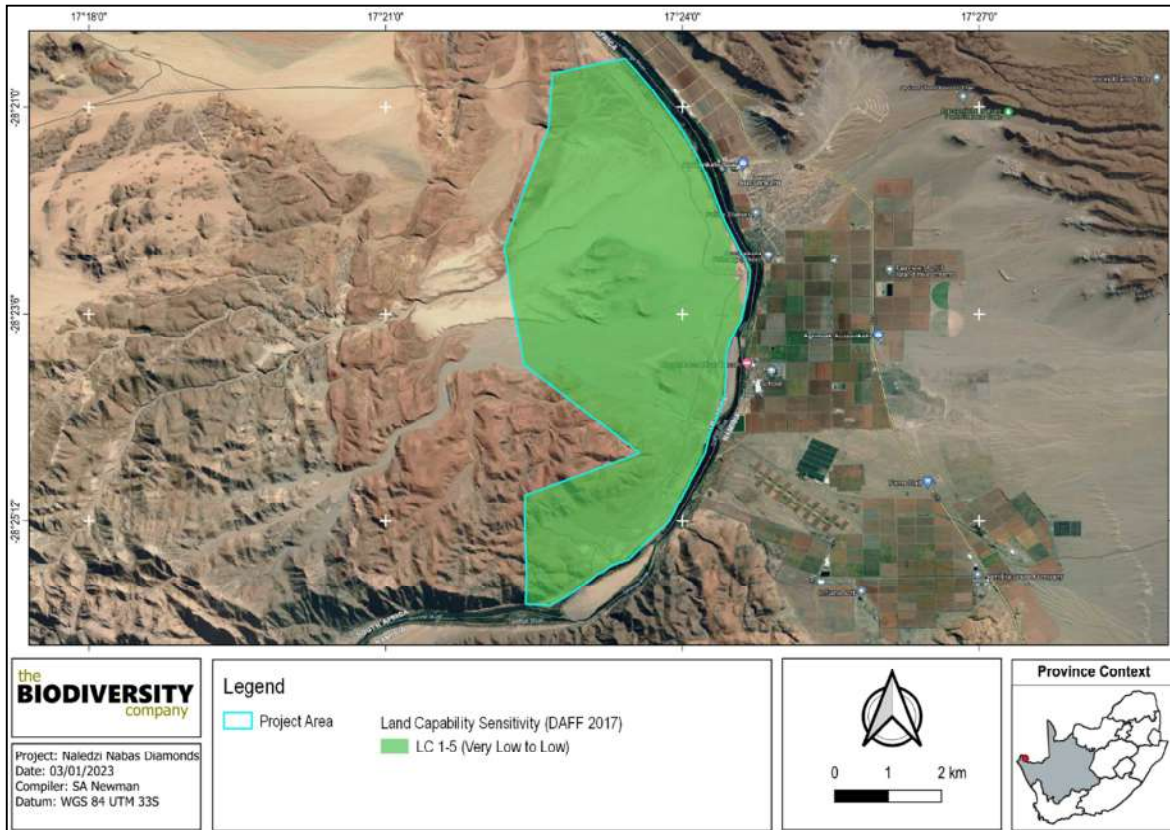


Figure 17-5: Land Capability Sensitivity (DAFF, 2017) (courtesy of The Biodiversity Company, 2023)

According to the DFFE Screening Tool the site has a ‘Low’ agricultural potential. The site inspection and desktop analysis confirm that the soil forms present are associated with very low and low land capabilities. The soil depth, texture and permeability of these soils confirm lower land capability. Areas characterised by “Low” land potential are expected for most of the project area.

The soil and land capability data for the Grasdrift area infer the following for the proposed mine operation:

- The soil is highly permeable, any rainfall would infiltrate and evaporate (hot desert climate);
- The soils are highly erodible. The project may result in the soil compaction and erosion. In the event of rare flash flood events, soils may erode due to concentrated storm water runoff.
- The mining activities may result in seepage (slime dams), leaks/spillages resulting in contamination of soil resources, which could affect soil fertility (salinity and pH).

- The proposed mining can result in further loss of land capability i.e. infestation of alien species affecting soil resources. However the land capability is also restricted by the area's desert climate and its locality in the RNP. The post mining land use is to return the land to 'wilderness / desert' for incorporation into the tourist zone.

During the operational phase, the impacts associated with the mining activities can be managed by best "housekeeping" practices. Available topsoil must be conserved and removed to stockpile before clearing any areas for mining, infrastructure.

Further field investigation and reporting on the soil and land capability aspect would be conducted during the EIA phase i.e. Soil and Land Capability Impact Assessment.

17.6 Surface Water

17.6.1 Surface Water and Drainage

The project site is located in the D82J quaternary catchment on the left bank of the perennial Orange River within the Orange Water Management Area (WMA). The Orange River forms the eastern boundary of the mining right, RNP and forms the international border between South Africa and Namibia; consequently an internationally shared water source.

Based on the initial Hydrological baseline inputs for Grasdrift (SGHS, 2022), the general drainage direction at the project site is from west-southwest to east-northeast. Numerous episodic streams (incl. Oudannisiép River) intersect the site from the rugged mountains to the Orange River as depicted in Figure 17-6. These hardly ever flow. The Oudannisiép River according to local knowledge last flowed in 1925.

The 1:100 flood line of the Orange River and Oudannisiép will be determined as part of the Hydrological/Surface Water Impact Assessment for the project and will be reflected on the Mine Layout Plan included in the Draft EIR Report.

Thirteen (13) local sub-catchments were also delineated at the site that exceed 1km² (100ha). The delineated catchments are presented in Figure 17-7 and **Table 16**.

The drainage patterns at the project site infer the following for the Grasdrift project:

Mineral extraction activities will take place above the 1: 100 year flood line except for placing of water abstraction pumps and water transfer pipelines to the plant areas. No infrastructure would be placed within 100m of the Orange River, but;

- Mineral extraction activities will take place within a 100m of numerous episodic streams.
- The existing access road crosses the Oudannisiép River and several of the episodic streams from section 3 down to section 1.
- Mine infrastructure would be located within 100m of episodic streams.

In the event that HME's are brought to site across the Orange River from Aussenkehr, such vehicles would only cross during dry season (50mm deep water) across a rocky section of the river as illustrated in Figure 9-12, 9-14. The undercarriages are above the water level.

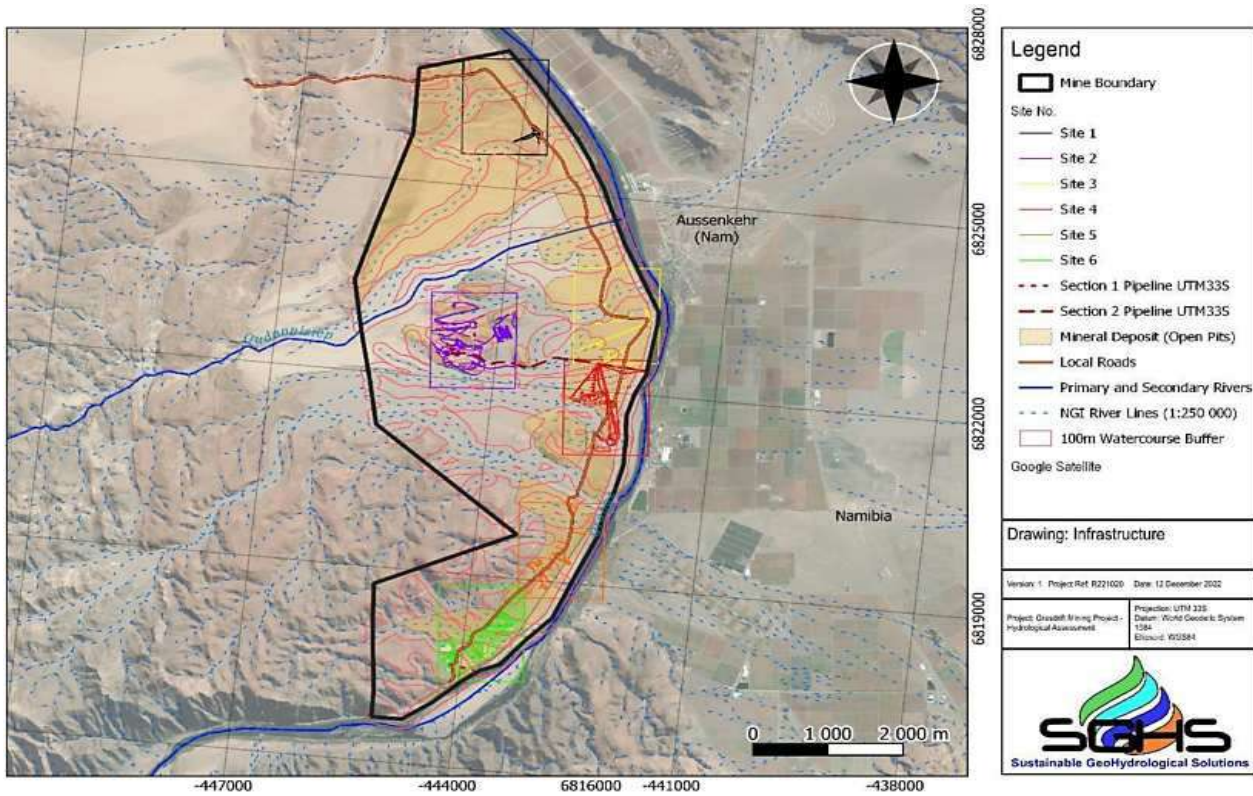


Figure 17-6: Drainage features (dry watercourses) intersecting the project site and proposed infrastructure (map courtesy of SGHS, 2022)

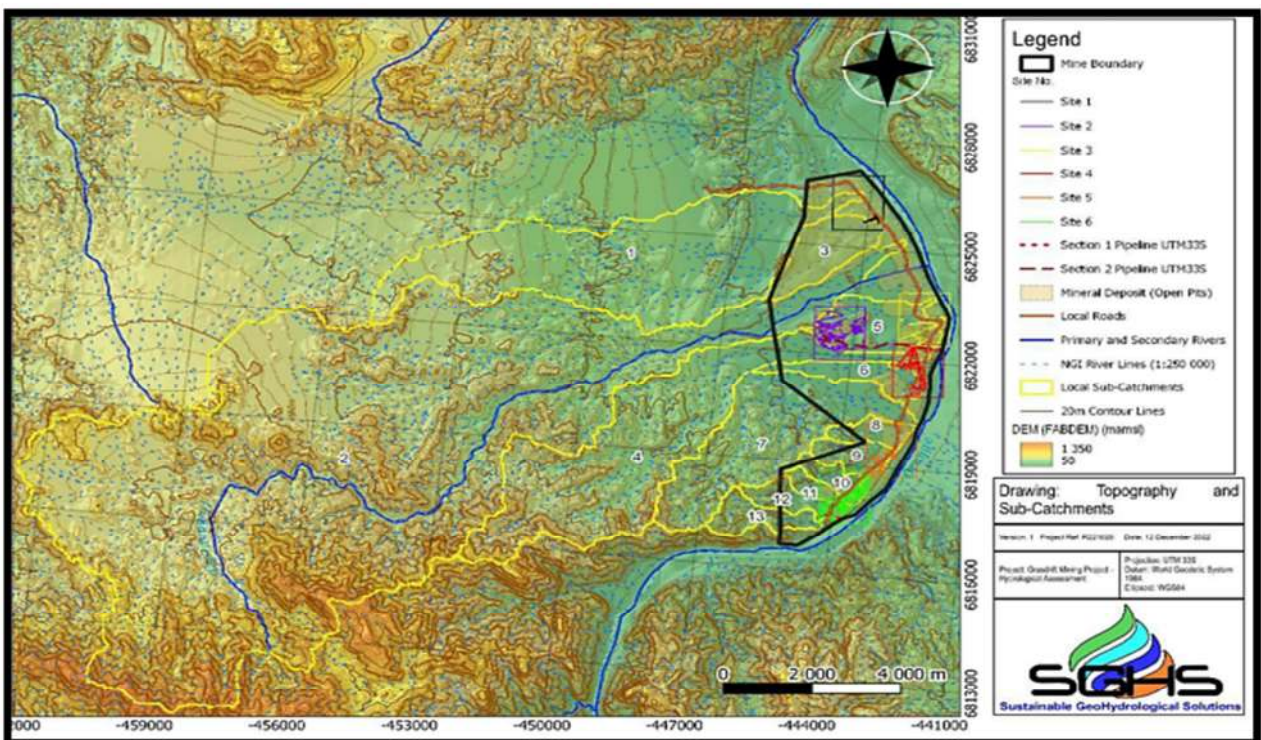


Figure 17-7 : Local sub-catchments delineated within the project area

Table 16: Overview of local sub-catchments

Name	Area (ha)
Sub-Catchment 1	2 130.9
Sub-Catchment 2	9 486.0
Sub-Catchment 3	301.7
Sub-Catchment 4	1 837.6
Sub-Catchment 5	356.9
Sub-Catchment 6	188.9
Sub-Catchment 7	1 062.4
Sub-Catchment 8	107.2
Sub-Catchment 9	130.8
Sub-Catchment 10	87.3
Sub-Catchment 11	67.1
Sub-Catchment 12	127.1
Sub-Catchment 13	163.1

17.6.2 Rainfall and Rainfall Design Storms

As mentioned in section 17.2 the site generally receives virtually no rain. In these calculations data from the Richtersveld weather station were used where rainfall trends fall in the winter. These calculations Evaporation losses exceed the annual rainfall. A more accurate site rainfall analysis was done using the WR 2012 data (Bailey and Pitman, 2015) (Figure 17-8). According to the analyses the mean annual precipitation is 29mm viz. mean annual evaporation of 2400mm (Symons Pan) (Figure 17-9). (SGHS, 2022)

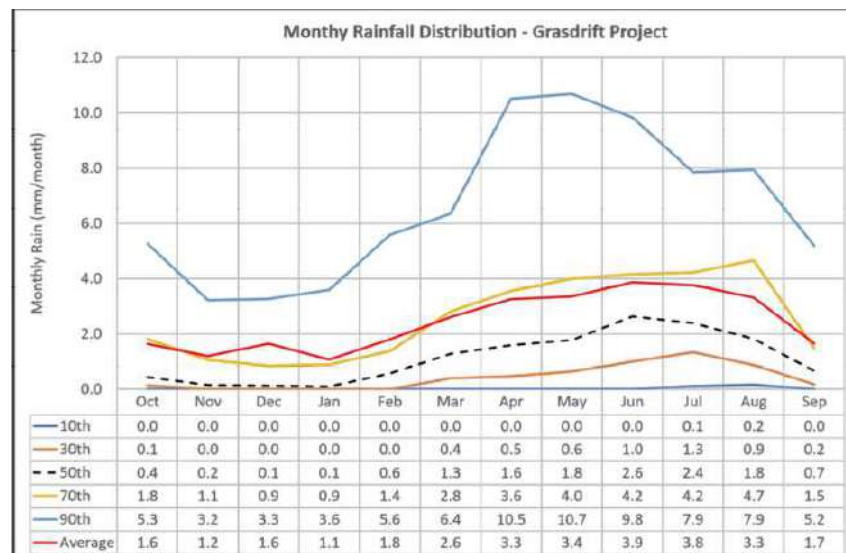


Figure 17-8: Monthly distribution of rainfall at Grasdrift

Figure 17-8 has been described in terms of exceedance levels i.e. 50th percentile represents a value exceeded 50% of the years. This is not an average value but rainfall that is most likely to occur. It will vary between the 70th (wet condition) and 30th (dry condition) percentile values. The 90th percentile value presents wet conditions and unseasonal rainfall likely to cause flash floods.

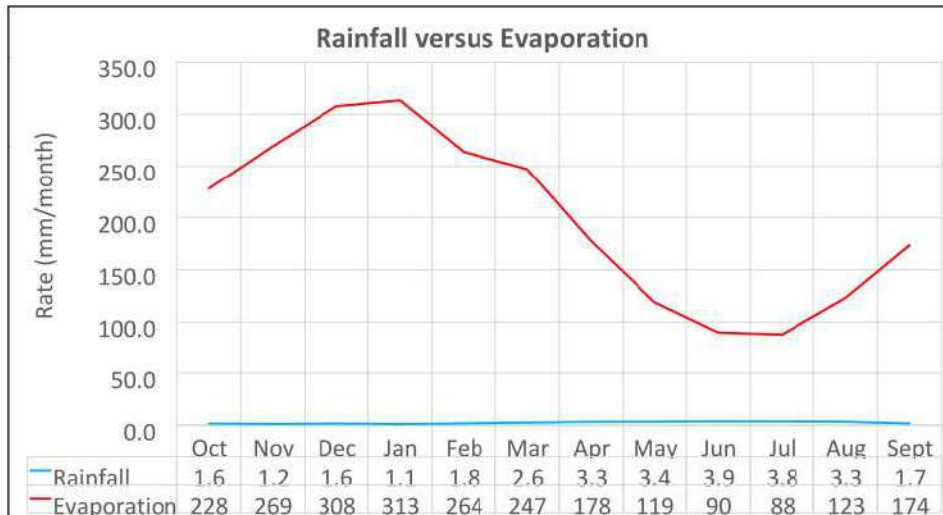


Figure 17-9: Mean monthly rainfall and evaporation for Grasdrift

Design rainfall depths for the Grasdrift Project were calculated using the Design Rainfall software for South Africa (Schulze, et al., 2004). The design rainfall depths for the 1:2-year to 1:100-year return periods can be seen in Table 17. These rainfall depths will be used as input in calculating flood peak flows for the project site for the storm water management plan during the EIA phase

Table 17: Design rainfall depths for Grasdrift

Duration	Return Period (Years)						
	2	5	10	20	50	100	200
5 min	3.1	4.6	5.7	6.8	8.5	9.8	11.2
10 min	4.3	6.4	8	9.6	11.9	13.7	15.7
15 min	5.3	7.8	9.7	11.7	14.4	16.7	19.2
30 min	6.7	10	12.4	14.9	18.5	21.4	24.5
45 min	7.7	11.5	14.3	17.2	21.3	24.6	28.3
1 hr	8.6	12.8	15.8	19	23.6	27.3	31.3
1.5 hr	9.9	14.7	18.3	22	27.2	31.5	36.1
2 hr	11	16.3	20.2	24.3	30.1	34.8	39.9
4 hr	13	19.3	24	28.8	35.7	41.3	47.3
6 hr	14.3	21.3	26.5	31.8	39.4	45.6	52.2
8 hr	15.4	22.9	28.4	34.1	42.2	48.9	56
10 hr	16.2	24.2	30	36	44.6	51.6	59.2
12 hr	17	25.3	31.3	37.7	46.6	54	61.9
16 hr	18.2	27.1	33.6	40.4	50	57.9	66.4
20 hr	19.2	28.6	35.5	42.7	52.8	61.1	70.1
24 hr	20.1	29.9	37.1	44.6	55.2	63.9	73.3

The storm event analysis infers the following runoff results for the proposed Grasdrift Mine project:

- Rainfall reporting to local tributaries will infiltrate and evaporate. Tributaries on the Grasdrift site are dry with the exception of flash flood events as depicted in Table 17.
- The total runoff from these natural catchments on site is equivalent to 0mm/annum over the surface area for QDC D82J (Grasdrift).
- The proposed Grasdrift Mine will comprise an estimated area of 25.87km² of land of which 50% will become affected by mining infrastructure. The total reduction in rainfall due to site infrastructure would therefore also be 0m³/annum.

17.6.3 Surface Water Quality

SGHS took a water sample of the Orange River up and downstream of the Grasdrift during the site inspection in November 2022. The sample results are pending and would be discussed in the draft EIR document. According to the RNP management plan the Orange River water quality is affected by agricultural developments (vineyards) on the Namibian bank of the river where agricultural fertiliser/chemicals leach into the river.

The sedimentation/silt into the Orange River is not visible from the current prospecting activities as a slimes dam is used to contain such. The old slimes dam was incorrectly positioned along a drainage line and has since been rectified by discontinuing its use (dry dam) and establishing a new slimes dam away from any drainage patterns. No alluvial fans below prospecting activities are visible along the Orange River bank. This can be owned to the low/ no rainfall for Grasdrift and limited scale of activities.

The impact from the increased mining activities on the Orange River water quality is also expected to be negligible. Facilities (i.e. slimes dam, overburden, and tailings) are expected to be inert. The tailings 'porrel' comprise sand and water. There is also virtually no runoff (refer to climate data). The most significant water quality impact to be considered for the mine is silt discharge / load (high salt load runoff) to the river. The silt would be controlled in a slimes dam at each plant built according to environmental best practices/approved engineering design.

Silt would further be managed by restricting mining above the 1:100 year flood line and locating slimes dams and stockpiles away from runoff channels including adequate storm water management. Hydrocarbon storage including services and washbays would be bunded and its runoff will pass through an oil separator.

Hydro chemical testing would be undertaken to determine the process water, porrel/tailings leachate qualities from slimes dams and plant to confirm a negligible impact on the Orange River.

17.6.4 Surface water use

The only nearby downstream receptors of the Grasdrift project that can be expected are water users from the Orange River i.e. potable consumption (human), but mainly for livestock and nearby grape farming.

The water users include:

- Namibia Water Corporation supply water from the Orange River to Aussenkehr and Rosh Pinah across and downstream of the site.
- Silverlands Namibia, Namibia Grape Company (across and downstream of the site)

- Livestock farmers

Nabas also presently uses 17 000 -18 000m³/annum of water for the prospecting activities under WU20432 abstracted from two water abstraction points i.e. at Section 1 prospecting plant and contractors area. Process water stored in a 150m³ steel dam and potable water in four (4) JoJo Tanks (10 000 litres).

17.6.5 Water Requirements and Availability

Water for the proposed increased mining will be abstracted from the Orange River at 80 000 – 100 000m³/month (0.96 – 1.2 million or Mm³/annum). There are three (3) confirmed abstraction points at Section 1, 2 and 3. Potable water will be stored in JoJo tanks. Process water would be stored in three steel dams including a tarp dam. Water transfer pipelines will be used to transfer water from the river to the processing plants.

The slurry and process water from the plant is pumped into the slimes dam. The slurry (settles) and clean water would be reused in the process plant and for dust suppression.

The closest Orange River flow gauging station around Grasdrift to access water availability is DWS Vioolsdrift station (D8H003), 75km upstream from Grasdrift. The annual flow that passes the flow gauging station is 7 825 Mm³/annum and the median is 5 312 Mm³/annum. A significant dry year, using the 10th percentile, is approximately 939 Mm³/annum and a wet year using the 90th percentile, was recorded at 18 706 Mm³/annum.

A maximum total water demand of 1.2 Mm³/annum does not comprise more than 0.013% of the total flow during a significant dry year (10th percentile). Other water users in the vicinity of Grasdrift will be assessed during the EIA phase specialist Hydrological Assessment Study to determine the potential impact on water availability from a holistic perspective.

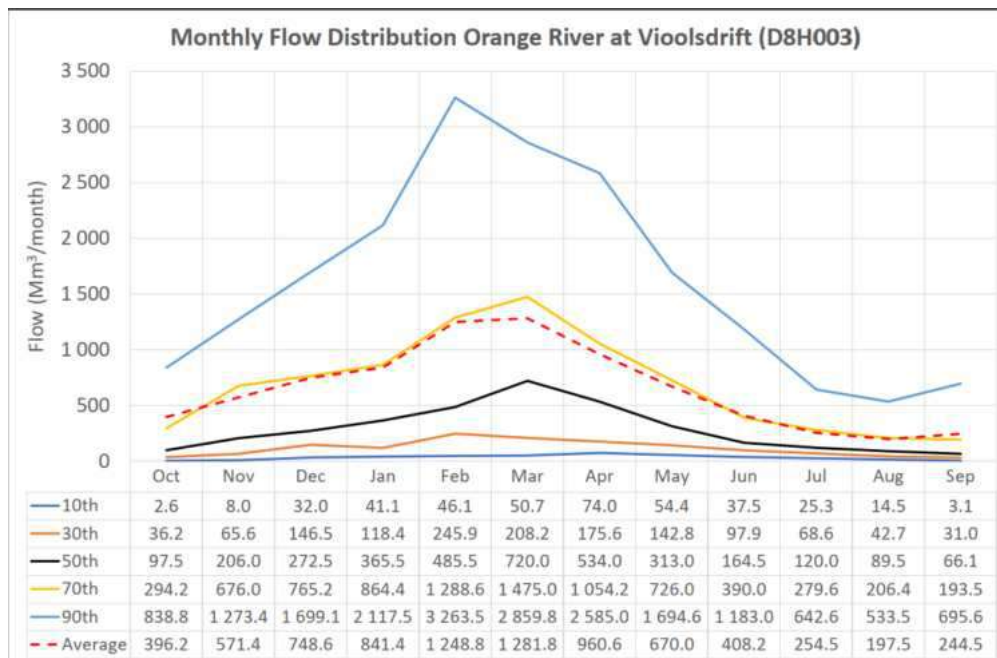


Figure 17-10: Monthly flow distribution of the Orange River at Vioolsdrift (SGHS, 2022)

Nabas will submit a new WULA to the DWS to allow for the additional abstraction of water from the Orange River for their increased mining activities.

17.7 Groundwater

According to the initial Geohydrological baseline inputs by SGHS, 2022, the project site is underlain by the Dwyka Group, a low yielding aquifer, considered to be an aquitard rather than an aquifer. Yields are generally low <0.5l/s. Areas where the Dwyka Group has been fractured yields can be up to 10l/s, but are rare. The study area is therefore predominantly situated in a poor aquifer region which is a low to negligible yielding aquifer of moderate to poor water quality (usually brackish). It has a least groundwater vulnerability rating therefore assumed to have a low susceptibility for contamination.

During the onsite inspection of 18 November 2022 no boreholes were recorded within the Grasdrift mine or within a 1km radius thereof. No groundwater was intersected either during the prospecting drilling and trenching programme where holes were drilled down to 30 m below ground level. All boreholes have since been filled and couldn't be profiled for water content. The mining activities would only progress to 20m below ground level therefore not anticipated to intersect groundwater.

Although no groundwater table was intersected, shallow basement rock can act as a permeable barrier for water infiltration which can drain along basement rock and form a perched aquifer i.e. static in some areas / drain towards the east. Groundwater level is therefore considered in case of high surface to subsurface water infiltration caused by mining / high rainfall events (expected to be scarce).

The groundwater data and findings infer the following for the Grasdrift Mine project:

- The on-site alluvial deposits are still vulnerable to surface source contamination due to perceived expected high permeability. Groundwater contamination may occur via hazardous materials, hydrocarbon spills, sewage spills and leachate generated from waste management areas.
- If surface water is abstracted during mining, pumping will cease at the end of LoM and result in increased surface water flow downstream of the closed mine and have a benign effect on groundwater availability. This is due to the reported absence of groundwater onsite and the continuous surface to groundwater recharge potential created by the Orange River.
- The project will have a low impact on groundwater.

Spills and leaks will be managed through the implementation of good housekeeping practices, regular inspections and sound environmental management. The Diesel Storage, old oil storage and serviced areas would be bunded and suitably contained. The workshop and vehicle service areas would be undertaken on a paved area and include oil traps.

Stockpiling areas and pit surface areas are considered negligible since no chemical interaction is envisaged that could have an impact on groundwater quality.

Any seepage from the slimes dams must be captured and diverted back into the mine water balance for reuse. Geochemical testing would confirm the need for any compacting / lining systems i.e. high salt load.

17.8 Aquatic Biodiversity

The Orange River and its associated floodplain wetland are present at the eastern boundary of the site.

The DFFE Screening Tool regards the aquatic biodiversity sensitivity theme for the site as ‘Very High’ due to the presence of the Orange River, its associated wetlands and Freshwater ecosystem priority area quaternary catchment. The below desktop analysis confirms the aquatic sensitivity theme to be ‘High’.

The ecological status and composition of the Orange River Sub-quaternary Reach (SQR) D82J-3124 is shown in **Table 18**. The D82J-3124 SQR (including the episodic Oudannisiëp River) is considered moderately modified with a high Ecological Importance and a high Ecological Sensitivity at a desktop level (DWS, 2014). The modified state of the reach was due to serious impacts to flow modifications, moderate impacts to physico-chemical conditions (water quality), wetland and riparian zone and small impacts to in stream habitat modifications.

Table 18 Desktop data pertaining to the ecological condition of the associated SQR (DWS, 2014)

SQR	Stream order	Length (km)	PES (DWS, 2014)	ES	EI	Default Ecological Category
D82J-3124	7	22.00	C (Moderately Modified)	High	High	B (Largely Natural)
PES-EIS Justification		AIP, overgrazing, impacts from upstream, irrigation in Namibia				
Variable	Status	Variable	Status	Variable	Status	
Modifications to In stream Habitat Continuity	Small	Fish species per sub quaternary catchment	10	Fish Physico-Chemical sensitivity description	High	
Modifications to Riparian/ Wetland Zone Continuity	Small	Invertebrate taxa per sub quaternary catchment	53	Fish No-flow sensitivity description	High	
Potential Instream Habitat Modifications	Small	Habitat Diversity Class		Invertebrate Physico-Chemical sensitivity	Very High	
Modifications to Riparian/ Wetland Zones	Moderate	Instream Migration Link Class	Very High	Invertebrate velocity sensitivity	Very High	
Potential Flow Modifications	Serious	Riparian-Wetland Zone Migration Link	Very High	Stream size sensitivity to modified flow/water level changes description	Low	
Potential Physico-Chemical Modifications	Moderate	Instream Habitat Integrity Class	Very High	Riparian-Wetland Vegetation intolerance to water level changes description	Moderate	

The project site also overlaps with Critically Endangered and Unclassified wetlands, as well as a Least Threatened Orange River (Figure 17-11) according to the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) and a Floodplain NFEPA wetland and a NFEPA Fish Corridor (Figure 17-12) in terms of the National Freshwater Ecosystem Priority Areas (NFEPAs) (Driver et al., 2011).

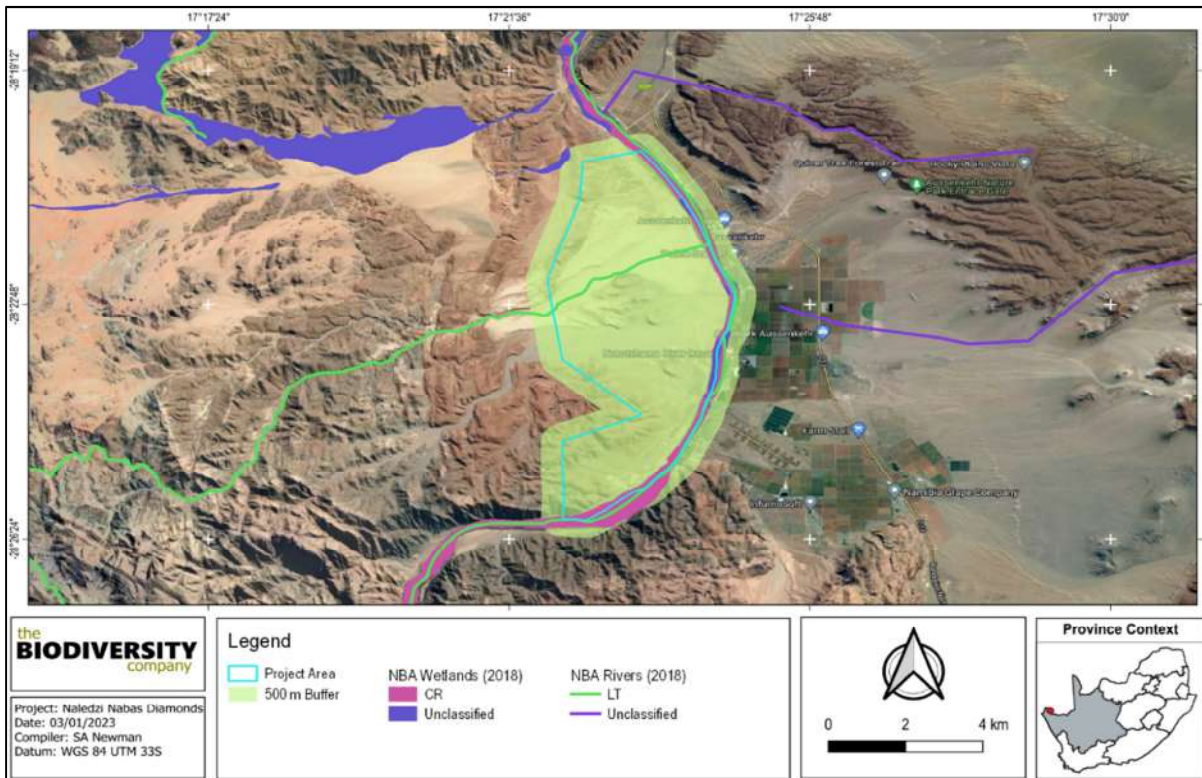


Figure 17-11 Map illustrating the ecosystem threat status of rivers and wetland ecosystems in the project area (courtesy of the Biodiversity Company, 2022)

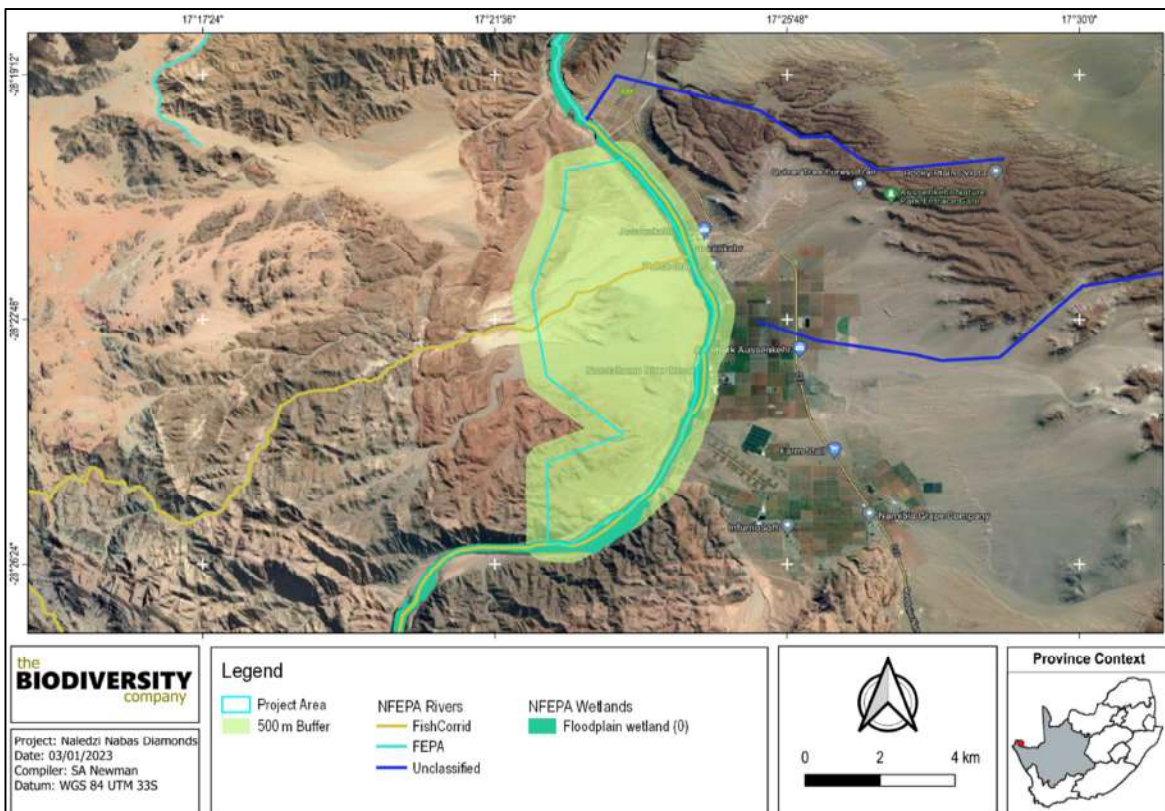


Figure 17-12 The project area in relation to the National Freshwater Ecosystem Priority Areas

Expected Fish Species

A total of ten fish species may occur within the river reach potentially influenced by the project (Table 19). The occurrence of all species is unlikely as different species are prone to different habitats along the river reach. The expected species list and conservational status was generated and assessed against the DWS (2014), Skelton (2001) and the International Union for Conservation of Nature (IUCN) database (IUCN, 2023) red listed species database to identify Species of Conservation Concern (SCC).

Available data suggest the presence of the Species of Conservation Concern (SCC) fish species such as the Largemouth yellowfish (*Labeobarbus kimberleyensis*) that is considered Near Threatened (NT) and the Mozambique tilapia (*Oreochromis mossambicus*) considered Vulnerable (VU).

Mozambique tilapia occurs in all but fast flowing waters and is tolerant of high salinities. Therefore, the proposed activities would not pose a threat to this species. The Largemouth yellowfish requires management of water quality and habitat (IUCN, 2023) and is subject to threat from water pollution, habitat destruction, and siltation of spawning areas and may be affected. Silt management and control of any runoff from the mine site is essential.



Figure 17-13 Photographic examples of an Mozambique tilapia (Right image) and Largemouth yellowfish (Left image)

Table 19: Expected fish species for the SQRs potentially influenced by the project

Species	Common Name	IUCN (2023)
<i>Clarias gariepinus</i>	Sharptooth catfish	Least Concern
<i>Engraulicypris brevipinnis</i>	Hyphen Barb	Least Concern
<i>Enteromius hospes</i>	Namaquab Barb	Least Concern
<i>Enteromius trimaculatus</i>	Threespot barb	Least Concern
<i>Labeo capensis</i>	Orange Vaal River Mudfish	Least Concern
<i>Labeobarbus aeneus</i>	Smallmouth yellowfish	Least Concern
<i>Labeobarbus kimberleyensis</i>	Largemouth yellowfish	Near Threatened
<i>Oreochromis mossambicus</i>	Mozambique Tilapia	Vulnerable
<i>Pseudocrenilabrus philander</i>	Southern mouthbrooder	Least Concern
<i>Tilapia sparrmanii</i>	Banded tilapia	Least Concern
Total expected indigenous species		10

The aquatic data from a desktop screening infer the following for proposed Grasdrift project:

- Mining will take place within the 500m zone of influence of the identified wetlands.
- Mining could potentially result in encroachment in water resources and infestation and establishment of alien vegetation, which could affect the functioning of the system.
- Driving off road to check water pumps or to access the floodplain to move HME's would impact sensitive riparian vegetation (the impact would however be short term and of low intensity)
- Leaks and spillages could result in the contamination of receiving water resources.
- Increased sedimentation from the mine could result in physical and functional changes to the receiving systems.
- Dust deposition on riparian vegetation.

The significance of these impacts will be determined after a field assessment has been conducted.

An in-depth infield investigation in the form of an Aquatic Impact Assessment Study (Freshwater and Wetland Impact Study) would be conducted to determine the impact of the proposed mine on such features and their ecosystem services.

SanParks require the Orange River riparian zone to be protected as it's a critically endangered wetland and given its tourism value.

To mitigate the impact on the aquatic features, Nabas' mine layout restricts mining above the Orange River, its floodplain, riparian fringe and bank. The 1:100 flood line would also be delineated as part of the EIA process. All hydrocarbon handling and storage areas would be bunded and include oil traps. The soils are also highly permeable; any potential runoff would immediately infiltrate the soil.

Silt from mineral processing would be controlled in a slimes dam at each plant built according to environmental best practices/approved engineering designs. Silt would further be managed by restricting mining above the 1:100 year flood line and locating slimes dams and stockpiles away from runoff channels including adequate storm water management (however virtually no rain). Silt traps may also need to be established below mineral extraction areas to catch any potential sediment from mine pits. But these must remain above the 100m buffer zone to the Orange River.

Nabas has already undertaken to install dust abatement equipment at plants and follow a strict dust suppression regime (refer to section 17.10).

17.9 Terrestrial Biodiversity

According to the DFFE Screening tool the Terrestrial Biodiversity Theme sensitivity is 'Very High' for the project area, with the possibility of an endangered ecosystem and a Protected Area present.

Recently, the revised list of 2022 Red Listed Ecosystems was issued under GNR. 2747 wherein it no longer recognises the 'Lower Gariep Alluvial vegetation' as an endangered ecosystem. The project now under the new ecosystem list overlaps an area of 'Least Concern'.

17.9.1 Ecologically important landscape features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 20.

Table 20: Project area ecologically important landscape features

Desktop Information Considered	Relevance	Figure
Ecosystem Threat Status	Overlaps with a Least Concern Ecosystem, NBA 2018.	17-14
Ecosystem Protection Level	Overlaps with a Poorly Protected and Well Protected Ecosystem, NBA 2018.	17-15
Critical Biodiversity Area (CBA)	According to the Namakwa CBA, 2016 (Bioregional Plan) the project overlaps with a CBA owing to its location within a protected area i.e. RNP, Richtersveld Cultural and Botanical Landscape. The Orange River is also considered a terrestrial migration corridor.	17-16
Protected Areas	According to the protected areas spatial datasets from SAPAD (2022 and SACAD (2022), the project area is situated in both the Richtersveld National Park and The Richtersveld Cultural & Botanical Landscape.	17-17
National Protected Areas Expansion Strategy	According to the NPAES 2016, the project area overlaps with an NPAES Protected Area.	Similar area as illustrated in Figure 17-17
Threatened or Endangered Ecosystem	According to the revised 2022 Red List of Ecosystems, the project area overlaps within an area of Least Concern.	17-19
South African Inventory of Inland Aquatic Ecosystems	The project area overlaps with a Least Threatened River and a Critically Endangered Wetland. (Discussed already under section 17.7 above)	17-11

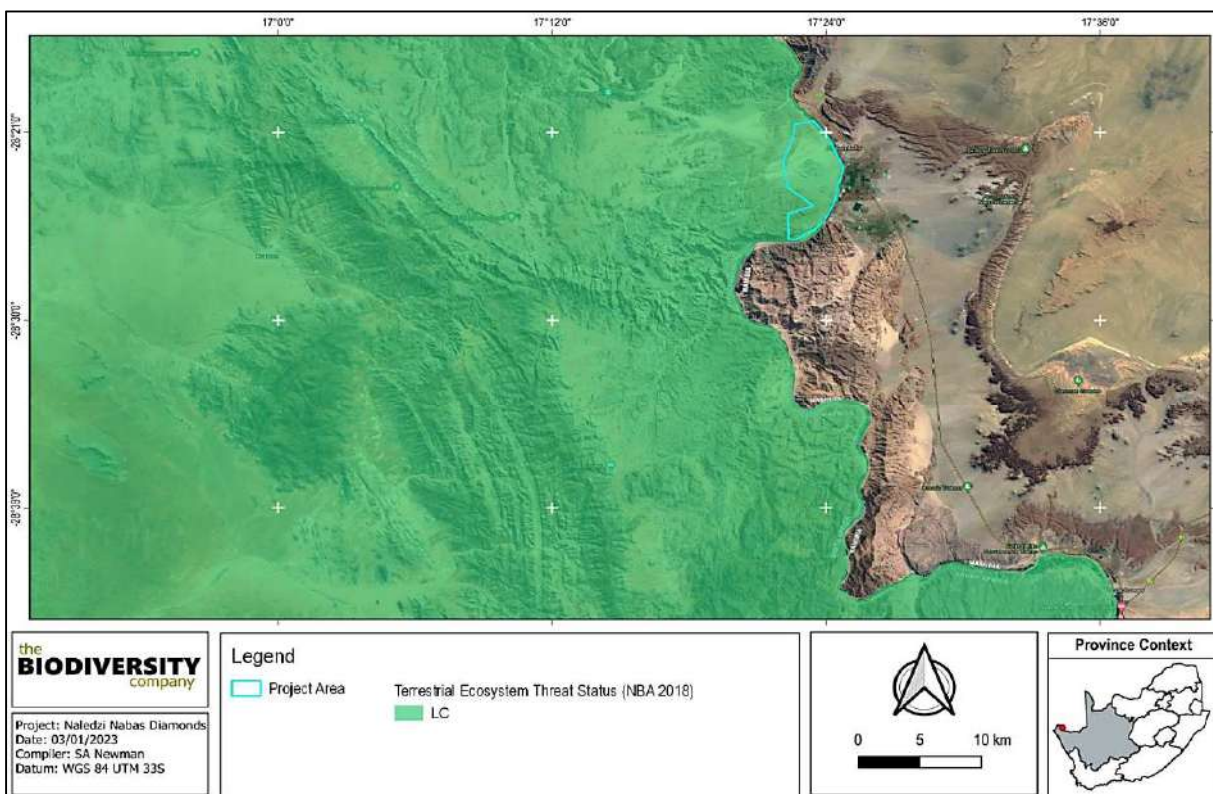


Figure 17-14: Project area ecosystem threat status, NBA 2018 (courtesy of TBC 2023)

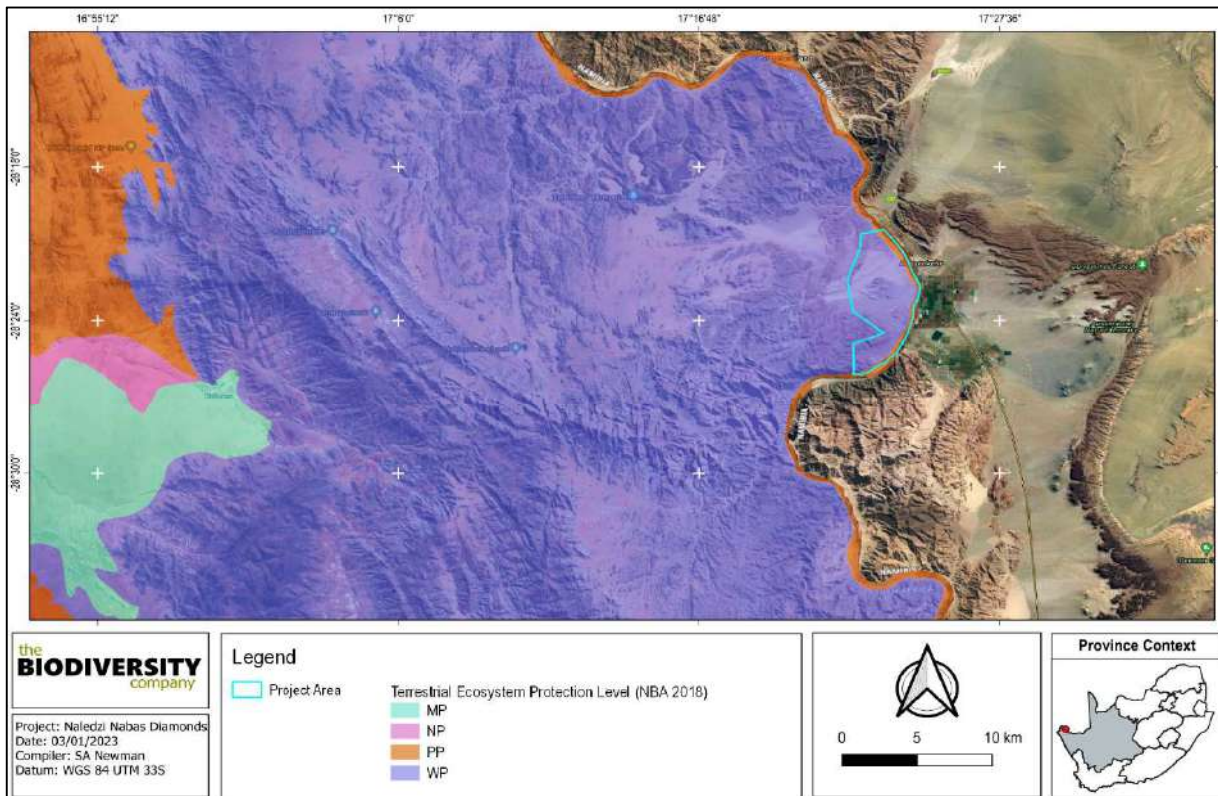


Figure 17-15: Project area ecosystem protection level (NBA 2018) (courtesy of TBC 2023)

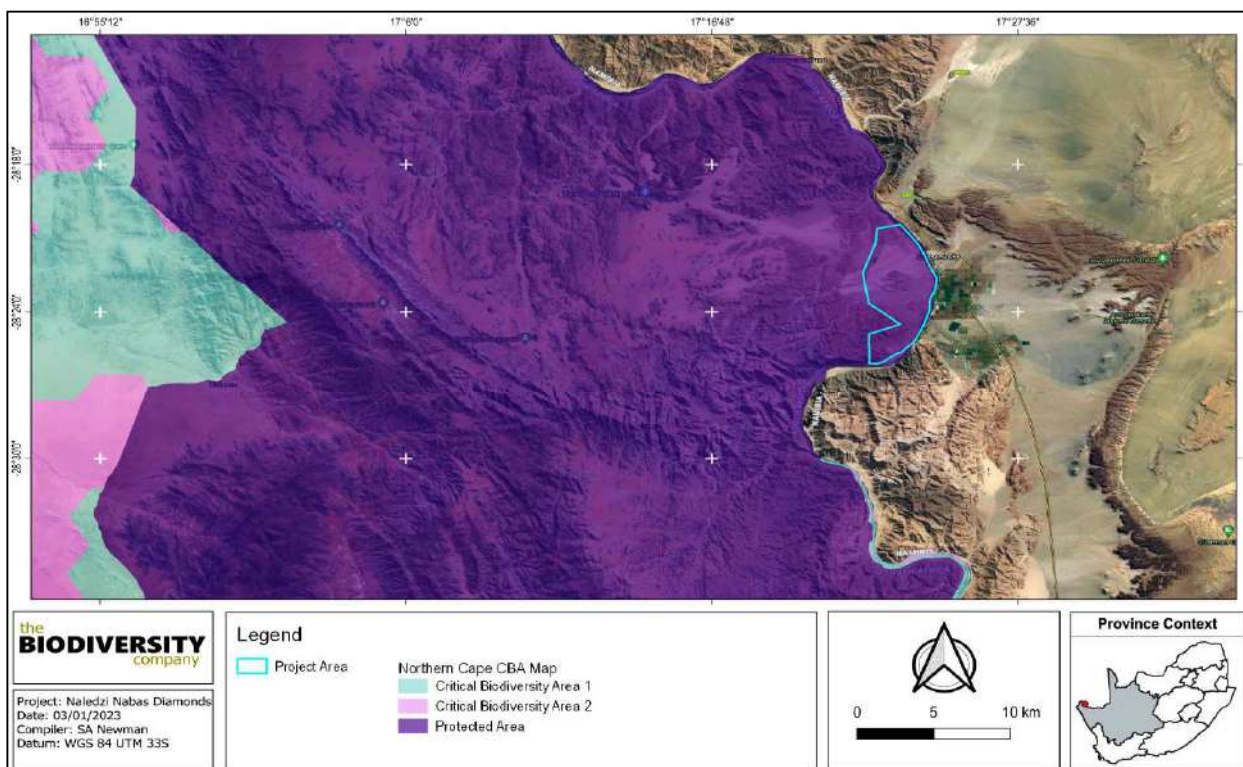


Figure 17-16: Map illustrating the locations of CBAs in the project area (courtesy of TBC, 2023)

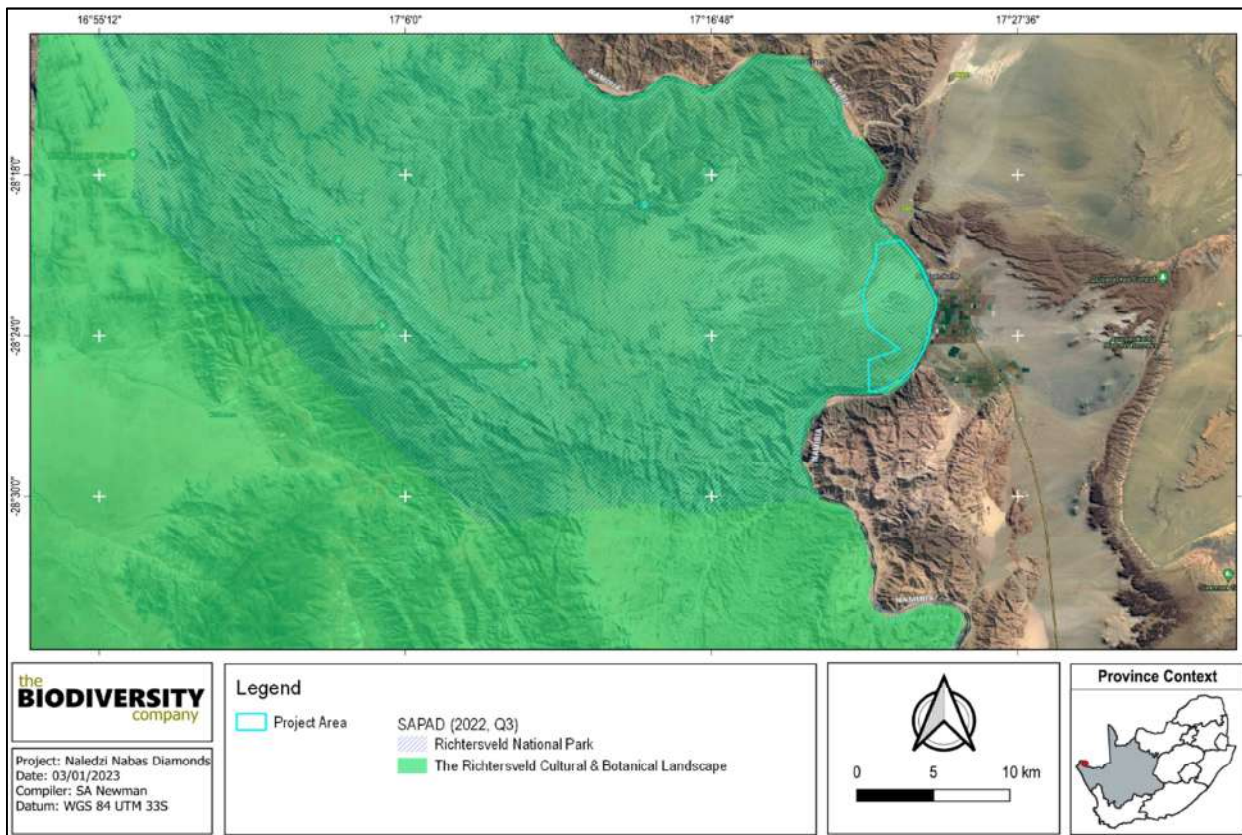


Figure 17-17: The project area in relation to protected areas (courtesy of TBC, 2023)

17.9.2 Flora

This section is divided into a description of the vegetation type expected to occur under natural conditions and the expected flora species.

According to Mucina and Rutherford (2006) the project site is located in the Desert Biome and overlap three vegetation types (Figure 17-19):

- **Kwaggarug Mountain Desert (Least Threatened)** located in northern section of project site and includes area of Oudannisiiep River.
- **Richtersveld Sheet Wash Desert (Least Threatened)** located in southern portion of project site. It consists of sparse scattered pattern of single trees and opportunistic life forms and short lived plants after rains.
- **Lower Gariep Alluvial vegetation (Vulnerable)** associated with the Orange River and alluvium floodplain and islands on the eastern boundary of the project site. The vegetation type is characterised by riparian thickets and reed beds. Sand banks and terraces within and along the river are populated by herblands, flooded grasslands.

Based on the site inspection of 18 November 2022 the observation is that the mining area comprises desert gravel pavement, with sparse vegetation (alien species) along episodic stream patterns, but practically devoid of vegetation. Vegetation is mainly located in the Orange River riparian zone comprising shrubs and trees (Figure 17-18).



Figure 17-18: (Left) Kwaggarug Mountain desert (right) Lower Gariep Alluvial vegetation (Orange River)

Expected Flora Species

The POSA database indicates that 327 species of indigenous plants are expected to occur within the project area. Sixteen SCCs based on their conservation status could be expected to occur within the project area and are provided in **Error! Reference source not found.**21 below.

Of the 327 species of flora expected to occur in the project area, 14 are provincially protected flora and two are nationally protected tree species; *Euclea pseudebenus* (Cape Ebony) and *Boscia albitrunca* (Shepard’s Tree).

Table 21: Threatened flora species that may occur within the project area

Family	Taxon	Author	IUCN	Ecology
Amaryllidaceae	<i>Strumaria barbarae</i>	Oberm.	CR	Indigenous
Amaryllidaceae	<i>Namaquanula bruce-bayeri</i>	D.Mull.-Doblies & U.Mull.-Doblies	CR	Indigenous
Amaryllidaceae	<i>Brunsvigia herrei</i>	F.M.Leight. ex W.F.Barker	VU	Indigenous
Apocynaceae	<i>Stapeliopsis neronis</i>	Pillans	VU	Indigenous
Asteraceae	<i>Othonna cremnophila</i>	B.Nord. & Van Jaarsv.	VU	Indigenous; Endemic
Asteraceae	<i>Pteronia elata</i>	B.Nord.	VU	Indigenous; Endemic
Brassicaceae	<i>Heliophila cornellsbergia</i>	B.J.Pienaar & Nicholas	VU	Indigenous; Endemic
Crassulaceae	<i>Tylecodon kritzingeri</i>	Van Jaarsv.	VU	Indigenous; Endemic
Didiereaceae	<i>Portulacaria armiana</i>	Van Jaarsv.	VU	Indigenous; Near-endemic
Fabaceae	<i>Rhynchosia emarginata</i>	Germish.	EN	Indigenous; Endemic
Iridaceae	<i>Babiana horizontalis</i>	G.J.Lewis	NT	Indigenous; Endemic
Iridaceae	<i>Gladiolus deserticola</i>	Goldblatt	VU	Indigenous; Endemic

Iridaceae	Babiana lobata	G.J.Lewis	EN	Indigenous; Endemic
Iridaceae	Tritonia marlothii	M.P.de Vos	VU	Indigenous; Endemic
Orchidaceae	Disperis purpurata	Rchb.f.	VU	Indigenous; Endemic
Scrophulariaceae	Manulea robusta	Pilg.	VU	Indigenous

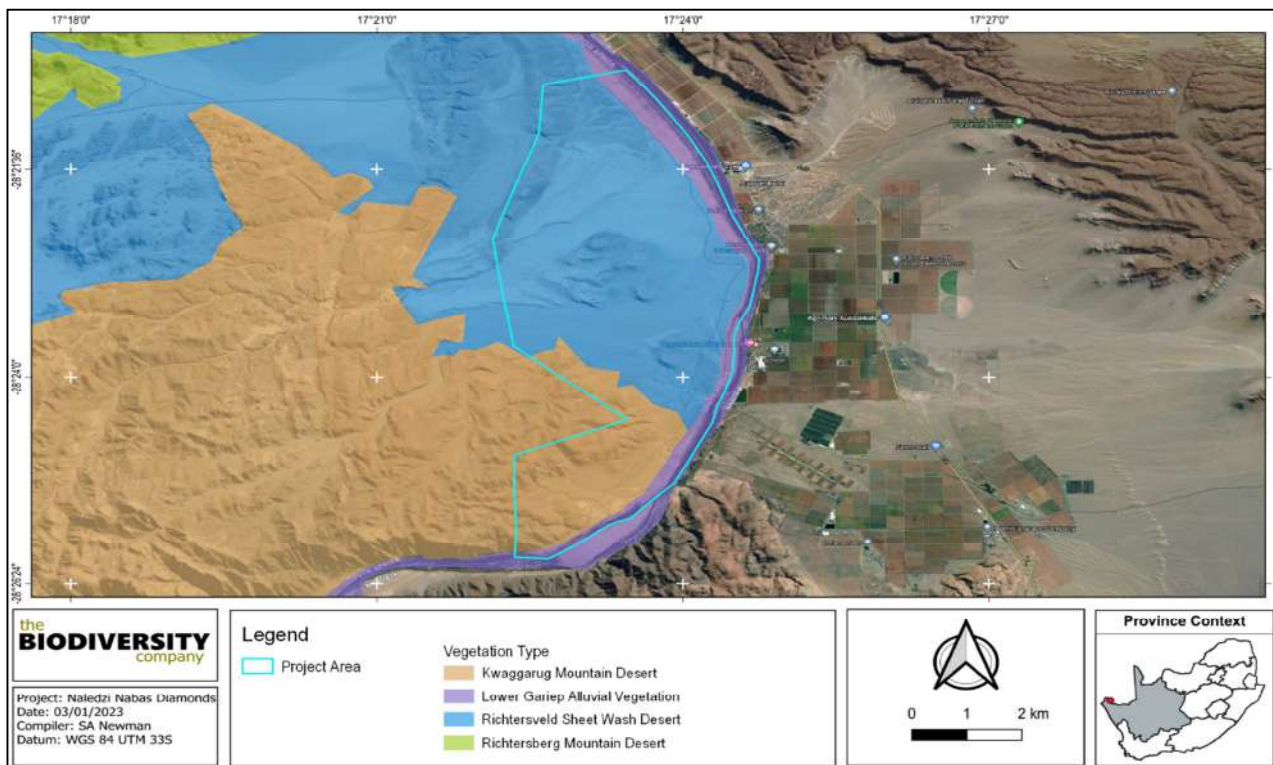


Figure 17-19: Map illustrating the vegetation types associated with the project area (courtesy TBC, 2023)

17.9.3 Fauna

Amphibians

Based on the IUCN Red List Spatial Data and FrogMap, 10 amphibian species are expected to occur within the project area (the full list will be provided in the final assessment). No amphibian SCC are expected to occur within the project area.

Reptiles

Based on the IUCN Red List Spatial Data and the ReptileMAP database, 69 reptile species are expected to occur within the area (the full list will be provided in the final assessment). One species is regarded as SCCs i.e. *Goggia gemmula* (Richtersveld Pygmy Gecko). The species is endemic to the Richtersveld therefore high likelihood of occurrence. It occurs exclusively under exfoliating flakes on small dolerite outcrops in valley bottoms. Due to its restricted distribution, it is threatened predominantly by loss and deterioration of habitat due to overgrazing, tourism developments and alluvial diamond mining.

Mammals

The IUCN Red List Spatial Data lists 62 mammal species that could be expected to occur within the area (the full list will be provided in the final assessment). Six of these expected species are regarded as threatened (Table 22).

Table 22 Threatened mammal species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
<i>Aonyx capensis</i>	Cape Clawless Otter	NT	NT	High
<i>Eremitalpa granti</i>	Grant's Golden Mole	VU	Unlisted	Moderate
<i>Felis nigripes</i>	Black-footed Cat	VU	VU	Low
<i>Hydrictis maculicollis</i>	Spotted-necked Otter	VU	NT	Moderate
<i>Panthera pardus</i>	Leopard	VU	VU	Moderate
<i>Parotomys littledalei</i>	Littledale's Whistling Rat	NT	LC	Low

The Cape Clawless Otter, Spotted-necked Otter, Whistling Rat are all expected to prefer the Orange River riparian habitat where no mining is proposed. The Grant's Golden Mole has a low likelihood of occurrence due to the lack of dune vegetation.

Avifauna

The SABAP2 Data lists 133 avifauna species that could be expected to occur within the area (The full list will be provided in the final assessment). Three of these expected species are regarded as threatened (Table 23).

Table 23 Threatened avifauna species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
<i>Aquila verreauxii</i>	Eagle, Verreaux's	VU	LC	Low
<i>Gorsachius leuconotus</i>	Heron, White-backed Night	VU	LC	Moderate
<i>Pelecanus onocrotalus</i>	Pelican, Great White	VU	LC	High

The above avifaunal species are anticipated to prefer the Orange River riparian habitat. No mining activities are proposed with the Orange River riparian zone except for water abstraction pumps and water transfer pipelines.

The above data was gathered through desktop investigation and the actual state of the project area must be confirmed by a field assessment. The below impacts are therefore generic/preliminary for this type of project and need to be confirmed based on the field investigations.

The terrestrial desktop data infer the following generic impacts that require investigation through field investigations for the proposed Grasdrift project:

- Direct loss and destruction of habitat and ecosystems may cause displacement of fauna and flora species;
- Spread and establishment of alien invasive species
- Direct mortality of fauna (Loss of SCC species and fauna diversity)
- Reduced migration of fauna
- Environmental pollution due to water runoff, spills from vehicles and erosion
- Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution;
- Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals (Loss of SCCs or TOPS species)

Avifauna generic impacts that may take place due to mining activities include:

- Loss of breeding, foraging and roosting habitat through habitat transformation and destruction;
- Noise pollution associated with the mining activities can affect wildlife and result in migration of fauna and avifauna to adjacent areas;

Based on the desktop assessment it can be said that the project area is sensitive with a moderate to high likelihood of species of conservation concern occurring.

Stakeholders also raised the following concerns:

- Traffic and dust over Akkedis Pass and Helskloof Pass from mine traffic will have a direct impact on vegetation adjacent to the roads.
- Driving off road up hill tops and mountain slopes cause irreplaceable damage.

It must be noted that the areas identified for mineral extraction and placement of majority of the mine infrastructure are located on barren gravel terraces devoid of any vegetation. Nonetheless, a full Terrestrial Biodiversity Impact Assessment Study (incl. Avifauna, Fauna, Flora) based on in-depth field investigations will be undertaken as part of the EIA process to investigate the aspect and key stakeholders concerns.

17.10 Air Quality

The ambient air quality at the application area is good. It's a remote environment with relatively few sources of dust i.e.

- Current prospecting activities generate dust in the southern section of Grasdrift i.e. plant, along road
- Vehicle-entrained dust amid crops at Aussenkehr, Namibia
- Infrequent wood fire burning at Aussenkehr settlement (perhaps for cooking)
- Occasional sandstorm carrying wind entrained dust from stockpiles, open areas and dunes.

Umoya-Nilu was appointed to conduct an initial desktop analysis for air quality related issues for Grasdrift. There is no ambient air quality or dust fallout monitoring conducted currently at the Grasdrift Mine or in the larger region to comment on the extent or impact of dust currently generated at the Grasdrift site. An illustration of the dust generated by the prospecting activities in the southern section of the application site is however shown in **Figure 17-20**. Naledzi took the images during the site inspection of 18-19 November 2022.

There would be an increase in dust generated at Grasdrift as a result of the proposed increase in mining activities i.e.

- Increase in ambient PM_{10} concentrations; and
- Increase in ambient dust fallout levels affecting surrounding land uses;
- Possible dust deposition on plants (riparian fringe, along access routes) /vineyards (table grapes)

Potential dust source from the increased mining activities at proposed Grasdrift Mine would include:

- Vehicle-entrained dust from mine vehicles travelling on secondary roads (unsurfaced)
- Mineral deposit areas:
 - Removal of topsoil (sand), overburden and excavation of gravel;
 - Tipping of material into dumper trucks and from dumper trucks into the mobile screen;
 - Screening of material in pit (mobile screening plant)
 - Loading and hauling of material to the processing plant;
 - Backfilling overburden, tailings.
- Mineral processing areas - Plants at Section 1, 2 and 3.
 - Tipping of gravel concentrate into main hopper
 - Conveyor belts moving material to sorter house, etc.



Figure 17-20: Dust emissions generated from prospecting activities at Grasdrift (distance of

The current and proposed dust control measures to be implemented at the mine include:

- Water sprayers are used at the Section 1 plant (operating under the prospecting right) to suppress dust. Between 5000 – 10 000 litres/hour of water is used for dust suppression within the plant area.
- The proposed Grasdrift Diamond Mine layout plan has been designed to place processing plants and the infield-screen as far away (2-3km) as technically possible from the Orange River.
- Water from the slimes dams will be re-used for dust suppression during the mining phase.
- Dust emission abatement equipment under the mining right will include:
 - Section 1 plant would be fitted with a dust extractor;
 - Section 2 plant would have a wet scrubber
 - Section 3 area has little fine materials in the gravels. Less dust is expected to be generated and the dust abatement would inevitably also include a wet scrubber.

Given the planned dust control measures and the placement of main dust sources far from surrounding land uses, the increase in fallout dust is likely to have a low impact on the surrounding land uses. Such surrounding land uses are situated on the northern bank of the Orange River at Aussenkehr in Namibia (Figure 17-21) i.e. agriculture (table grapes), tourist facilities (i.e. Norotshama River Resort, Silverland Chalets) and Aussenkehr Settlement.

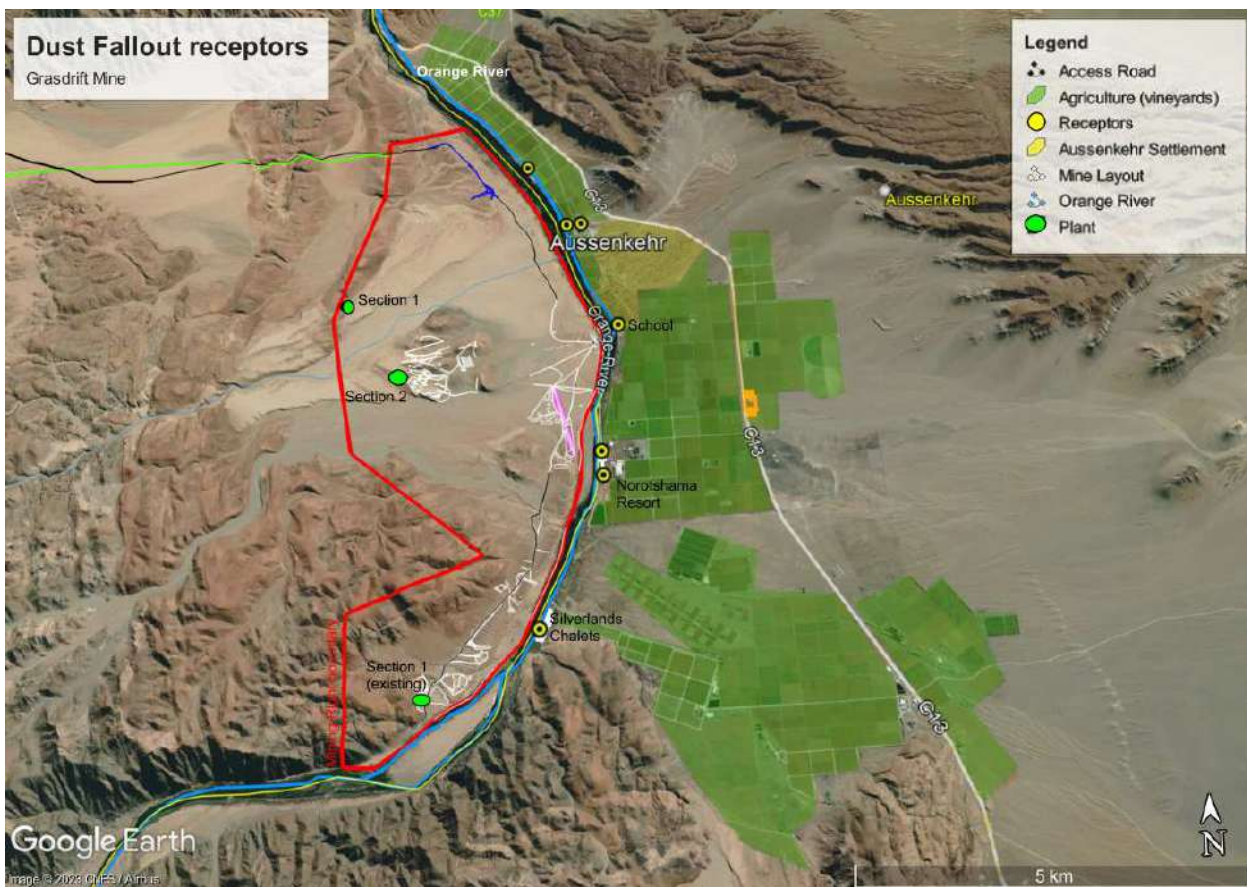


Figure 17-21: Sensitive receptors and land uses to dust fallout

Dust deposition on vegetation along Helskloof Pass and Akkedis Pass to Grasdrift would increase however the impact can be held at bay with strict adherence to park vehicle speed limits of 40km/hr. and regulating vehicle movement. The impact is expected to be moderate.

Stakeholder concern with regards to dust fallout has been raised. Surrounding land users Silverlands Namibia and Norotshama River Resort including RNP have raised the following concern:

- Dust generated at the mine pose a significant threat the grape farm's ability to produce export quality products;
- Dust fallout would affect tourism facilities and living conditions
- Dust deposition on vegetation along access routes.

Given the preliminary predicted impacts and stakeholder concern, an Air quality Impact Assessment Study will be commissioned as part of the EIA Study to:

- Confirm the **affected** receptors
- Quantify the emissions resultant from the project and predict the dust fallout using dispersion modelling and meteorological data;
- Identify the potential impact on receptors and to recommend any additional required mitigation measures for dust fallout i.e.
 - Fugitive Dust Management Plan
 - Implementation of frequent dust suppression on roads and open areas;
 - Establishment of wind breaks and dust shields at high dust sources (i.e. mineral processing areas)

17.11 Noise

The application area is situated in a rural district opposite Aussenkehr Agricultural Development. The ambient noise levels are typical of an agricultural landscape.

Safetech Noise Specialist was appointed to conduct a site verification visit from 9-11 November 2022 to monitor the ambient noise levels at Grasdrift. The monitoring equipment was placed relative to six identified noise sensitive receptors situated along the Namibian bank of the Orange River (refer to Figure 17-21 and Table 24). The measured ambient noise levels are 41.2dB (A) during daytime and 28.8dB (A) during night-time (Figure 17-22).

The noise sources noted in the area include:

- Existing prospecting operations at Grasdrift (plant, machinery)
- Natural (i.e. birds chirping along river, wind)
- Vehicle noise along the C13
- Community noise from Aussenkehr

According to Safetech the significant agricultural activities conducted opposite the site contribute to the current ambient noise levels including a high increase in wind speed (refer to Figure 17-22 for a representation of the Grasdrift ambient noise levels vs. wind speed).

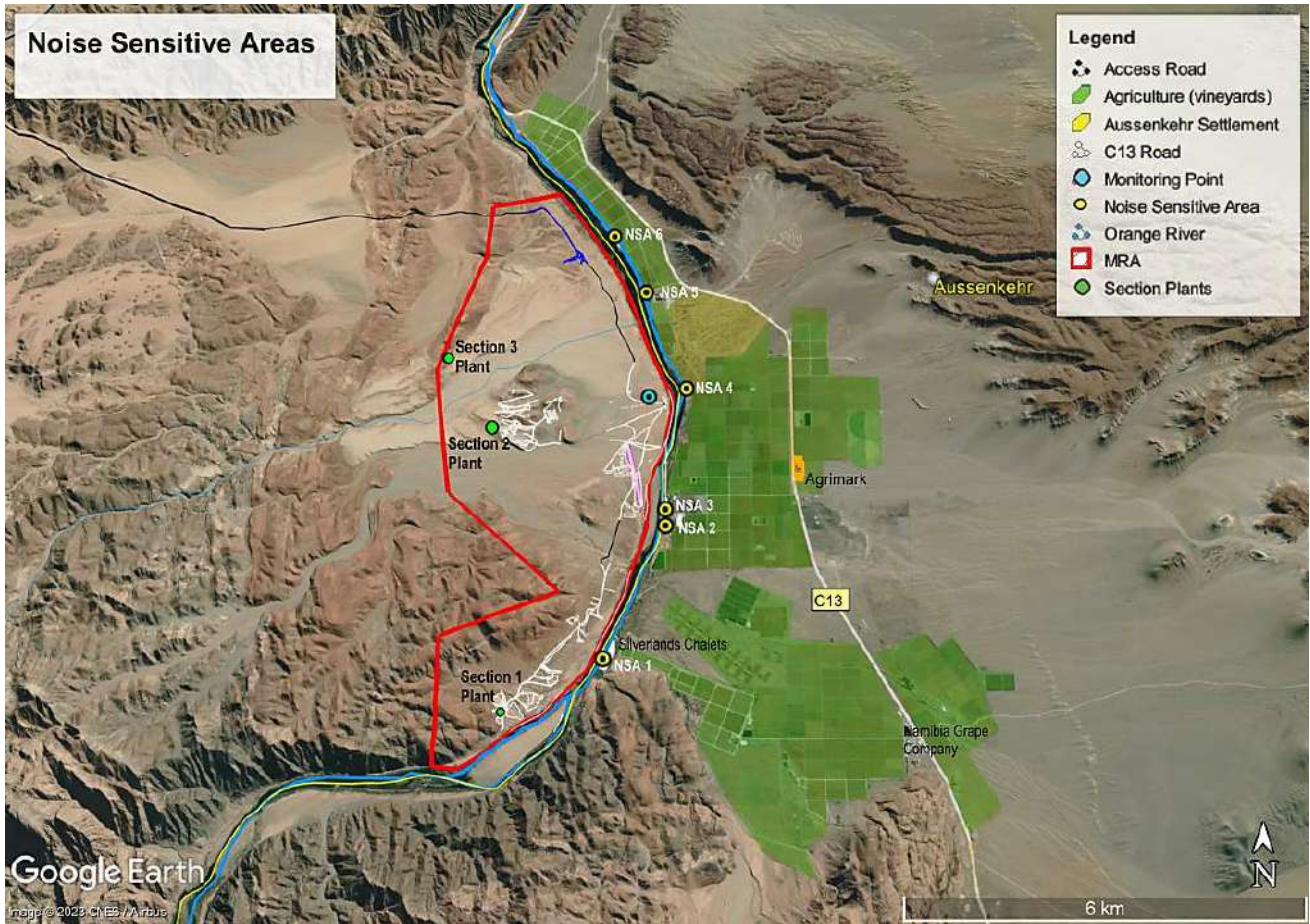


Figure 17-22: Noise Sensitive Areas

Table 24: Noise Sensitive Area Details

Noise Sensitive Area Details	Latitude	Longitude	Distance to Closest Noise Source (m)
NSA 1	28° 25' 07.76" S	17° 24' 02.29" E	330
NSA 2	28° 23' 56.91" S	17° 24' 35.67" E	600
NSA 3	28° 23' 43.58" S	17° 24' 36.83" E	440
NSA 4	28° 22' 37.78" S	17° 24' 49.23" E	400
NSA 5	28° 21' 39.13" S	17° 24' 24.41" E	1350
NSA 6	28° 20' 52.94" S	17° 23' 56.77" E	760

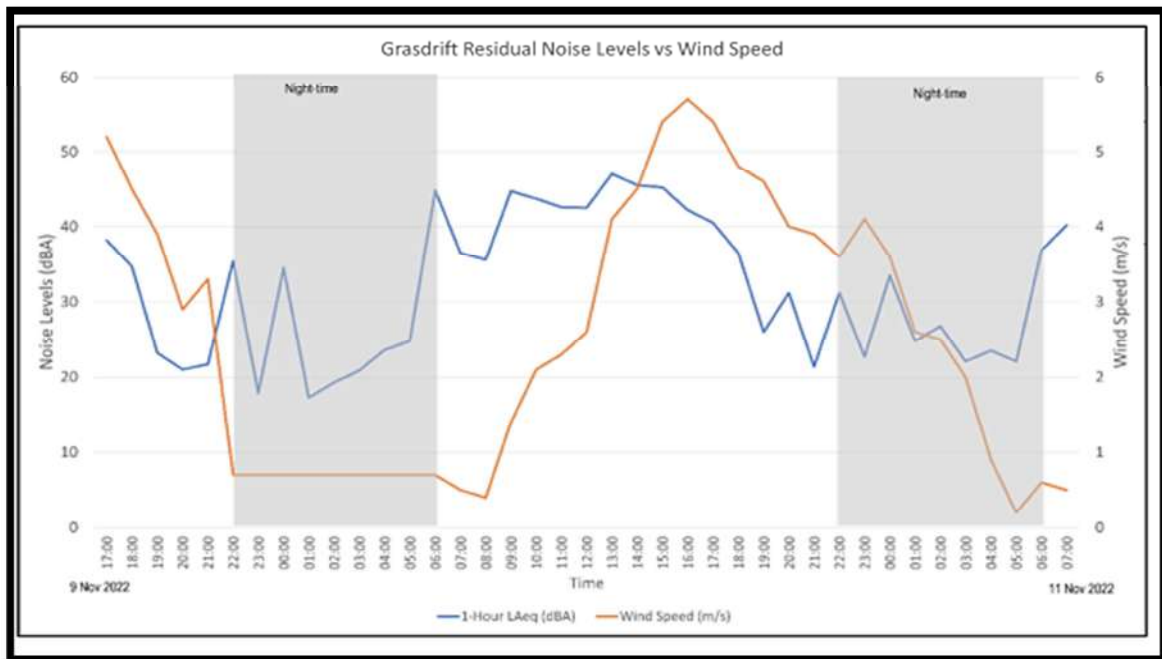


Figure 17-23: Ambient Noise Levels vs. Weather Conditions (Safetech, Site Verification, November 2022)

The most significant noise source noted was the offloading of bulk material into heavy mine equipment during the prospecting operations. The noise can be classified as impulse noise occurring for short durations at random intervals.

The potential major noise sources that would be contributing to the ambient levels during the construction and operation of the proposed increase in mining activities include:

- Processing plants
- Heavy mobile equipment
- Loading and hauling operations (offloading of bulk material)
- Water pumps
- Aircraft landing and takeoff at existing landing strip

The topography of the area has limited noise attenuation potential to mask any potential noise impacts from the proposed increased mining activities. I.e. sparse vegetation, occasional increased flow rates/turbulence in Orange River. The project could impact on the identified noise sensitive receptors across the South African/Namibian border. The impact is however anticipated to be low.

Stakeholders have also raised concern regarding to increase in noise that could impact:

- Tourist facilities on the Namibian bank of the Orange River i.e. Norotshama Resort, Silverlands Resort;
- Cause birdlife to vacate the specific reach of the river
- Mining activities in proximity to tourist accommodation.

A full noise impact assessment would be conducted that includes noise emission modelling to adequately predict noise levels during the phases of the project at noise sensitive receptors which would include a noise mitigation and management plan. The RNP Kokerboomkloof Camp site is 14km from the project site tucked away behind Nabas and Die Toon mountains, accordingly the likelihood of being affected by noise is low. However it is also considered necessary to include the camp site as a Noise Sensitive Area (night and daytime) in the noise modelling to determine the potential noise impact from the mine on this tourist attraction as a concern from RNP.

17.12 Landscape and visual aspects

Environmental Design Planning conducted initial site verification on 18-19 November 2022 given the stakeholder concern raised in regard to the potential impact of mining on the landscape character and potential impact on recreational activities and land uses along the Orange River Corridor. The initial scope verification response is voluminous and therefore rather attached as a separate Landscape and Visual Scoping Report under **Appendix 10**. An abstract thereof is provided below.

The natural landscape is largely comprised of protected areas i.e. RNP and Ais Ais Transfrontier Park. These are of high scenic and cultural significance given its importance as a tourism and recreational resource. However the project site is located in the RNP where access to the site is restricted for tourists (current diamond mining area) and is unlikely to have a significant landscape or visual impact on protected areas because:

- Impacts are unlikely to be permanent;
- The Ai-Ais National Park on the Namibian side of the Orange River is unlikely to be impacted;
- The affected section of the RNP is not popular with visitors and there are no overlooking viewpoints within the Park.

The project site does however border the Orange River and Aussenkehr Agricultural Development across. The most significant impacts are therefore likely to be experienced within the Orange River Corridor and by receptors located on the Namibian bank of the river.i.e.

- Visitors undertaking recreational activities along the river including rafting;
- Visitors at the Silverlands Chalets;
- Visitors at the Norotshama River Resort; and
- Homesteads close to the river bank;
 - Homesteads associated with agricultural activities
 - Aussenkehr Settlement
- Occasional motorist on the C13.

Uses such as tourism and recreation areas are likely to rely on the maintenance of an outlook for successfully attracting visitors and maximising their enjoyment. Both the Silverlands Resort and the Norotshama Resort will be affected.

From these areas the elements associated with the mine likely to be visually obvious are those that can be seen in elevation i.e.

- Processing plants (approx.. 10m high) and dust rising from the plant activities
- Buildings, accommodation, offices and workshops
- Screening plant moving across / working within the mining area (approx.. 4m high)
- Material stockpiles i.e. topsoil, oversized material, material to be processed / waiting to be processed (dumps usually 7-8m)

The main fixed impacts will result from processing plants, accommodation blocks, workshops and equipment storage. Impacts associated with these elements will be relatively predictable.

Impacts associated with the actual extraction process are more difficult to predict as from time to time the extraction operation will move. This means that impacts associated with extraction are likely to be transitory.

Due to the limited time span for mining (30 years) and the likely success of rehabilitation, the visual influence of mining operations is likely to be temporary. Proposed mining operations will introduce industrial elements into

what is fundamentally a natural landscape. Impact areas are likely to be relatively limited and focused around each activity.

The static elements being comprised of the processing plants, accommodation, workshops and offices will have a relatively long term impacts whereas the impacts of extraction operations will be transitory and will move over time as the extraction area moves.

The steep embankment and the existing riverine vegetation could serve to limit visibility of mining operations to receptors in the river channel and on the Namibian side of the river.

Light Pollution:

Lighting will be required at each processing plant and around offices, workshop and accommodation areas. Any lighting is likely to be visible to receptors on the eastern side of the river.

It is likely that floodlighting may be required around the processing plants in order to enable night time operation. Around offices, workshops and the accommodation block, relatively low level external lighting might be used sufficient to ensure safe use of the facilities. However, if lighting for security purposes is required around these buildings this too could be highly obvious to receptors.

The implication of the visual and landscape data for proposed Grasdrift project include:

- The proposed development could contribute to a change in the character of the Rural LCAs which are important tourism resources;
- The proposed development could be visible from roads in the area some of which are important for tourism / recreation;
- The proposed development could impact on local homesteads many of which have secondary tourism uses;
- The proposed development could impact on local settlements and protected areas;
- Glare impacts; and
- Lighting impacts could industrialise the night time landscape.

These issues will be considered in the context of the Landscape Character Areas, visual effects identified and possible cumulative influence of other possible infrastructure projects that are planned in the vicinity during the EIA phase.

The most significant impacts are likely to affect receptors closest to the river. These include:

- Residents of homesteads on or close to the river bank;
- Guests in the Silverlands and Norotshama resorts;
- People participating in watersports on the river including rafting.

For these receptors the most effective mitigation measures are likely to include:

- Maintaining the river bank profile particularly in areas where an existing steep bank is likely to largely screen mining activities;
- Maintaining all existing riverine vegetation; and
- Where the above measures are not likely to be effective, maintaining a setback from the river.

For more distant receptors including the C13, residents of homesteads located away from the Orange River and residents of Aussenkehr, the following mitigation measures are could include:

- Avoiding bright colours and where possible painting structures a colour that blends with the landscape, a buff colour slightly darker than the colour of the existing accommodation block may be appropriate but this will need to be tested on site;

- Using stockpiles to help screen processing plants from receptors;
- Undertaking more effective dust suppression.

According to the specialist if mitigation measures as listed above are effective, receptors may still be affected on a temporary basis but the level and duration of impacts should be significantly reduced.

In addition Nabas has placed processing plants 2-3km away from the Orange River to limit visual, noise and dust impacts on surrounding land uses. Dust suppression measures are proposed for all mining sections and would not mine below the 1: 100 year flood line. The river bank and riparian vegetation would also be restricted from mining.

17.13 Traffic

The general mine traffic generated on and off site as a result of the proposed increased mining is expected to be moderate-low, given it’s a National Park. If it were any other road network it would be considered as very-low. The mine has no product to the hauled only supplies, fuel and stock. The movement of Heavy Mine Equipment (HME’s) would occur in few events over the LOM (i.e. establishing section 1, 2 and 3 plants and moving additional yellow fleet) either across the Orange River or over Helskloof Pass.

Table 25 presents the current and predicted general mine traffic to be generated on and off site. The current prospecting traffic is 17 vehicle trips/week which is very-low **viz.** predicted 51 vehicle trips/week for the proposed mining operation of which majority of the trips would be light vehicle traffic.

To support the local community, 90% of the mine staff and supplies are sourced locally demanding frequent travelling i.e. 8 Ton truck and bakkies.

Table 25: Current and predicted general mine traffic

Type	Frequency	
	Current Prospecting Traffic	Predicted Mine Traffic
Light vehicles i.e. Bakkies	15 vehicles / week (2-3 vehicles/day)	45 vehicles/week (9 vehicles/day)
General mine traffic i.e.		
6 ton Fuel Bowser	1 trip every 3-4 days	3 trips every 3-4 days
8 Ton small truck with supplies and stock	1 trip / week	3 trips/week
Average total / week:	17 vehicle trips/week	51 vehicle trips/week 10.2 vehicle trips/day

General mine traffic moves over Helskloof Pass or occasionally over Akkedis Pass. The main traffic impact is expected along Helskloof Pass i.e.

- Impact on road condition (i.e. increased wash boarding or corrugations in access roads, already present)
- Impact on road usage by tourists (low during normal operations)
- Vehicle entrained dust deposited on vegetation on the road edge from speeding vehicles

Mine traffic would need to be strictly regulated during flowering season in the Park when most tourists flock to the area as not to detract from tourist experience.

Movement of HME's across the Orange River from Namibia would further reduce the potential impact on the Helskloof Pass road condition and usage by tourists. It is the preferred option. If this is not possible HME's (dismantled, moved in parts) would need to be transported over Helskloof Pass. Should this option be used, several trips which may take 1-2 days will be undertaken. The impact is perceived as high according to the RNP and requires careful consideration about impact on road condition, vegetation and road usage by tourists.

Nabas would continue to assist with road maintenance along these access routes and conduct road repairs using materials from existing quarries along Helskloof Pass only. The enforcement of Park speed limits and regular road maintenance would limit the impact on the road condition. As part of the mine plan Nabas is also proposing to install bulk Diesel Storage tanks to reduce the frequency of trips required by a fuel bowser along Helskloof Pass.

It is proposed that Nabas carefully plan and communicate all plans and events for HME movement to Grasdrift with RNP Park Manager. If necessary, Park Management can guide the operation.

The impact of the movement of HME's through the Park would be carefully assessed in the EIA phase as part of the specialist assessments.

17.14 Heritage, Cultural Resources and Palaeontological Sites

The project site is located in the RNP with the 'Richtersveld Cultural and Botanical Landscape' World Heritage Site (UNESCO, designated 2007) bordering the Park to the south. The Richtersveld community maintains the Park alongside SANParks and is responsible for managing the WHS.

Heritage and Cultural Resources

Briefly, central to the RNP is the Nama cultural heritage. The Richtersveld exhibits the long standing and enduring traditions of the indigenous Nama community and is one of the few places where transhumance pastoralism is still practised. Historical accounts up until the 1910's suggest Nama speakers continued to live like their ancestors (Hard 2010, TGC 2020). To today, the entire park is utilised by the Nomadic stock farmers for grazing and browsing by their livestock. Nomadic stock farmer's stockpots 'matjehuisies' and stock kraals are present throughout the RNP (Figure 17-24). During summer farmers graze along the Orange River, its floodplain and islands in the river. When winter arrives stock farmers move inland towards the Sandveld for grazing. Livestock primarily consist of Boer goats and some sheep. There are also a number of gravesites throughout the park.



Figure 17-24: Matjehuisie and Kraal along Helskloof Pass enroute to Grasdrift.

On a local scale, the DFFE Screening Tool indicates the site is of low archaeological and moderate palaeontological sensitivity. The desktop analysis of available GIS and preliminary site inspection conducted by Ubique Heritage Consultants (**Appendix 11**) on 18 November 2022 however conclude otherwise giving it a ‘High’ Cultural Heritage Significance and maintain the screening tool palaeontological sensitivity rating.

During the preliminary site inspection Ubique observed stone packed graves in the Orange River floodplain and Nomadic stock farmers camp and graze along the riparian fringe and river islands at Grasdrift (Figure 17-25). The possibility of additional graves cannot be overlooked. The floodplain is therefore considered the most sensitive area regarding heritage and is out of bounds and regarded as a no-go area for mining.



Figure 17-25: Top left – graves record in the floodplain silts. Top right – grave recorded below gravel terrace in floodplain. Bottom left and right – goats grazing along riparian fringe below the prospecting right area (proposed project site).

The preliminary data for heritage and cultural resources have the following implications:

- Potential impact on graves within the Orange River floodplain during all phases of the project. The floodplain area should be regarded as a no-go area for mining.
- If any graves are identified during the heritage survey, within the mine footprint, the project layout must be adjusted to create a 50m buffer for archaeological sites and the sites must be fenced in.
- Project may negatively impact the living heritage, the 'sense of place' and the sacred connotation of the Richtersveld to the Nama-Khoi.
- A full Phase 1 Heritage Impact Assessment field survey and reporting must be undertaken to determine the presence of any other heritage resources occurring in the development area. A more accurate assessment of the impact on heritage resources can be completed.

Nabas will restrict mining above the river floodplain, riparian fringe and bank, which are areas of high heritage significance. Where necessary unmarked graves within the development (if any) would be fenced off with a 50m buffer. Nomadic stock farmers would have continued access to the Orange River floodplain for grazing purposes during the operation of the proposed Grasdrift Mine. Nabas also intends to assist livestock farmers with provision of water points in the RNP for their winter grazing season.

Palaeontological Features

The site is underlain by quaternary alluvium, Diamondiferous Orange River Terrace Gravels, and the Dwyka Group with a small portion underlain by the De Hoop Subgroup. According to SAHRA the lithology paleontological sensitivity is moderate, but that of the Terrace Gravels unknown (Butler 2022).

Further literature review was conducted by Naledzi on potential presence of palaeontological features and two write ups were found documenting the following:

- Grasdrift has Dwyka tillite pavements containing fossil remains of arthropods¹⁴ dated back about 300 million years ago (Williamson, 1995).
- Dr Jürgen's Jacobs (2001 Geological Report) also notes there is the potential to discover buried Proto scours beneath the Meso terraces. A buried palaeo-meander has been discovered on the farm Aussenkehr, directly opposite Grasdrift. Only further drilling programmes would be able to confirm the presence (if present at all).

Pieter van Wyk, Curator at the RNP Nursery and Richtersveld Desert Botanical Gardens also contributed to this section of the report by highlighting that there is a very important fossil site next to the mine site which may be negatively impacted. The locality of fossil site was also supplied.

The important fossil site is limited to the rugged mountains and area west of the proposed mine site and overlaps with the archaeological sensitive area in the northern extreme of the mining right area.

¹⁴ Fossilized insects, spiders and scorpions, centipedes and millipedes, lobsters, crabs, crayfish, ostracodes and barnacles, and trilobites.

Ubique walked and drove the entire project area and large parts of the 'important fossil site', but didn't observe any fossils. It is possible that these were removed or buried due to past prospecting in the 1980's. There was a prominent slate formation which could possibly host fossils at Section 3.

Refer to Figure 17-26 showing the locality of the heritage no-go area and assumed important fossil site.

The preliminary data for palaeontological features have the following implications:

- These areas do not fall within the mining interest areas and high unlikely to be impacted.
- As a precautionary measure the delineated important palaeontological site should be further investigated through a Palaeontological Specialist and management measures must be proposed for its conservation.

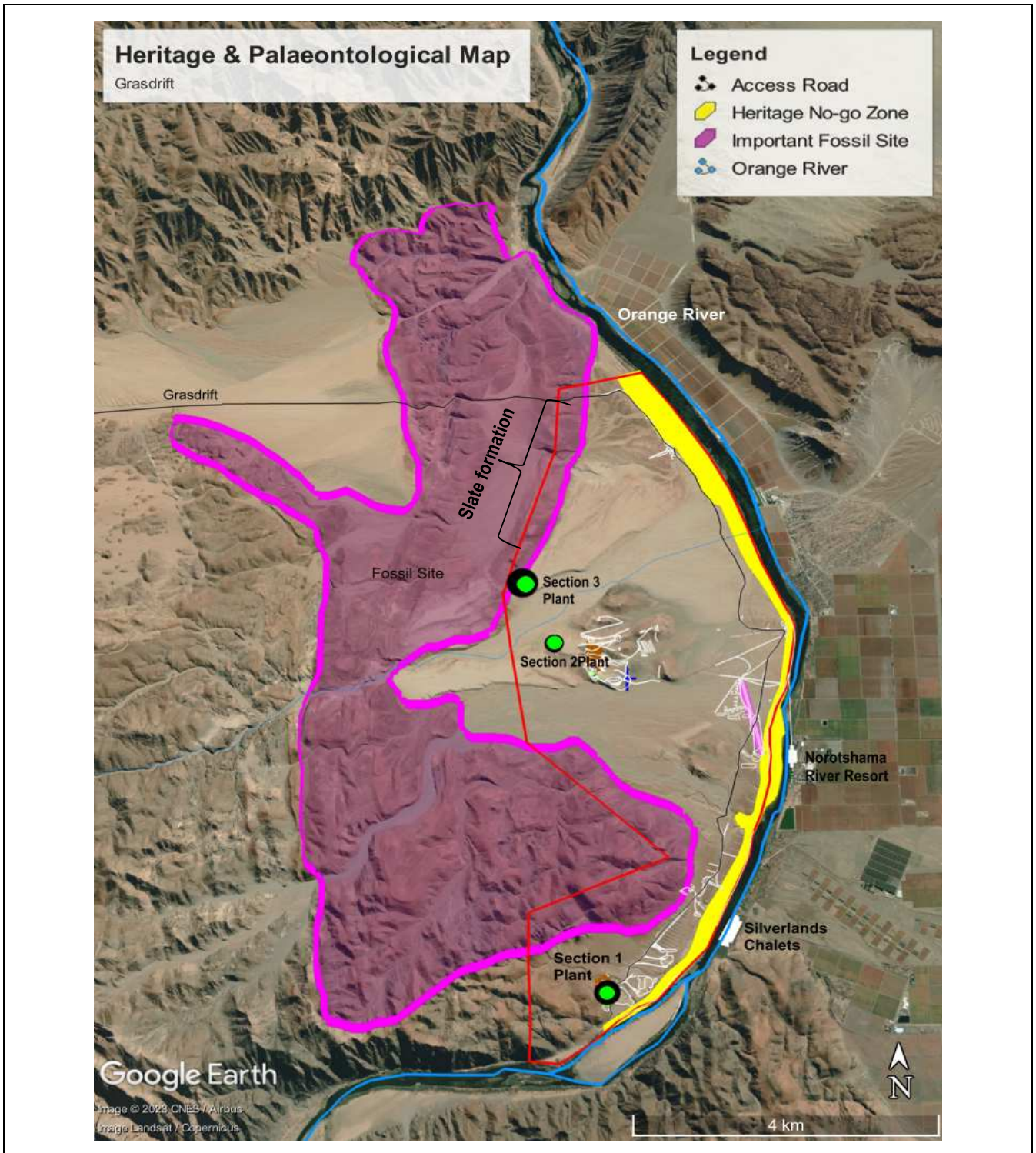


Figure 17-26: Heritage No-Go areas and important fossil site
The red polygon represents the project site.

17.15 Socio-economic Characteristics

Being on the South African bank of the Orange River across from Namibia’s Aussenkehr the social and economic impact from the proposed Grasdrift Mine project may spread over a regional, local and international (Aussenkehr) level.

The socio-economic environment of the following parties needs to be considered:

- Landowner (Richtersveld CPA representing Kuboes, Eksteenfontein, Sanddrift, Lekkersing)
- The Park (SanParks, RJM managing it) and visiting tourists
- Nomadic stock farmers
- Surrounding land uses on the Namibian bank of the Orange River

17.15.1 Regional Scale

The project area is located in Ward 1 of the Richtersveld Local Municipality in the Namakwa District Municipality of the Northern Cape Province. Springbok is the regional centre of the Namakwa District and the economic centre and head office of the Richtersveld Local Municipality is in Port Nolloth. The main economic drivers in the municipal area include diamond mining (i.e. marine, alluvial), fishing, agriculture and tourism.

The municipal area has two large towns and four smaller towns’ i.e.

- Port Nolloth next to the Atlantic Ocean where fishing and marine diamond mining is the economic base;
- Alexander bay, 85km north from Port Nolloth, is an existing diamond mining town next to the Orange River.
- The Richtersveld community resides in the smaller towns of Sanddrift, Kuboes, Eksteenfontein and Lekkersing.

Port Nolloth and Alexander bay are connected by the R 382 tar road. The connection roads with the rural towns are via 150km dirt roads which make travelling between the towns difficult and the maintenance of these roads are very low. The 90km gravel road from Alexander bay to Sendelingsdrift (Ruening/RNP Park Gate/Kuboes) is in poor condition (corrugations in road). The road was resurfaced with the assistance from the Dept. of Public Works, Alexkor RMC JV and Trans Hex/Lower Orange River Diamonds. There is an indication to resurface the dirt road between Alexander bay and Buboos again (RLM IDP 2021/2022).

Demographic Profile

According to the Municipal Demarcation Board 2021 Ward Delimitation the Richtersveld Municipality comprise six (6) wards detailed in Table 26. The project site is located in Ward 1 in the RNP.

Table 26: Wards, towns and settlements in Richtersveld Municipality (2021 Ward Delimitation)

Ward	Area
1	Kuboes, Eksteenfontein and Sendelingsdrift
2	Sanddrift, Lekkersing
3	Sizamile and part of Port Nolloth
4	McDougallsbay, Lydia Links Park
5	Alexander bay, Beauvallon (Grootderm), Baken
6	Nollothville, Baracks

Population

In 2021 the municipal area had an estimated total population of 13 787. Majority (92%) of the population speak Afrikaans. This population estimation is derived from the annual average growth rate between 2009 – 2016 being 2.1%. Refer to Table 27 for the household and population profile within Main Towns (2016). Based on the 2016 population projection 53.1% of the population are male and 47% female. According to Table 26 Ward 1 is estimated to have the lowest population since it includes the remote area of the RNP.

Table 27: Household and Population Profile within Main Towns (2016)

Town	Households	Population projections at an average annual growth rate of 2%					
		2016	2017	2018	2019	2020	2021
Kuboes	235	823	839	856	873	891	909
Eksteenfontein	125	719	733	748	763	778	794
Lekkersing	118	765	780	796	812	828	845
Sanddrift	260	858	875	893	911	929	947
Alexanderbaai	411	1760	1795	1831	1868	1905	1943
Port Nolloth	3405	7562	7713	7868	8025	8185	8349
Total	4554	12487	12737	12991	13251	13516	13787

Source: Richtersveld Municipality Annual Report (2020-2021)

Access to Areas of Opportunity

Each town in Richtersveld has its own spatial development proposal in the SDF as well as growth management plans. The identified sensitive receptors are classified in the District SDF as rural services nodes; therefore, they have limited access to areas of opportunities. It was evident from the site visit that these town lack diversity in terms of economic opportunities and social services. These towns only have access to primary schools and small scale economic or business services.

Water

The local municipality provides potable water to Lekkersing, Eksteenfontein and Port Nolloth (Richtersveld IDP, 2020). Recent drought reliefs saw the DWS drill and equip 8 boreholes. Lekkersing and Eksteenfontein are therefore supplied with borehole water yet are brackish. The brackish water (high salt content) sees many community members suffer from high blood pressure. The brackish water is also not favourable for vegetable crop next to towns. There is a need for freshwater supply.

Sendelingsdrift, Sanddrift and Kuboes (via a pumping line) are supplied with freshwater from the Orange River via LoR's pump stations and water purification works.

Electricity Supply

The major challenge for the municipality is the dilapidated infrastructure and the street lightning in all of the outside towns which are serviced by Eskom. Electricity distribution in Richtersveld municipal area is done by Richtersveld Municipality and Eskom respectively.

The local municipality services Port Nolloth, Nollothville and McDougall's Bay the rest of the towns are serviced by Eskom i.e. Alexander Bay, Sizamela, Sanddrift, Kuboes, Eksteenfontein, Lekkersing.

Sewage

Alexander bay 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.

Unemployment rate

According to the Namakwa District Municipality IDP (2020/2021) there were a total number of 12 000 people unemployed in Namakwa in the year 2018, which is an increase of 1 760 from 10 200 in 2008. The total number of unemployed people within Namakwa is 9.4% (people seeking work). Namakwa experiences an annual average increase of 1.6% in the number of unemployed people.

Based on the 2016 population projections Kuboes, Sanddrif and Lekkersing had an unemployment rate of between 54% and 76%.

Table 28: Number of Households, Population and Unemployment within the study site rural areas

Town	Households	Population	Unemployment
Kuboes	235	823	150
Eksteenfontein	125	719	41
Lekkersing	118	765	87
Sanddrif	260	858	183
Alexander Bay	411	1760	55
Port Neolith	3405	7562	610
Sendelingsdrif (Reuning)	130	224	16
Baken	Unknown	491	9

17.15.2 Local Scale

The project site is located in an area dominated by alluvial diamond mining (Orange River) and conservation (RNP tourism). The RNP is located in the far north western corner of municipal area (Ward 1) and together with the Orange River support a range of recreational tourism activities.

Several alluvial diamond mining operations are located along the lower Orange River including LOR, Oena and trail mining at Grasdrift within the boundaries of the RNP. The project site is located in the far eastern corner of the Park tucked away behind rugged mountains, out of sight from tourists and already has restricted public access. The nearest tourist accommodation is 14km away at Kokerboomkloof camp site.

The current employers in the direct project area include:

- Lower Orange River Diamonds (majority approx.. 800 people) in RNP
- Richtersveld National Park and Orange River recreational tourism industry
- Oena Diamond Mine in RNP (20-40 people when in full production) in RNP
- At Grasdrift Nabas Diamond currently employs 30 people under their prospecting activities to increase to 150.
- The RNP has various small camps and 4x4 routes i.e.
 - Sendelingsdrif Rest Camp (10 self-catering chalets, 12 camp sites, filling station and swimming pool)
 - Wilderness camps at Tatasberg, Gannakouriep (4x2 bed self catering units)
 - Vensterville Hiking trail (Hakiesdoring Wilderness Camp)

- Four camp sites across the Park (De Hoop@12 sites; Kokerboomkloof@8 sites; Potjiesram@18 sites and Richtersberg@6 sites)
- Fishing and river rafting along the Orange River corridor.

There are also 26 registered stock farmers allowed to graze the RNP. The nomadic herders graze along the Orange River floodplain during summer and inland during winter.

17.15.3 Cross Border Scale

Aussenkehr is across from the site and falls within the Karasburg Constituency of the Karas Region. The main economic contributor in this area is agriculture including two tourism resorts and recreational activities along the Orange River bank.

The resorts include:

- Silverlands Chalets – river rafters stopover i.e. camp site and chalets across from Grasdrift
- Norotshama River Resort is a high end lodge offering a river view and river related activities also across from Grasdrift,

Aussenkehr comprise 3000 ha of vineyards (i.e. export table grapes), and there are roughly 15 000 (if not more) permanent and seasonal workers working in the grape industry to grow, harvest and pack the grapes. Majority are farm works residing in the informal settlement of Aussenkehr and the rest in homesteads among the vineyards.

17.15.4 Stakeholders in the socio-economic environment

Landowner – Richtersveld Community who will benefit from the mine

As mentioned previously in the report, the Richtersveld community are the landowners of the project site. The RNP is managed jointly between SanParks and the community through the RJMC.

The landowners would benefit from the mine. Nabas would transfer 20% share hold to the Richtersveld community through 'Nabas Trust' in lieu of rental for the land. Through the Social Labour Plan the community would also benefit from skills and adult training purchase of stock, supplies and appointment of SMME's including the implementation of Local Economic Development projects as agreed to between the communities and Nabas etc.

The mine would also employ 150 people of which majority would be sourced from the Richtersveld community.

The community may feel some 'loss of empowerment' in the authorisation process however a transparent and inclusive public participation process is followed.

SANParks, RJMC and Tourists

It is not expected that mining at Grasdrift would lead to financial loss of tourists to the Park or loss of revenue. Grasdrift is remote from tourist accommodation (14km from Kokerboomkloof), is restricted to public access already and there are other diamond mines within the boundary of the Park. The area has a history of diamond mining and conservation co-existing. The Nabas executives, appointed specialists on a regular basis overnight or have standing paid overnight bookings with the Park and purchase goods and services contributing to the Park revenue.

Mining may impact on the tourist experience of the RNP through increased traffic along access routes; however the impact can be managed by strict regulation of vehicle movement, traversing hours and speed adherence, especially during flowering season in the Park.

The mine traffic will impact road conditions from Helskloof Pass Gate to Grasdrift and Sendelingsdrift via Akkedis Pass to Grasdrift, indirectly on Park, private and community vehicles, however Nabas currently assists with road maintenance and would continue to do so during the phases of the proposed mine.

The above impacts would be considered in more detail during the EIA phase.

Nomadic stock farmers

Disruption of moving patterns of nomadic stock farmers is not anticipated. The stock farmers currently have access the Orange River floodplain at Grasdrift for grazing and would be maintained through the LoM. The river floodplain would be restricted from mining.

Nabas intends to assist in providing water points for the stock within the RNP.

Surrounding land uses on the Namibian bank of the Orange River

The mine is in line of sight of tourist accommodation and campsite Norotshama River Resort and Silverlands Chalets. The mine will affect the sense of place of the two resorts and tourist experience due to annoyance impacts i.e.

- Visual impact on the views of the resorts and light pollution at night (i.e. security and floodlights at mine operations)
- Noise from mining equipment, workings during night and day
- Dust fallout

Silverlands Namibia states that dust caused by the mine poses a significant threat to the company's ability to produce an export quality product. Aussenkehr grape farms and tourism facilities employ a higher number of people than proposed by the mine.

Mitigation measures as prescribed for noise and dust if effective should not pose a socio-economic impact to the resorts. The views of resorts may still be affected on a temporary basis, but the level and duration of impacts should be significantly reduced. The aim would therefore be to have a wet gravel extraction and processing method with gravel plants and floodlights requirements located far from Orange River.

Aussenkehr informal settlement is also across from the mine site that is reliant on the Orange Rivers ecosystem services i.e. fishing, bathing, recreational. No mining is proposed in the Orange River and would be restricted above the 1:100 year flood line, riparian fringe and riverbank. It is therefore not anticipated that the community's benefit from the river ecosystem services would cease. The impact on the aquatic ecosystem will be investigated through a Wetland Impact Assessment Study to be undertaken during the EIA phase to gauge these impacts.

Government, local authority, social services

Additional pressure on governmental and social services

The mine will have a small labour force of which majority of the employees would be sourced from the Richtersveld community already residing in the small towns of Kuboes, Eksteenfontein, Sanddrift and Lekkersing. The mine has its own water supply and is applying to the SA DWS for additional water supply for

process and potable water for Grasdrift Mine. Access to the mine will be controlled and workers will stay onsite during their shifts. The labour force would reside in containerised accommodation units which may in future be augmented by refurbishing the former brick building labour quarters supplied by the applicant. The accommodation would meet IFC standard for workers accommodation. Several (30) employees are already on site operating under the prospecting right to increase to 150 when the mine is in full production.

Additional pressure on government services is not anticipated as the mine would supply the accommodation and services onsite and the proposed staff already reside in the nearby towns.

Illegal crossing of labourers into Aussenkehr is not anticipated. The Mine Security Rules strictly prohibit crossing the river into Namibia. No such incidents have been recorded to date. The mine will maintain security throughout the LoM.

Additional impacts that would be considered include:

- Planning Phase
 - Stakeholder expectations in terms of job creation
 - Stakeholder perceptions about the potential impact the mine will have on existing livelihoods (farmers, tourism)
 - Fears about the potential impact on sense and spirit of place due to conflicting land uses
- Operational Phase
 - Fear of potential increase in crime due to an increase in people movement at Grasdrift.
 - Increased social tensions, conflict or divisions within the Richtersveld community, especially about the distribution of benefits
 - Potential impacts on livelihoods (Aussenkher farmers, tourist establishments, and nomadic farmers – related to dust, noise, accessibility and sense and spirit of place)
 - Gender relations impacts i.e. job opportunities for women in mining
 - Vulnerability of the Aussenkehr community to potential air pollution i.e. dust fallout
 - Cultural impacts
 - Reduced actional personal safety and increased hazard exposure

Migration/ influx of people into the proposed mining right area are not anticipated. It's a remote area distant from the local communities and is situated within the National Park.

A concern was raised regarding opportunity for corruption but addressing corruption generally falls outside the scope of the EIA process and within the criminal law. The EIA process in South Africa is governed by legislation, and if any corruption is suspected within the process there are avenues that the public can use to appeal against the process. The EIA process is transparent, and all documents are in the public domain. Nabas will develop an anti-corruption and bribery policy that will provide systems for the reporting and investigation of allegations of attempted bribery or inappropriate gains. This policy will be in the public domain and contact details for relevant parties such as the DMRE and DFFE will be provided.

17.16 Community Health

The consideration of Community Health in EIA's is a relatively new process in South Africa designed to ensure that the 'often-overlooked' potential health impacts associated with a project on surrounding communities are considered and assessed including how the current health system can absorb such.

The community health data was gathered by the Niara Team through desktop analysis and literature review and were assisted by Naledzi to engage the Richtersveld community during the initial public engagements in November 2022 to gather information. The community was consulted in terms of the health situation to get a better understanding of the potential health impact. The aspect is still subject to further field investigations.

Briefly, the communities where health impacts may reasonably be expected to occur at household and community level include Richtersveld communities i.e. Kuboes, Lekkersing, Sanddrift Eksteenfontein. Aussenkehr community is located across from the site in Namibia and might be at risk due to dust fallout in the surrounding environment.

Richtersveld Community

The Richtersveld communities have existing health problems (i.e. Hypertension, Diabetes, Tuberculosis, Cholesterol, and Asthma including Arthritis).

The following health facilities are found in the municipal area:

- Port Nolloth Hospital with available doctors
- Provincial clinics in Alexanderbay and Richtersveld communities i.e. Kuboes, Lekkersing, Sanddrift, Eksteenfontein
- Mine clinic in Baken is still operating at a very low scale.
- Private doctors and district surgeons

Health Facilities are fairly distributed throughout the municipal area.

The Richtersveld health services are currently done by the Department of Health in the district. The level of health service in the Richtersveld area needs to be urgently improved due to the vast distances and conditions of dirt roads to the Richtersveld communities. The communities live close to health care points (10-minutes' walk) which are well equipped but not staffed and have a shortage of chronic medication. Accordingly the community members (particularly the elderly) pay R 200 –R 300 for transport to Port Nolloth Martha Griffith Health Care centre. Care at both clinic and hospital are free. Alternatively R 900 is paid for transport to Upington for treatment. The community has a high dependency ratio to high levels of poverty and unemployment.

Given the improvements required to the health care service in the area, the new notion is to ensure that health services be rendered in a block format, e.g. Alexanderbay, Sanddrift and Kuboes as one block with the revitalization of the clinic at Alexanderbay to serve the block.

The other block to consist of Lekkersing, Eksteenfontein and Port Nolloth with the construction of the Community Health Centre (CHC) in Port Nolloth. The construction of the CHC has come to a grind halt but construction works will be starting soon again. The Emergency Medical Services (EMS) in the municipal jurisdiction also needs to be improved.

The project can either contribute (through SLP) to uplift/improve these services in local community however can also stretch the capacity of the healthcare services.

Potential project health impacts:

The community and mine workers from the community may be at risk at follows:

- Safety risk due to use of machinery
- Should a contagious illness such as TB or Covid break out, mine workers living and working in close proximity to each other in an enclosed environment allows viruses to spread easily.
- Mine workers may be exposed to high dust levels resulting in increased incidences of asthma, bronchitis;
- Potential increase in communicable diseases i.e. TB, HIV/AIDS. Destructive behaviours by labourers which they are likely to take back home or from the community to labour accommodation. During the FGDs, HIV/AIDS was not listed as one of the most common illnesses faced by any of the communities, but HIV/AIDS related illnesses such as TB was listed in Lekkersing Village. All healthcare facilities in the PACs can diagnose HIV, and they stock ARVs. The link with HIV is a growing problem nationally and might eventually have a project impact. The project may inherit this.
- Increased trauma, accidents due to accidents in the workplace will place added burdens on the health care infrastructure
- Potential to increase accidents and injuries due to change in road traffic may increase accident levels in the area.
- People in the community generally drink and smoke socially; however there is those who drink as a means to relieve stress and forget problems related to unemployment and economic and social pressures. Drug use is also prevalent in the community. Stakeholder Engagement sessions also revealed alcohol and drug abuse to be on the rise more especially among the youth. There are no known cases of domestic violence. With more money available among community members specifically youth there is the risk of increased drug and alcohol abuse.

The proposed Grasdrift Project per se is unlikely to have a major impact related to communicable diseases if these are mitigated effectively. This can, be mitigated by Health Systems Strengthening (HSS) to improve TB case detection and case management in local dispensaries; developing and maintain site-based TB policies and programmes; as well as outbreak preparedness and response plans.

The proposed Grasdrift Mine would have medical personnel onsite and in case of emergency patients / injured personnel can be airlifted.

Access to jobs, income, goods and services can enhance mental health and well-being and reduce stress among the community. Having a sense of control over one's life is crucial for mental well-being, so mining projects can improve mental health by reducing poverty, increasing self-esteem and empowering local communities.

Aussenkehr community

Aussenkehr informal settlement does have a government clinic but is understaffed. The nearest hospital is the Karasburg District Hospital (190km) with the nearest state hospital being in Keetmanshoop (264km). In June 2022 the Namibia Ministry and Health and Social Services approved a bid for the 'Construction of a New Health Care Centre at Aussenkehr' anticipated launch/ opening date for this facilities is unknown.

The existing health problems in Aussenkehr are not known at this stage.

According to uMoya, the air quality impacts that may occur as a result of the increase in mining activities at the Grasdrift Mine relate to the increase in dust emissions and a resultant increase in ambient PM₁₀ concentrations and an increase in dust fallout in the surrounding environment. Given the planned dust control measures and the placement of main dust sources far from surrounding land uses, the increase in fallout dust is likely to have a low impact on the surrounding land uses.

In the event that community members are exposed to dust fallout it will result in increased incidences of mild/sinusitis, asthma / or bronchitis sometimes even pink eye. However the dust fallout is anticipated to be low with the suggested mitigation measures and the likelihood of these health issues to materialise is low.

From the screening of aspects related to community health the potential impact on Aussenkehr community would be very low and more related to the Richtersveld community.

A full Community Health Impact Assessment Study would be conducted during the EIA phase to ascertain this. The study would consider applicable international standards i.e. IFC Performance Standard 4 (PS4): Community Health, Safety and Security.

17.17 Description of specific environmental features and infrastructure on site

The specific environmental features and infrastructure onsite are detailed in the sections above. Refer to section 17 and subsections 17-1 to 17.4 for environmental features relevant to the site. The current infrastructure onsite is detailed under section 9.3 of this report.

In summary the following specific environmental features are prominent:

- The project site falls within a natural mountainous landscape in a protected area i.e. RNP with high scenic value and cultural indicant given its importance as a tourism and recreational resource. However access to the project site is restricted for tourists and is unlikely to have a significant landscape or visual impact on protected areas.
- Orange River, its floodplain (wetland), riparian fringe and bank – The floodplain has heritage and cultural significance (observed graves) and is an aquatic ecosystem/shared water source requiring protection. This feature is considered a no-go zone for mining in the mine layout plan. Only water abstraction pumps and water transfer pipelines to the plant areas would be established in this area.
- There are several episodic streams including the Oudannisiep River that intersection the site. Mine infrastructure and mining would take place within 100m of these episodic streams but remain above the 1: 100 year flood line of the Oudannisiep River as with the Orange River.
- Important Palaeontological site next to the mine, but this area is limited to the rugged mountains and area west of the proposed mine site and overlaps with the archaeological sensitive area in the northern extreme of the mining right area. But no fossils were observed there during the preliminary site inspection by the specialist. There was a prominent slate formation which could possibly host fossils but not in an area focussed for mining.

17.17.1 Description of surrounding land use

The surrounding land use includes:

- The remote mountainous wilderness area of the RNP to the west of Grasdrift;
- The nearest tourist attraction in the Park is Kokerboomkloof Camp. It's a very small primitive camp tucked away between mountains i.e. Die Toon and Tatasberg. It's about 14km north west of Grasdrift. Access to Grasdrift is restricted for tourists. It is highly unlikely to be affected by mine noise, but will be investigated further as part of the noise impact assessment survey during the EIA phase.
- River rafting along the Orange River corridor
- Agriculture (grape farming) and tourist facilities (Silverlands Chalets, Norotshama River Resort) on the Namibian bank of the Orange River.

The potential impact of mining on these land uses are discussed in detail in the section above, section 17.

17.17.2 Environmental and land use map (composite map)

The preliminary composite map is provided in Figure 17-27. It is subject to change based on specialist ground truthing the features during the EIA phase and providing final recommendations.

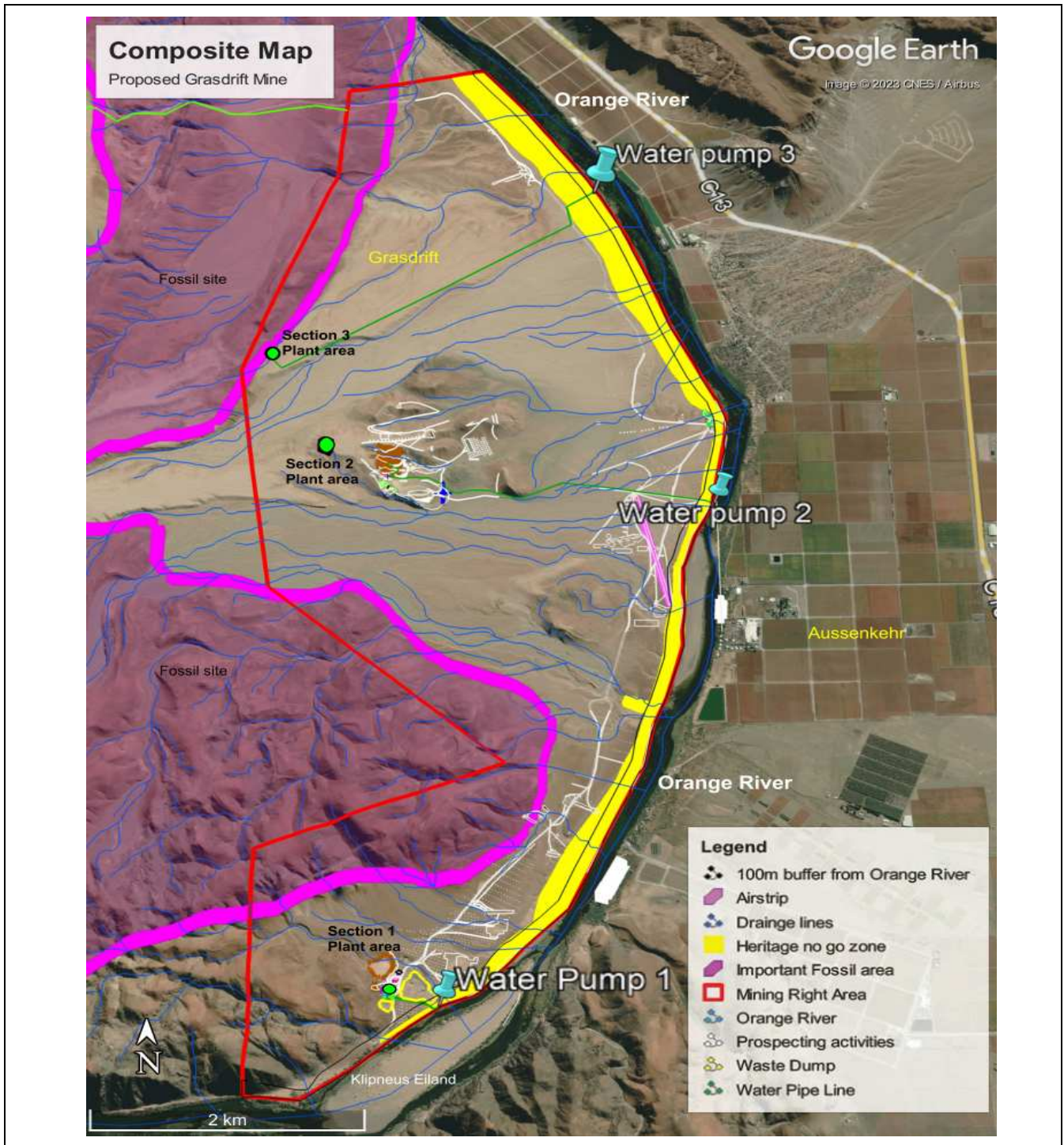


Figure 17-27: Composite Map

18. IMPACTS IDENTIFIED

The Draft Scoping Report lists the potential impacts for the initial site layout plan identified as follows:

- Informed by typically known impacts for such an activity
- As identified by I&APs during the initial stakeholder engagement from 5 November to 5 December 2022;
- As identified by the specialists based either on a desktop screening and or initial site inspection

The list of impacts detailed in Table 29 is a screening of the potential impacts that could take place at a ‘worst-case-scenario’. The mitigations are categorical implementations of which specifics will be generated based on field investigations. It is still subject to a 30-day consultative process to identify any additional impacts not previously anticipated/known including in-depth field investigations. The list guides the EAP in determining which environmental aspects require in-depth specialist’s investigation to verify its significance and how it can be best managed.

Table 29 may be updated in the Final Scoping Report to consider any such additional inputs.

Table 29: Potential identified impacts (screening assessment) that may be related to the proposed Grasdrift Mine project (Establishment, Operation, Decommissioning and Closure)

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
(A) SITE ESTABLISHMENT						
1 TRAFFIC						
1.1	Bringing machinery, equipment, heavy vehicles, construction material, containerized mobile units, stock, and supplies to Grasdrift	Increased traffic movement through RNP over Helskloof Pass	Known, SanParks	Moderate (-) 24	<ul style="list-style-type: none"> ▪ HME movement must not be undertaken during peak traffic times during Park. ▪ Plan and communicate all HME movement through the Park with the approval of the RNP; ▪ Avoid movement of HME's through the RNP during flowering season. ▪ Enforce Park speed limits ▪ Road inspection post HME movement and implement regular road maintenance and repairs along Helskloof Pass from existing quarries along the Pass as required. ▪ Alternatively move HME's across Orange River from Namibia during dry season. 	Low (-) 12
1.2	Movement of construction staff on and off site every 14 days	Increased movement of light vehicles (LDVs) over Helskloof Pass, occasionally over Akkedis Pass	Known, SanParks	Moderate (-) 18	<ul style="list-style-type: none"> ▪ Strict regulation of vehicle movement through the RNP. ▪ Enforce Park speed limits (60km/hr. main gate to rest camp) and 40km/hr. on Park roads) and traversing hours. ▪ Courteous to community members and visitors to RNP. 	Low (-) 12
2 TERRESTRIAL BIODIVERSITY						
2.1	Movement of HME's, heavy vehicles, construction material, containerized mobile units, stock, and supplies to Grasdrift including movement of staff on and off site	Potential trampling of vegetation along the edges of Helskloof Pass	Known, SanParks	Moderate (-) 24	<ul style="list-style-type: none"> ▪ As per mitigation for item 1.1; including: ▪ No off-road driving, keep HME's on the existing road tracks; ▪ Limit movement of HME's outside flowering season. ▪ Alternatively, move HME's across Orange River from Namibia. 	Low (-) 12
		Dust deposition on vegetation along Helskloof Pass and Akkedis Pass by mine traffic may alter plant community structure		Moderate (-) 15	<ul style="list-style-type: none"> ▪ Control by enforcing low speed limit (40km/hr.) along access routes through Park. ▪ Strictly regulate vehicle movement through Park. 	Low (-) 12
2.2	Stripping of topsoil / soil disturbance to clear infrastructure footprints and establishing a topsoil stockpile	Spread/establishment of flora alien invasive species	Ecologist	Moderate (-) 18	<ul style="list-style-type: none"> ▪ Compilation of and implementation of an alien vegetation management plan. ▪ All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. 	Low (-) 10
		Disturbance/degradation of habitats, disruption of ecological corridors, habitat fragmentation	Ecologist	Moderate (-) 21		Moderate (-) 14
2.3	Establishment of infrastructure	Could lead to displacement of fauna and more specifically SCC fauna species	Ecologist	Moderate (-) 16	<ul style="list-style-type: none"> ▪ All staff to receive Environmental Awareness program of the surrounding area and wetlands to inform of importance of these areas and their conservation. ▪ Eradicate alien vegetation which colonize on topsoil stockpiles and on the mine site; ▪ Restrict activities above the Orange River riparian zone. 	Low (-) 12

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					river bank and 1: 100 year flood line (no-go area). ▪ Noise control	
3 SOIL AND LAND CAPABILITY						
3.1	Stripping of topsoil to clear infrastructure footprints and stockpiling	Disturbance of the soil layer may lead to erosion, consequent loss of topsoil resource	Known, Soil Specialist	Moderate (-) 15	<ul style="list-style-type: none"> ▪ Topsoil management ▪ Erosion control ▪ Implement Storm Water Management Plan 	Low (-) 8
3.2		Loss of topsoil due to erosion and indirect loss of land capability. Site already of very low to low capability given its desert environment.		Moderate (-) 15		Low (-) 8
3.3	Movement of construction vehicles and machinery over project site	Soil compaction	Known, Soil Specialist	Moderate (-) 18	<ul style="list-style-type: none"> ▪ Limit compaction through control and prohibit of access of vehicles and machinery to areas outside established access tracks; 	Low (-) 10
4 AQUATIC ECOSYSTEM						
4.1	Alternative: Bringing machinery, equipment and heavy vehicles (HME's) to site across the Orange River.	Minor disturbance to section of the Orange River gravel floodplain and riparian vegetation (but the vegetation recovers quickly)	Known	Moderate (-) 15	<ul style="list-style-type: none"> ▪ Crossing during dry season; ▪ HME's movement to be restricted to gravel floodplain as far as possible. 	Low (-) 9
4.2	Installation of water pumps at Orange River and water transfer pipelines for Section 2 and 3 mining areas from the river to plant areas.	Negligible disturbance to riparian vegetation for river abstraction points	Known	Low (-) 9	<ul style="list-style-type: none"> ▪ Avoid / limit removal of riparian vegetation. 	Very Low (-) 4
4.3	Ripping of topsoil and excavations will expose and mobilize materials. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project.	Spread of alien invasive species	Aquatic Ecologist	Moderate (-) 14	<ul style="list-style-type: none"> ▪ Eradicate and remove any established alien invader species onsite and along the Orange River riparian zone. ▪ Ongoing monitoring and eradication. 	Low (-) 5
4.4		Mobilizing gravel material and sand may result in potential sedimentation into the Orange River	Aquatic Ecologist	Low (-) 10	<ul style="list-style-type: none"> ▪ Restrict mining above the 1: 100- year flood line of Orange River, above riparian zone and river bank. ▪ Implement SWMP as early as possible, erosion and sedimentation control. 	Very Low (-) 4
4.5		Cement runoff, leaks, spillages or breakages from any vehicles or equipment could result in contamination of the water resources	Aquatic Ecologist	Low (-) 12	<ul style="list-style-type: none"> ▪ Implement surface water management measures as provided for in item 8 'Surface Water. 	Very Low (-) 4
5 AIR QUALITY						
5.1	Bringing machinery, equipment, heavy vehicles, construction material, containerized mobile units, stock, and supplies to Grasdrift	Vehicle entrained dust along Helskloof Pass consequent dust deposition on road edge vegetation. However infrequent action.	Known, SanParks, Air Quality Specialists	Moderate (-) 18	<ul style="list-style-type: none"> ▪ Strict adherence to Park vehicles speed limits of 40km/hr.; ▪ Strictly regulate vehicle movement through park. 	Moderate – Low (-)

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
5.2	Use of existing access and haul roads for movement of construction vehicles and equipment	Vehicle entrained dust from mine vehicle from the northern to the southern extreme of the site will result in increased dust fallout in the surrounding environment	Known, Air Quality Specialist, I&APs	Low (-) 12	<ul style="list-style-type: none"> Implementation of frequent dust suppression on roads and open areas; Continued water spraying at section 1 Plant. Limited to no dust must be visible from operations. 	Low (-) 5
5.3	Stripping of topsoil / soil disturbance to clear infrastructure footprints and establishing a topsoil stockpile	Dust generated by earth moving equipment result in dust fallout to surrounding environment	Known, Air Quality Specialist	Low (-) 12		Low (-) 8
6 VISUAL IMPACT						
6.1	Clearing of topsoil will result in the change of surface cover notable to receptors on the Namibian bank of the Orange River	Areas stripped of topsoil will be visible to receptors on the Namibian bank of the Orange River	Known, Visual Specialist	Moderate (-) 12	<ul style="list-style-type: none"> Maintaining the Orange River bank profile particularly in areas where an existing steep bank is likely to largely screen mining activities; Maintaining all existing riverine vegetation; and Where the above measures are not likely to be effective, maintaining a setback from the Orange River. 	Low (-) 12
6.2	Lighting will be required at the construction laydown area and staff accommodation	Any light is likely to be visible to receptors on the Namibian bank of the Orange River	Known, Visual Specialist	Moderate (-) 15	<ul style="list-style-type: none"> Minimize lighting to ensure lighting is sufficient to allow areas to be worked safely with minimal light spill out of the working area; 	Low (-) 12
7 NOISE IMPACT						
7.1	Using of existing access and haul roads during clearing of footprint areas	Increase in noise levels from use of LDV's and earth moving equipment	Known, Noise specialist, I&APs	Low (-) 10	<ul style="list-style-type: none"> All earth moving equipment must be serviced regularly. All operations should receive adequate training on equipment use. If piling is required it should only occur the day. Ensure vehicle silencers are operation. 	Low (-) 5
7.2	Establish site infrastructure incl. contractors area, containerized accommodation, parking, offices ablation, processing plants, fuel storage, waste storage, generators, water storage	Generation of noise by machinery, excavations and vehicles will result in increased noise levels at NSA	Known, Noise Specialist	Low (-) 10		Low (-) 5
7.3	Landing strip at Grasdrift already exists.	None	None		None	
8 SURFACE WATER						
8.1	Footprint clearance, excavations and development of the proposed Grasdrift Mine infrastructure	Lead to erosion and sediment (suspended solids and silt) in runoff water (only likely in the event of a rare storm.	Known, Hydrologist	Low (-) 12	<ul style="list-style-type: none"> Measures such as berms and drains to mitigate the potential impact will be contained in the SWMP to be implemented as early as possible. 	Very Low (-) 4

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
		Dust deposition in areas where it can be taken up in surface runoff and contribute to sediment loads in Orange River	Hydrologist	Low (-) 12	<ul style="list-style-type: none"> Dust suppression as detailed in item 5 'Air Quality' for site establishment. 	Very Low (-) 4
		A flood risk will be present in rare events of flashfloods where infrastructure intersects with local drainage paths. It can cause potential impact on infrastructure stability and subsequent downstream water quality as sediment/waste maybe washed away by storm water within these drainage lines.	Hydrologist	Low (-) 10	<ul style="list-style-type: none"> A 1: 100-year flood line investigation will be undertaken for the Orange River and main tributary during the EIA Phase. The location of proposed infrastructure will be carefully considered. No infrastructure, except for water pumps and pipelines will be located below the 1: 100-year flood line. Engineered storm water and diversion infrastructure should be constructed to divert clean water around these facilities. 	Very Low (-) 4
8.2	The transport, handling and storage of fuels, chemicals, construction material and waste	Contamination of soil surfaces and water resources	Hydrologist	Low (-) 12	<ul style="list-style-type: none"> Provision of bunded storage areas for storage of fuels and hazardous materials. 	Very Low (-) 4
9 GROUNDWATER						
9.1	Site establishment: Establishment of diesel storage areas including transportation, handling and storage of fuels, refueling, chemicals, construction material and waste. Use of Diesel Generators	Contamination of soil surfaces due to spills, leaks of fuel and hydrocarbons.	GeoHydrologist	Moderate (-) 16	<ul style="list-style-type: none"> Immediate clean up hydrocarbon spillages Inspect vehicles and machinery on a daily basis for fuel and oil leakages and repair such. Place drip trays at machinery and or vehicle parking areas. Use spill kits to absorb medium sized oil or fuel spills. 	Low (-) 5
9.2	Waste water management from concrete batching plant	Runoff from concrete batching plants can infiltrate the soil and cause contamination	GeoHydrologist	Low (-) 6	<ul style="list-style-type: none"> Runoff from cement/concrete batching areas must be strictly controlled, and contamination water must be collected, stored, treated/disposed of off-site. 	Very Low (-) 3
10 HERITAGE, CULTURAL RESOURCES AND PALAEOLOGY						
10.1	Excavations and establishment of site infrastructure	Floodplain heritage may be impacted	Archaeologist	High (-) 30	<ul style="list-style-type: none"> Orange River floodplain restricted from mining as Heritage no-go area; 	Very Low (-) 3
10.2		Important fossil site may be impacted	SanParks	Moderate (-) 20	<ul style="list-style-type: none"> No infrastructure establishment on important fossil area in proximity to section 3 plant. Implement Change Find Protocols in case of any resources unearthed. Refer to item 11.1 – 11.2 under 'Operation Phase' impact mitigations. 	Very Low (-) 3
11 SOCIO-ECONOMIC						
11.1	Movement of mine vehicles along Helskloof Pass / Akkedis Pass	Impact on road use by tourists and overall tourist experience of RNP along Helskloof Pass	Known, SanParks	Moderate (-) 16	<ul style="list-style-type: none"> Strict regulation of vehicle movement through the RNP. Enforce Park speed limits (60km/hr. main gate to rest camp) and 40km/hr. on Park roads) and traversing hours. Courteous to community members and visitors to RNP. 	Low (-) 12

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
11.2	Site establishment	Creation of job opportunities	Known	Moderate (+) 18	None required Implement SLP skills audit and labour plan.	
11.3		Potential impact on existing livelihoods (farm, tourism)	Known, Specialist, I&APs	High (-) 27	<ul style="list-style-type: none"> Implement prescribed visual, noise, air quality, traffic management's measures. Promptly address any concerns raised by SANParks and RJMC and I&APs in a transparent manner. 	Low (-) 12
11.4		Potential impact on sense and spirit of place due to conflicting land use	Known, Specialist, I&APs	High (-) 27		Low (-) 12
12 COMMUNITY HEALTH						
12.1	Movement of construction vehicles to Grasdrift	Potential safety impact on local roads due to construction vehicles and haulage of abnormal mine equipment to site	Specialist	Moderate (-) 14	<ul style="list-style-type: none"> Engage the Local Municipality and interested and affected parties to assist with programs targeted at improving traffic management and road safety in the study area; Adherence Park speed limits of 40km/hr. 	Low (-) 6
12.2	Site establishment: clearing topsoil, overburden and establishment of infrastructure	Increase in dust levels will create nuisance impact and lead to health problems i.e. sinusitis, silicosis.	Specialist	Moderate (-) 14	<ul style="list-style-type: none"> Implement dust control measures. Maintain complaints register for stakeholders. 	Low (-) 7
(B) OPERATIONAL PHASE						
1 GEOLOGY						
1.1	Removal of overburden, excavation of gravel and processing	The removal of 19-17Ma and 5-2Ma diamond bearing gravels will result in the permanent removal of the available economic reserve of alluvial diamonds at Grasdrift a geological feature of the RNP.	Known, Geologist	High (-) 27	<ul style="list-style-type: none"> Implementation of rehabilitation through direct backfill of overburden into mined out areas. 	Moderate (+) 18
2 TOPOGRAPHY						
2.1	Removal of overburden and excavation to a depth of 20m below ground level to access bedrock (trap sites). Including mining first 20-25m of perched Proto terraces	Temporary change in natural land topography until backfilled in the previously mined out areas as part of concurrent rehabilitation. Proto terraces probably only be shaped to mimic previous gravel terrace form.	Known	Moderate(-) 18	<ul style="list-style-type: none"> Implementation of rehabilitation through direct backfill of overburden into mined out areas and covering with topsoil and coarse tailings/material to mimic surrounding surface cover (desert pavement). Shaping of Proto terraces to mimic previous gravel terrace form. Shaping of excess overburden material to mimic gravel terraces and cover with coarse material. 	Low (-) 7
2.2	Temporary stockpiling of overburden at waste dump for subsequent use as backfill into mined out areas. Creation of ramps to processing plants to tip					

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
	gravel material into hopper including waste tailings from plant.					
3 SOIL AND LAND CAPABILITY						
3.1	Removal of topsoil, overburden and excavation of gravels, in pit screening, stockpiling including movement of HME's	Compaction of soil and transformation of land use leading to loss of soil/ land capability	Soil Specialist	Moderate (-) 21	<ul style="list-style-type: none"> ▪ Soil management: <ul style="list-style-type: none"> ○ Stockpile topsoil separately for later use in rehabilitation of mined out areas; ○ Do not stockpile topsoil in episodic drainage patterns; ○ Protect topsoil from storm water and erosion ▪ Temporary soil stockpiles must be placed as close as possible to the areas that will be progressively rehabilitated. ▪ Concurrent rehabilitation using overburden as direct backfill of mined out areas and cover with topsoil and coarse tailings. ▪ Limit compaction through control and prohibit of access of vehicles and machinery to areas outside established access tracks; ▪ Implement storm water management plan 	Low (-) 12
		Erosion may lead to loss of topsoil and indirect loss of land capability.		Moderate (-) 21		Low (-) 6
3.2	Leaks, spillages of fuel, oil from HME's, at workshop or plant areas	Contamination of soil resources wherein it affects the salinity or pH of the soil	Soil Specialist	Moderate (-) 21	<ul style="list-style-type: none"> ▪ Implement management as per item 8.1 and 8.2 'groundwater'. ▪ Ensure that drip trays are placed below fuel or oil leakages from parked equipment and vehicles. 	Low (-) 6
4 VISUAL IMPACT						
4.1	Presence of mine infrastructure particularly three gravel processing plants, material stockpiles (waste dump), buildings, offices, accommodation and mineral extraction areas moving around the project site impacting different areas over the mining period.	<p>Possible landscape change: The infrastructure could be visible up to 11.3km. However, at these distances it is unlikely to be visually discernible from the background. The project will impact negatively on a protected area of international importance visitors to the RNP and Ai-Ais National Park. It will also affect the following local areas: Orange River corridor, road users (local/business travellers of the C13 (Aussenkehr), residents and visitors of the resorts on the Namibian bank of the Orange River</p>	Specialist, I&APs	Moderate (-) 24	<ul style="list-style-type: none"> ▪ Placement of processing plants as far as technically possible from the Orange River (section 2 and 3). ▪ Concurrent rehabilitation of mined out areas; ▪ Maintaining the Orange River bank profile particularly in areas where an existing steep bank is likely to largely screen mining activities; ▪ Maintaining all existing riverine vegetation; and ▪ Where the above measures are not likely to be effective, maintaining a setback from the Orange River. <p>For more distant receptors including the C13, residents of homesteads located away from the Orange River and residents of Aussenkehr, the following mitigation measures are could include:</p>	Moderate (-) 22
		<p>Visual impact on C13 access route used by people travelling through the Aussenkerh area: Mining will be visible intermittently</p>		Moderate (-) 22		<ul style="list-style-type: none"> ▪ Avoiding bright colours and where possible painting structures a colour that blends with the landscape, a buff colour slightly darker than the colour of the existing accommodation block may be appropriate but this will

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
		from the road. Visible approximately 16.5km away, but if mitigated effectively, is unlikely to be obvious.			need to be tested on site; ▪ Using stockpiles to help screen processing plants from receptors; ▪ Undertaking more effective dust suppression: <ul style="list-style-type: none"> ○ Undertaking more effective dust suppression. In addition to the measures that will be undertaken listed in Section 4, this may include; ○ Damping down all haul roads using a water truck. ○ Damping down stockpiles as they are being deposited and as material is being extracted from them. ○ Damping down all areas where machinery is in motion extracting material from trenches and loading material into trucks. Minimise lighting requirements i.e. <ul style="list-style-type: none"> ▪ Minimise lighting to ensure lighting is sufficient to allow areas to be worked safely with minimal light spill out of the working area; ▪ Ensure floodlighting is angled away from the Orange River, particularly when mineral extraction is undertaken close to the river; ▪ Use bund between the gravel processing plants and the Orange River to minimize lighting spill. 	
		Mineral extraction operations will be highly obvious to a limited number of local homesteads and two resorts close to the Namibian bank of the Orange River		High (-) 39		Moderate (-) 20
		Could impact visually on local homesteads away from Orange River and within grape plantations: A limited number of homesteads within the Aussenkehr grape growing area's views could be impacted, however the grape plantations will screen most views of the mining area from the view. Only occasional views of the mining area would therefore be possible.		Low (-) 12		Very Low (-) 0
		Visual impact on local settlements (Aussenkehr) at the higher sections of the settlement. The settlement is also a low sensitivity area.		Low (-) 11		Very Low (-) 0
		Visual impact on Protected Areas: Only the RNP will be affected - Impact will consist of on-going disturbance of varying areas in the project site and at the three processing plant sections. However the visual impact on views from within the RNP is unlikely.		Moderate (-) 15		Low (-) 6
4.2	Mineral extraction operations close to the Orange River bank.	Could impact visually on recreational activities within the Orange River corridor for the entire length of the river adjacent to the project site.	Visual specialist	High (-) 33		Moderate (-) 16
4.3	Use of floodlighting at processing plants and contractors areas	Lighting associated with the project could impact negatively on local receptors: The mining operation will be obvious at night from surrounding areas with glare making floodlighting more apparent.	Visual specialist	High (-) 36		Moderate (-) 14
5 NOISE IMPACT						

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
5.1	Use of LDV's and HME's at mineral extraction areas and travelling along the internal access road	Increase noise levels could impact on several noises sensitive receptors on the Namibian Bank of the Orange River. The specialist considers the impact to be of low significance which is correct. However the EAP has to rate the impact at international scale since the receptors are located on the Namibian bank of the river, therefore the impact reflects to be of high significance.	Noise specialist, I&APs	High (-) 33	<ul style="list-style-type: none"> Placement of processing plants as far as technically possible from the Orange River (section 2 and 3) to take advantage of the property of noise that is attenuated with increasing distance. Piling to be restricted to day to take advantage of unstable atmospheric conditions. All pumps to be fitted within a suitable acoustic enclosure. All mining vehicles to have silencers fitted and serviced regularly. Ambient noise monitoring to be conducted at the closest receptor when operation commences to verify the noise emissions meet the noise rating limit as per IFC Guidelines or SANS 10103: 2008. The noise level limits must not be exceeded during the phases of the proposed Grasdrift Mine project at sensitive receptors i.e. 45dB (daytime), 35 dB (night time) (SANS 10103: 2008). 	Low (-) 8
5.2	Offloading and handling of bulk ore. This is the most significant noise source from the mine site. It is an impulse noise occurring for short durations at random intervals.					
5.3	Aircraft land and take off at existing landing strip.					
5.4	Processing plant operations at section 1, 2 and 3.					
5.5	Water pumps abstracting water from river and piped to processing plants					
6 AIR QUALITY IMPACT						
6.1	Movement of general and light mine vehicle through the RNP.	Deposition of vehicle entrained dust on vegetation along Akkedis Pass and Helskloof Pass	Known, SanParks	Moderate (-) 24	<ul style="list-style-type: none"> Strict adherence to Park vehicles speed limits of 40km/hr.; Strictly regulate vehicle movement through park. 	Low (-) 12
6.2	Mining operation dust sources i.e.	An increase to current ambient PM10 concentrations in the surrounding area. The specialist considers the impact to be of low significance which is correct. However the EAP has to rate the impact at international scale since the receptors are located on the Namibian bank of the river, therefore the impact reflects to be of high significance.	Air Quality Specialist, Known	High (-) 33	<ul style="list-style-type: none"> Compliance with NAAQS and NDR limit values i.e. <ul style="list-style-type: none"> PM10 - 40 µg/m3 (exposure of 1-year with zero tolerance), PM10 - 75 µg/m3 (exposure of 24-hour with tolerance of 4 times per year). Dust fallout - Rural district /non-residential area where the dust fallout rates as a 30-day average should not exceed 600<D<1200 mg/m2/day where the permitted frequency of exceedance is two within a year, not in sequential months 	Low (-) 7
	Stripping of topsoil to perimeter of terrace for later use in rehabilitation.					
	Removal of overburden to waste dump for later use as backfill					
	Tippling of material into dump trucks and subsequently into mobile screen	Noting the adjacent vineyards at Aussenkehr, mining activities and wind entrained dust may result in	Air Quality Specialist, Known	High (-) 33	<ul style="list-style-type: none"> Current and proposed dust control measures to be 	Low (-) 12

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
	<p>Loading and hauling material to processing plant</p> <p>Tipping gravel concentrate into processing plant hopper</p>	<p>increased dust fallout in surrounding areas. The specialist considers the impact to be of low significance which is correct. However the EAP has to rate the impact at international scale since the receptors are located on the Namibian bank of the river, therefore the impact reflects to be of high significance.</p>			<p>implemented at the mine:</p> <ul style="list-style-type: none"> o Water sprayers are used at the section 1 plant to suppress dust within plant area. To be implemented at section 2 and 3 plants as well. o The proposed Grasdrift Diamond Mine layout plan has been designed to place processing plants and the infield-screen as far away (2-3km) as technically possible from the Orange River. o Water from the slimes dams will be re-used for dust suppression during the mining phase. o Dust emission abatement equipment under the mining right will include: <ul style="list-style-type: none"> - Section 1 plant would be fitted with a dust extractor; - Section 2 plant would have a wet scrubber - Section 3 area has little fine materials in the gravels. Less dust is expected to be generated and the dust abatement would inevitably also include a wet scrubber. ▪ Implementation of frequent dust suppression on roads and open areas; ▪ Establish wind breaks/dust shields at high dust sources (i.e. mineral processing areas – where necessary). ▪ Implement Fugitive Dust Management Plan. 	
7 SURFACE WATER IMPACT						
7.1	Capturing and reuse of dirty runoff over the mine infrastructure areas at Grasdrift.	Impact on surface water quantity: Potential runoff reduction. However, virtually no runoff occurs except during rate flash flood events	Hydrologist , I&APs	Very Low (-) 3	<ul style="list-style-type: none"> ▪ Implement Storm Water Management Plan (SWMP) ▪ Adherence to water quality monitoring program 	Very Low (-) 3
7.2	Abstraction of 1.2 million m3/annum of raw water from Orange River for use at processing plant areas and contractors area	Impact on surface water quantity: During period of drought, increased water shortage for downstream water users may be experienced during peak demand during extreme low flow periods of the Orange River (>1:50 year).	Hydrologist , I&APs	Moderate (-) 20	<ul style="list-style-type: none"> ▪ Application for Section 21a water use license. ▪ Adherence to maximum water allocations (t be defined in WUL) and rationing to the Grasdrift project during drought situation and in case of potential water shortages. ▪ Reuse and storage of water in dams during periods of low flow. ▪ Installation of flow meters at relevant localities as determined. ▪ Develop a (dynamic) water and salt balance model calibrated with flow records that can determine water 	Low (-) 5

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					supply risk. The water balance should be updated annually.	
7.3	Surface water runoff from dirty water areas i.e. processing plants and slimes dams including seepage with a higher salt content may emanate from i.e. slimes dam and overburden dumps.	Impact on surface water quality: Pollution of local surface water resources (Orange River)	Hydrologist , I&APs	Moderate (-) 18	<ul style="list-style-type: none"> Implement SWMP and basic hydro geochemical testing is proposed to determine seepage qualities. Slimes and overburden are expected to be inert, but hydro geochemical testing will confirm this. The WMP should stipulate measures to divert clean water and capture dirty water and make provision for dirty water (if any) to be controlled (need for PCD to be established) /reused in the processing plant process and for dust suppression. A set of specific storm water diversion measures to control and divert clean water runoff should be developed in the EIA phase and implemented. Adherence to water quality monitoring program 	Very Low (-) 4
7.4	Silt and sedimentation from stripping of topsoil, excavation of gravels, stockpiling of materials.	Impact on surface water quality: Potential increased sedimentation and silt load to the Orange River.	Hydrologist	Low (-) 12	<ul style="list-style-type: none"> SWMP measures should be developed and implemented to prevent soil erosion and limit activities that generate sediments. Sediments that do occur should be captured in silt traps before entering a PCD (if required). Measures such as berms and drains to mitigation this potential impact are contained in a SWMP. Sediments from areas within the mine (i.e. process, overburden, dumps and slimes) will be captured in sumps and or silt traps. Slurry water should be pumped to a slimes dam and settle before reuse at the processing plant. 	Very Low (-) 3
7.5	Dust generated from mineral extraction areas, overburden dumps may settle in areas where it could be taken up in surface runoff.	Impact on surface water quality: Dust fallout may contribute to sediment loads to the Orange River.	Hydrologist	Low (-) 9	Implement dust control measures as stipulated in item 6 of this table for 'operation'.	Very Low (-) 3
7.6	A flood risk may be present during a rare event of flash floods where mine infrastructure intersects with local drainage paths.	Impact on surface water quality: Increased sediment load and waste may be washed away by storm water within these drainage paths.	Hydrologist	Low (-) 12	<ul style="list-style-type: none"> A flood line assessment will be undertaken for Orange River and main tributary during the EIA Phase. Location of infrastructure should be considered carefully and be limited above the 1: 100 year flood line except for water pipelines and pumps; Any infrastructure or activities proposed within the 1: 100 year flood line or within 100m of the Orange River / Oudannisiep require application for GNR 704 exemption. Engineered storm water diversion infrastructure should be constructed to divert clean water around mine facilities. 	Very Low (-) 4
7.7	Transport, handling and storage of fuels, chemicals, materials and waste.	Impact on surface water quality: May lead to contamination of soil surfaces and water resources.	Hydrologist	Low (-) 5	<ul style="list-style-type: none"> Implement safe handling and storage of hazardous substances. Waste will be discarded in designated, bunded water storage areas (at works) and at temporary waste facilities. Fuel and oil storage will be bunded. 	Very Low (-) 4

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					<ul style="list-style-type: none"> Spills will be cleaned up immediately. Sewage will be contained in septic tanks systems and emptied timeously and taken off site to a designated waste facility. 	
7.8	Movement of vehicles and machinery	Uncontrolled movement of mine vehicles and equipment within the Orange River and floodplain can result in accidental spillages of fuel, oil leaks into the river impacting on the river water quality.	Known	Moderate (-) 14	<ul style="list-style-type: none"> Movement of vehicles and equipment must be restricted from the Orange River 1: 100-year floodplain/riparian zones except for checking of pumps and brining HMEs to site across the Orange River. 	Low (-) 5
8 GROUNDWATER						
8.1	Topsoil removal, clearing of overburden, in pit screening, backfilling of mined out areas including hauling of gravel to the processing plant	Impact on groundwater quality: Potential oil, fuel leak, hydrocarbon spills from mine vehicles, mobile screening plant, HME's.	Known, Hydrologist	Low (-) 12	<ul style="list-style-type: none"> Immediate clean up hydrocarbon spillages Inspect vehicles and machinery on a daily basis for fuel and oil leakages and repair such. Place drip trays at machinery and or vehicle parking areas. Use spill kits to absorb medium sized oil or fuel spills. 	Low (-) 8
8.2	Gravel processing at processing plants, use of HME's and Generators in plant area	Impact on groundwater quality: Potential oil, fuel leak, hydrocarbon spills from mine vehicles, generators, plant and equipment.	Known, Hydrologist	Moderate (-) 21		Low (-) 12
8.3	Storage, handing of fuel at the banded Diesel Storage tanks including refuelling	Fuel spillages from vehicles and mine equipment and or oil leaks	Known, Hydrologist	Moderate (-) 24	<ul style="list-style-type: none"> Nabas will transport fuel to site with a fuel bowser. The fuel will be dispensed into 6 x 23 m³ Diesel storage tanks onsite. The diesel storage area will be banded, suitably contained and constructed according to applicable SABS Standards (10131: 2004) with secondary containment features installed around the filler points and tanks. The refueling area at diesel storage tanks will have a concrete apron to contain fuel spills from fuel delivery and dispensing to mine vehicles and machinery. The apron will have a berm and catch basin with a drain to direct spillages to a separator/sump. 	Low (-) 10
8.4	Use of septic tanks and French drains to dispose of waste water (sewage, wash water) at contractors, amenities and labour accommodation areas	Impact on groundwater quality: Potential sewage spills may impact the underlying groundwater resources.	Known, Hydrologist	Moderate (-) 16	<ul style="list-style-type: none"> Locate above the 1: 50 year flood line of the Orange River. A honey sucker will collect/empty the system on a regular basis. The nearest sewage treatment plant where it can be removed is located in Alexander bay. Application for Section 21g water use license. Implement ground water monitoring system. 	Low (-) 5
8.5	Handling, temporary storage of solid waste at waste storage areas	Potential leachate generated from waste storage areas due to improper storage and handling of waste, delayed removal from the mine.	Known, Hydrologist	Moderate (-) 16	<ul style="list-style-type: none"> Domestic waste will be collected at the plant areas and contractors area in bins, collected and removed on a daily basis to the temporary waste storage area (to be fenced off with concrete slab) and removed off-site as and when mine bakkies/small trucks are able to transport off-site to the nearest registered landfill site i.e. Port Nolloth or alternatively feed into Sendelingsdrift 	Low (-) 8

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					waste pickup system. Temporary waste storage areas must have a hard surface. <ul style="list-style-type: none"> ▪ Hazardous waste (hydrocarbons, old oil) would be collected in a designated area (in an extractor) in a bunded area next to fuel storage near the workshop and removed by mine vehicles to Springbok. Further investigation into hazardous waste disposal sites closer to the site will be investigated. 	
8.6	Servicing and washing of vehicles and equipment at Workshop and Washbay.	Possible fuel, oil leakages, spills may contaminate groundwater if not properly managed.	Known, Hydrologist	Moderate (-) 14	<ul style="list-style-type: none"> ▪ The workshop and vehicle service areas will be undertaken on a concrete slab area will be bunded. ▪ Runoff from the workshop will be collected in a sump/ oil separator and into a French drain system. ▪ Leaking equipment must be repaired immediately/removed off site for repair; ▪ Spill kit must be kept onsite. ▪ During emergency repairs affected outside the workshop area, a suitable drip tray must be used to prevent spills onto soil. ▪ Leaking equipment must be repaired immediately. ▪ Water drainage from the workshop must be contained and managed in accordance to a storm and waste water management plan. 	Very Low (-) 2
8.7	Disposal of fine tailings (porrel i.e. sand and water) to slimes dam	Infiltration of high salt load seepage from slimes dam to groundwater resource.	Known, Hydrologist	Moderate (-) 14	<ul style="list-style-type: none"> ▪ Restrict above the 1: 100 year floodplain of Orange River and more than 100m away whichever is greater. ▪ No placement of slimes dams in drainage lines i.e. episodic. ▪ Geochemical testing will be undertaken to confirm the need for any compacting / lining systems i.e. high salt load. ▪ Slimes dams to be designed by Professional Engineer. ▪ To be managed in terms of Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits 2015 ▪ Design and management according to Code of Practice for Mine Residue (SANS 0286: 1998); ▪ Placement in line with Mine Water Regulations (GNR 704) Regulation 4, 6 and 10... ▪ Soil must be stripped from area earmarked for slimes dam, ground compacted prior to slimes deposition to limit groundwater contamination. ▪ Any seepage from the slimes dams must be captured and diverted back into the mine water balance for reuse. ▪ Application for section 21g water use license. 	Low (-) 6
9 AQUATIC ECOSYSTEM						

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
9.1	Mineral extraction/excavation of gravel in proximity of Orange River bank including stockpiling of topsoil and overburden	Disturbance /degradation of riparian vegetation due to potential encroachment into aquatic ecosystem.	Ecologist, I&APs	Moderate (-) 16	<ul style="list-style-type: none"> Restrict mining above the 1:100-year flood line, riparian zone and river bank. Continuous monitoring and eradication of alien invasive species. 	Low (-) 5
		Spread of flora alien invasive species in the riparian areas and subsequent loss of habitat.		Moderate (-) 16		Low (-) 5
		Increased erosion and sedimentation may result in physical and functional changes to the receiving system		Moderate (-) 18	<ul style="list-style-type: none"> Implement SWMP Implement erosion and sedimentation control Surface water quality monitoring 	Very Low (-) 4
		Dust deposition on riparian vegetation.		Moderate (-) 14	<ul style="list-style-type: none"> Implement dust control 	Low (-) 12
9.2	Movement of vehicles and machinery off road to inspect water pumps or to access floodplain to move HME's across Orange River.	Minor disturbance/damage to section of the Orange River gravel floodplain and minor riparian vegetation (but the vegetation recovers quickly)	Ecologist, I&APs	Moderate (-) 21	Mine vehicles only to use existing access points to the river as far as possible.	Low (-) 5
9.3	Silt and sedimentation from stripping of topsoil, excavation of gravels, stockpiling of materials including storage and handling of fuel, oil and storage of waste.	Potential loss of habitat and impact on SCC fish species		Moderate (-) 13	<ul style="list-style-type: none"> Implement erosion, silt and sedimentation control. Implement SWMP Implement surface water Regular, check monitoring of slimes dam capacity and structural integrity. 	Low (-) 5
9.4	Use and movement of HME's and vehicles	Leaks, spillages or breakages from machinery can result in contamination of the receiving water resources likely to affect associated biota.		Moderate (-) 13	<ul style="list-style-type: none"> Immediate clean up hydrocarbon spillages Inspect vehicles and machinery on a daily basis for fuel and oil leakages and repair such. Place drip trays at machinery and or vehicle parking areas. Use spill kits to absorb medium sized oil or fuel spills. 	Low (-) 5
10 TERRESTRIAL ECOLOGY						
10.1	Disturbance of the soil layer through removal of topsoil, overburden, excavation of gravel	Spread and / or establishment of alien and or invasive species resulting loss of natural habitat. It is however expected to be sparse given the desert environment.	Ecologist	Moderate (-) 14	<ul style="list-style-type: none"> Eradication of alien invasive species within the mine site and throughout the Orange River floodplain and riparian zone along the stretch of the proposed mining right area. Mining is strictly prohibited above the 1:100 year flood line, above the riparian vegetation and river bank; Implementation of noise control measures and strict adherence to noise limits for rural districts. Light pollution management measures must be strictly implemented as prescribed by the visual specialist. Any holes/excavations need to be backfilled to ensure that no fauna species can fall in. 	Low (-) 8
		Loss of habitat will lead to loss of fauna SCC species and diversity.	Ecologist	High (-) 27		Moderate (-) 14
		Reduced dispersal / migration of fauna	Ecologist	High (-) 28		Moderate (-) 14

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
10.2	Environmental pollution due to water runoff, spills from vehicles and erosion	Pollution in water bodies and surrounding environment resulting in faunal mortality	Ecologist	Moderate (-) 20	<ul style="list-style-type: none"> All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. All staff to receive Environmental Awareness program of the surrounding area and wetlands to inform of importance of these areas and their conservation. Strictly maintain the Orange River riparian zone no-go zone. This will maintain the ecological corridor. A setback to the Orange River corridor must be recommended by the Ecologist/Aquatic Specialist. Implemented the SWMP Implement prescribed surface water and groundwater management, fuel and hydrocarbon spillage management and remedial measures. Surface water monitoring 	Low (-) 10
10.3	Removal of topsoil, excavations, operation of plant areas and use of floodlights	Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution resulting in reduced pollination and growth of vegetation due to dust; faunal mortality due to light pollution (nocturnal species).	Ecologist	Moderate (-) 16	<ul style="list-style-type: none"> Topsoil management Erosion and sedimentation control Implement noise control and monitoring Implement dust control and monitoring Implementation of Fugitive Dust Management Plan Implement visual and light pollution management measures as prescribed. 	Low (-) 12
10.4	Presence of mine staff and others at project site	Interaction directly with fauna or poaching of animals resulting in loss of SCC's or TOPS species. This is however unlikely given the desert environment and hardly any animal species observed.	Ecologist	Low (-) 10	<ul style="list-style-type: none"> No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. Penalties payable to RNP. 	Low (-) 5
11 HERITAGE AND PALAEOLOGICAL IMPACT						
11.1	Removal of topsoil, overburden and excavation of gravel, movement of mine vehicles below gravel terraces or in floodplain, in pit screening of materials including backfilling operations.	Possible disturbance of unmarked graves recorded in the Orange River floodplain and possible disturbance of other potential graves (not obvious).	Archaeologist	High (-) 30	<ul style="list-style-type: none"> Orange River floodplain restricted from mining as Heritage no-go area; If any graves are identified during the heritage survey, within the mine footprint, the project layout must be adjusted to create a 50m buffer for archaeological sites and the sites must be fenced in. A full Phase 1 Heritage Impact Assessment field survey and reporting must be undertaken to determine the presence of any other heritage resources 	Very Low (-) 0
11.2		Potential impact on fossilized arthropods contained in Dwyka tillite pavements at Grasdrift recovered in tailings and screening operations. It must however be noted that the entire site was walked and driven.	EAP literature review, Archaeologist/Palaeontologist	Low (-) 9	<ul style="list-style-type: none"> Section 3 processing plant to be located outside the fossil site. Desktop Palaeontological Study will be completed to investigate the Fossil site further. Implement Chance Find Protocols in case any resources are unearthed either on the surface / exposed by 	Very Low (-) 3

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
11.3		No fossils were observed. It could have been removed or buried due to past prospecting (1980's). The impact is therefore possible but unlikely.			excavations, the ECO in charge of the project must report to SAHRA (111 Harrington Street, Cape Town Tel: 021-462-4502) so that mitigation can be carried out by paleontologist.	
		Possible impact on prominent slate formation which could possibly host fossils as part of the 'important fossil site' at section 3 of mining.	EAP, SanParks, Archaeologist / Palaeontologist	Moderate (-) 18		Low (-) 9
		Potential impact on living heritage, the 'sense of place' and sacred connotation of Richtersveld to Nama-Khoi.	Archaeologist	Moderate (-) 24	<ul style="list-style-type: none"> Nomadic stock farmers would have continued access to the Orange River floodplain for grazing purposes during the operation of the proposed Grasdrift Mine. A Memorandum of Understanding can be signed between Nabas and the livestock farmers in this regard. Nabas also intends to assist livestock farmers with provision of water points in the RNP for their winter grazing season. 	Moderate (-) 14
12 SOCIO ECONOMIC IMPACTS						
12.1	Operation of the mine in the far eastern corner of the RNP (public access restricted)	Impact on conservation spaces and resources. It is however not expected that mining at Grasdrift would lead to financial loss of tourists to the Park or loss of revenue given its remote location in the Park.	Specialist	Moderate (-) 20	<ul style="list-style-type: none"> Restrict vehicle movement through the Park. Enforce low speed limits (40km/hr.) on access routes to Grasdrift. Promptly address any concerns that are raised by the SanParks, RJMC and I&APs in a transparent manner; Strictly comply with internal Park rules and regulations as set out in the RNP Management Plan 2018-2028. 	Moderate (-) 18
12.2	Movement of mine vehicles over Helskloof Pass, occasionally Akkedis Pass	Increased traffic along these routes may have a negative impact on visitors / tourists experience of the RNP	SanParks, Known	Moderate (-) 16	<ul style="list-style-type: none"> Implement regular road maintenance (as required) along Helskloof Pass and Akkedis Pass. Restrict any movement of HME's through the Park during flowering season when tourist activities is high. 	Low (-) 8
12.3	Operation of the mine	Purchase of goods and services at the Park (incl. accommodation at Sendelingsdrift camp)		High (+) 30	None required	
		The Richtersveld community will benefit from the mine through 20% share hold held in 'Nabas Trust' in lieu of rental including the SLP contribution.		High (+) 33	None required	
		Creation of 150 jobs (90% sourced from Richtersveld community) and will help alleviate poverty		Known	High (+) 33	None required

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
		Increased opportunities for SMME's including purchase of local goods and supplies from the local communities		High (+) 30	None required	
12.4	Increase in people movement at Grasdrift	Fear of potential increase in crime	Known, Specialist, I&AP	Moderate (-) 13	<ul style="list-style-type: none"> Mine Security to strictly prohibit crossing the Orange River by staff into Namibia. Hefty penalties must be implemented such as 'dismissal with immediate effect' from mine site. Control I access to the mine site Liaise with the South Africa Police Service (SAPS) and Namibian Police Station in Aussenkehr to ensure that illegal crossing of the border is strictly monitored from either side of the river. 	Low (-) 6
12.5	Distribution of benefits to local community	Increased social tensions, conflict or divisions within the Richtersveld community,	Specialist	Moderate (-) 20	<ul style="list-style-type: none"> Set up communication channels with community (Richtersveld CPA). Constantly monitor community sentiment via these channels and react swiftly to issues of concern. Appointment community liaison officer 	Low (-) 12
		Possible corruption			<ul style="list-style-type: none"> Nabas should be committed to formulating an anti-corruption policy that prohibits, detects and prevents corruption. Ensure that the responsibilities of the board, management and employees pertaining to addressing corruption are made clear. Ensure that corruption policy is transparent, user-friendly and ensures total confidentiality. 	
12.6	Dust, noise, accessibility and sense of spirit of place	Potential impacts on livelihoods (Aussenkehr farms, tourist establishments, and nomadic farmers)	Known, I&APs, Specialist	Moderate (-) 22	<ul style="list-style-type: none"> Implement dust, noise, and visual control and management measures. Noise and Dust monitoring throughout operational phase. Maintain complaints registered for stakeholders. 	Low (-) 11
12.7	Job opportunities available for woman in mining at Grasdrift	Gender relations impacts		Moderate (-) 18	<ul style="list-style-type: none"> Sensitize staff in respect of gender-sensitive issues that are pertinent to the workplace. Ensure gender inclusivity and equity in respect of all compensation. Prioritize gender inclusivity and equity in access to resources, goods, services, and decision-making with the aim of empowering women. Promote equal job opportunities for women and men during the construction and operational processes. Prioritize and articulate gender inclusivity and equity in the project documents by including specific strategies and guidelines for implementation. The project documents should also include clear mechanisms through which the actual implementation of the activities and the impact on the ground can be monitored and evaluated. Develop a grievance procedure to specifically address 	Low (-) 8

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					<ul style="list-style-type: none"> gender matters. Factors such as culture should be considered when planning for gender activities since they play a significant role in influencing gender relations. Ensure that gender differences are considered when hiring staff. 	
12.8	Generation of dust at mineral extraction area and on access routes.	Vulnerability of the Aussenkehr community to potential air pollution i.e. dust fallout		Moderate (-) 22	Implement dust control.	Low (-) 10
12.9		Reduced actional personal safety and increased hazard exposure		Moderate (-) 22	<ul style="list-style-type: none"> Ensure that all construction equipment and vehicles are properly maintained at all times. Ensure that operators and drivers are trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. Place specific emphasis on the vulnerable sector of the population such as children and the elderly. Ensure that fires lit by construction staff are only ignited in designated areas and those safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to. Ensure that all construction equipment and vehicles are properly maintained at all times. Follow mitigation measures that are recommended in the appropriate specialist reports. Put in place a monitoring system to monitor health risks throughout the life cycle of the project. Ensure that there is broad-based representation, capable of serving both community and company interests in respect of the monitoring facility referred to above. 	Low (-) 11
13 COMMUNITY HEALTH IMPACTS						
13.1	Movement of labour between communities and into the proposed Grasdrift Project area	Pose an increased risk for communicable diseases due to mine workers in close proximity to each other in enclosed environment allows the TB bacteria to spread easily. HIV is not a concern listed for the communities but related illnesses such as TB was noted for Lekkering village.	Community Health Specialist, I&APs	Moderate (-) 16	<ul style="list-style-type: none"> Collaborate with the DoH on awareness-creation around vaccinations to communicable diseases for vulnerable sub-populations such as children and old people; Labour policies should encourage hiring of local staff to avoid excessive job-seeking migrants. The Project should not hire at the "front gate" but consider a recruitment office at an off-site location. This will need to consider national recruitment and employment requirements; Reduce the prevalence of communicable diseases by collaborating with relevant government departments and schools for awareness creation and improved understanding of factors exacerbating communicable 	Low (-) 6

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
13.2					<p>diseases, including coping strategies that result in behaviour change; and initiating competitions at schools for illustrating innovative ways to improve conditions at home - either by reducing exposure and susceptibility or increasing coping capability.</p> <ul style="list-style-type: none"> Support community-based information campaigns related to TB symptoms and the need to seek care. The campaign should address the risk of co-infection between HIV and TB; Influx management and advice with regards to town planning to prevent overcrowding; and Develop partnerships to support the community-based TB control programs in conjunction with the DoH and any NGOs. This needs to include case detection, management and surveillance activities under the national TB program policy and strategy. 	
		Possible increased risk for STIs, including HIV/AIDS due to destructive behaviour by labourers likely to take back home or from community to labour accommodation.		Moderate (-) 22	<ul style="list-style-type: none"> Develop a HIV/AIDS policy that incorporates both the workplace and community considerations; TB and STI must be integrated into this; Support equal employment opportunities for women and establish livelihood programs to reduce risk for opportunistic sexual encounters and empower women and young girls to earn their own income to be in a position to provide for themselves without having to resort to sexual transactions; Support (financial or otherwise) NGO groups active in the area on gender-based sexual violence; and 	Low (-) 8
13.3	Operation of machinery, equipment, transporting of goods and personnel to service needs of Grasdrift project.			High (-) 33	<ul style="list-style-type: none"> Engage the Local Municipality and interested and affected parties to assist with programs targeted at improving traffic management and road safety in the study area; Develop a clear policy for the management of emergencies or accidents in the community as a direct result of the projects activities; Support with local safety and security as addressed in these specialist studies. 	Moderate (-) 16
	Transport of staff at shift changes to different communities, light vehicle traffic to support general requirements of Grasdrift project.	Potential increase in accident/injuries (safety risk) at the workplace and mine motor vehicle accidents				
13.4	Handling of hazardous materials and waste, noise from mine machinery	Mine staff exposure to potentially hazardous materials, noise and malodours		Moderate (-) 14	<ul style="list-style-type: none"> All employees and contractors should receive Health and Safety induction that includes an environmental awareness component (noise). This is to allow employees and contractors to realise the potential noise risks that activities (especially night-time activities) pose to the surrounding environment; The mine investigates the use of white-noise alarms instead of tonal reverse alarms on heavy vehicles operating on roads, within the mining area and at 	Low (-) 6

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
					stockpile areas if permitted in terms of the Mine Health and Safety Act;	
13.5	Removal of topsoil, overburden, mineral extraction, in pit screening of gravel.	Dust fallout from the mine to the surrounding area (i.e. potentially Aussenkehr) could result in an increased incidences of mild/sinusitis, asthma/or bronchitis sometimes even pink eye. However the dust fallout is anticipated to be low therefore the likelihood of these health issues materialising also low.		Moderate (-) 14	<ul style="list-style-type: none"> ▪ Implement dust control as specified under item 6 'Air Quality' for Operational aspects. ▪ Collect data on a longitudinal basis from the local health centers on incidence of increased respiratory disease - especially respiratory tract infections that could be ascribed to dust. While these may not be specifically ascribed to the Project, the prevailing trends are useful to monitor so that any concerns could be addressed. This may require health systems strengthening to support recording. ▪ A General/Mine Manager will be appointed at Grasdrift who will maintain Healthy and Safe Environment as per the Mine Health and Safety Act, 1996. ▪ Employees must be supplied with sufficient quantities of PPE (personal protective equipment). ▪ Identify the relevant hazards and assess related risks to which persons who are employees at Grasdrift may be exposed to whilst working at the mine and provide health and safety training to its employees. ▪ The mine is to monitor and control environmental aspects at the mine which affect, the health and safety of employees and other persons (noise, dust). ▪ Nabs is to compile an annual report on health and safety at the mine including the statistics and compile a medical report. 	Low (-) 6
c) DECOMMISSIONING AND CLOSURE – VERY SIMILAR TO ESTABLISHMENT IMPACTS						
1 IMPACT ON SOILS, SURFACE AND GROUNDWATER						
1.1	Dismantling of fuel storage tanks, removal of diesel generators	Potential soil and groundwater pollution from hydrocarbon spillages, waste disposal practice	Known	Low (-) 10	<ul style="list-style-type: none"> ▪ Drain all remaining fuel from storage tanks a pipes; ▪ Vehicles and heavy machinery used during closure and rehabilitation should be serviced and checked on a regular 	Very Low (-) 3

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
1.2	Use of machinery and equipment to dismantle of old equipment /cut infrastructure for scrap, HME's to backfill mined out areas and grade site.			Low (-) 8	basis to prevent leakages and spills. <ul style="list-style-type: none"> Old equipment and storage tanks removed from site must be stored to prevent leaking or stored on drip trays; Once material is scrapped and contract has been placed for removal, the disposal contractor must ensure that equipment containing pollution causing substances is dismantled and transported to prevent spillages. Any spillages must be cleaned immediately. 	Very Low (-) 3
1.3	Remaining sources of surface contamination post-closure, due to potentially contaminated seepage are the processing plant and mining infrastructure, slimes dams and overburden and rehabilitation of all areas.	Impact on surface water quality	Hydrologist	Moderate (-) 16	<ul style="list-style-type: none"> Rehabilitation of all areas by backfilling with overburden and tailings and decommissioning of all infrastructures. Final profile achieved should be acceptable in terms of surface water drainage. As with operation, a basic hydro geochemical assessment is recommended to confirm the long term seepage and runoff qualified from backfilled mined out areas. (Expected to be inert). 	Low (-) 7
2 TRAFFIC						
2.1	Removal of yellow fleet, equipment, scrap etc.	Increased traffic through RNP over Helskloof Pass	Known	Moderate (-) 18	As per mitigation provided under item 1'Traffic' for site establishment.	Low (-) 12
3 NOISE IMPACT						
3.1	Use of machinery and equipment to demolish and dismantle infrastructure, rip and shaping of landscape and Proto terraces.	Generation of noise by machinery, excavations and vehicles will result in increased noise levels at NSA	Known	Low (-) 10	<ul style="list-style-type: none"> Limited mitigation required. Limit decommissioning activities to day time. Noise limits must not exceed noise limits at sensitive receptors i.e. 45dB (daytime), 35 dB (night time) (SANS 10103: 2008). Ensure vehicle silencers are operational. 	Low (-) 5
4 AIR QUALITY IMPACT						
4.1	Backfill of mined out areas, shaping of landscape, dismantle, demolish of infrastructure.	Increased dust fallout in surrounding environment	Known	Moderate (-) 15	<ul style="list-style-type: none"> Strict adherence to Park vehicles speed limits of 40km/hr.; Strictly regulate vehicle movement through park. Implementation of frequent dust suppression on access roads and open areas. 	Low (-) 12
4.2	Use of existing access and haul roads for movement of vehicles, equipment and trucks	Vehicle entrained dust from vehicle from the northern to the southern extreme of the site will result in increased dust fallout in the surrounding environment including along Helskloof Pass	Known, Sanparks, Air Quality Specialist	Low (-) 12		Low (-) 5
5 TERRESTRIAL BIODIVERSITY						

No	Project activity	Impact description	Informed by	Significance without mitigation	Mitigation	Significance with mitigation (reversibility)
5.1	Removal and eradication of alien invader species along Orange River floodplain and on rehabilitated areas.	Improve habitat integrity	Known	Moderate (+)	None required.	
6 TOPOGRAPHY						
6.1	Backfill and reshaping of mined out areas, covered with coarse tailings to mimic desert pavement	Altered natural profile	Known, Rehabilitation and closure specialist	Moderate (-) 16	<ul style="list-style-type: none"> The overburden, waste and tailings material from the process would be used as direct backfill of mined out areas, levelled and covered with coarse material to mimic the surrounding landscape as part of rehabilitation. Any surplus material would be shaped to mimic gravel terraces along the river. Proto terraces would be shaped with overburden to have soft edges and subsequently covered with coarse material. 	Low (-) 7
6.2	Any excess material left after backfilling/stockpiling will be shaped and covered with coarse tailings i.e. excess overburden and Proto terraces (not mined to ground)	Excess overburden dumps (if any surplus material) will remain in the landscape after mining		Moderate (-) 18		Low (-) 8
7 SOCIO ECONOMIC IMPACT						
7.1	Downscaling and closure of mine	Loss of jobs and associated income	Known	Moderate (-) 24	<ul style="list-style-type: none"> Incorporate social aspects of closure in the planning phases of the project. Implement Skills Development and LED opportunities throughout the Life of Mine to allow employees access to alternative livelihood opportunities in other sectors/mines. A Social Closure Plan should be formulated 2 years before planned mine closure and engage local and district authorities in 'step down' plans. Through the implementation of Skills Development Programmes and the creation of LED opportunities for employees and their households in local communities, the negative socio-economic impacts of closure should be minimised. This will enable the employee to access alternative livelihood opportunities in other sectors of the economy. 	Low (-) 10
7.2		Reduced quality of living standards				
7.3		Changes in community's economic structure (business opportunities, employment)				
7.4		Reduced buying power in Richtersveld				

19. METHODOLOGY USED TO DETERMINE THE SIGNIFICANCE OF ENVIRONMENTAL AND SOCIAL IMPACTS

The list of identified impacts for the Grasdrift Mine project have be evaluated considering several rating scales as provided under Section 25.5 of this report. These ratings include: extent, duration, intensity, significance, status of impact, probability. The significance of impacts has been calculated as follows:

Significance = (Extent + Duration + Intensity) X Probability

The preliminary rating of these impacts will be refined during the EIA Phase through in-depth field investigations since the current is predicted based on desktop analysis, literature review, preliminary site inspection and stakeholders inputs.

20. POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY AND ALTERNATIVES MAY HAVE ON THE ENVIRONMENT AND COMMUNITY THAT MAY BE AFFECTED

I.e. 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

This is not applicable yet, since the preliminary layout plan is still subject to a 30-day consultative process.

Much of the infrastructure required for the mine operation was already established during the prospecting operations and dictates the placement of the additional required mine infrastructure. Nabas is however being guided by the EAP and specialist recommendations regarding the placement of the new infrastructure.

During the initial stakeholder engagement from 5 November to 5 December 2022 surrounding land users on the Namibian bank of the Orange River highlighted their concern related to the potential impacts on livelihoods (Aussenkehr farmers, two tourist establishments) related to dust, noise, light and sense and spirit of place.

Consequently, the gravel processing plants for sections 2 and 3 are placed as far as technically possible from the Orange River to reduce the potential impacts by adding distance between the plant areas and the Orange Namibian bank of the river. The section 1 plant is existing and its placement restricted by rugged mountains

If the plants are located close to the river the above listed negative impacts will be realised. By moving these plants inland (2-3 km) these negative impacts become of low significance and the probability of occurring lower. The risk of impacting on the socio-economic activities of the Namibian stakeholders is also reduced.

It is however essential that the potential noise propagation and dust fallout from the mine be modelled in the respective specialist studies to determine to actual impacts and such stakeholders would truly be effected. Currently the report lists and considers possible impacts the EIR will confirm if this is in fact relevant.

The key concern from the RNP management is the potential impact from mine traffic over Helskloof Pass (incl. biodiversity impact) on tourism, the sense of place and may result in negative visitors experience and subsequent loss of income to the Park.

21. POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

i.e. With regard to the issues and concerns raised by affected parties provide a list of the issues raised and a 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).

The concerns received to date have been considered in Table 29 and the required mitigation measures listed accordingly.

22. OUTCOME OF SITE SELECTION MATRIX (FINAL SITE LAYOUT PLAN)

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

This is not applicable yet. The Mine Layout Plan is currently preliminary and is still subject to consultation and specialist recommendations. It can therefore not be considered a final layout plan.

The preliminary mine layout plan does however take into consideration the following:

- Placement of gravel processing plants as far as technically possible from sensitive receptors to noise and dust.
- The Orange River floodplain, riparian fringe and bank is restricted from mining given it's a sensitive ecosystem, shared water source with Namibia and also a screening feature between the land uses on the Namibian bank of the river and Grasdrift;
- The heritage important zone where graves have been recorded is restricted from mining as a heritage no-go zone i.e. goat grazing and recorded graves.
- RNP briefed Naledzi on the location of an important fossil site next to Grasdrift. This has been considered and superimposed on maps but would not be affected by mining. Mining will be restricted to gravel terraces below.
- The layout is making use of existing infrastructure as far as possible where disturbance has already occurred.
- The 1:100 year flood line determination for the Orange River and Oudannisiep will be determined as part of the EIA process and included on the draft EIR layout plan.

23. MOTIVATION WHERE NO ALTERNATIVES WERE CONSIDERED

Design and layout alternatives will be considered. The current layout plan is preliminary and still subject to specialist recommendations. Operational alternatives are also being considered with regards to movement of HME's to site either across the river or over Helskloof Pass. The no-go option is also being considered since technically mining is in conflict within a protected area however the positive socio-economic spinoffs from the Grasdrift Mine project for the Richtersveld community is considered more significant than the perceived negative impacts.

The mining operation is also temporary (30-year LoM) where the permanent land use would be final post mining land use 'wilderness'. If responsible mining is undertaken according to best environmental practice and rehabilitation implemented successfully there should be no residual impacts.

24. STATEMENT MOTIVATING PREFERRED SITE

I.e. Provide a statement motivating the final site layout plan proposed.

This is not applicable yet. The 1: 100 year flood line assessment must still be conducted for the project and would be available to overlay on the Mine Layout during the EIA phase. In-depth specialist field investigations must still be conducted to further make recommendations on the Mine Layout Plan.

25. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

The Impact Assessment Phase entails undertaking various specialist studies, and developing an Environmental Impact Assessment Report (EIR) and a Draft Environmental Management Programme (EMPr). As part of the assessment, an EMPr is compiled. The EMPr is a requirement as per the EIA Regulations. The EMPr recommends how to plan, operate and implement the proposed mining project and will also include a mine-closure plan. The provisions of the EMPr are legally binding on the holder and its contractors. This EMPr is also submitted to DMRE and DWS for their approval. Implementation of the EMPr during commissioning and operation of the proposed mining project will ensure compliance with environmental regulations during the pre-mining activities, cycle of the mine, post-mining and closure.

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

The following alternatives will be considered during the EIA phase:

- Design and layout alternatives
- Operational alternatives
- No-go option

25.2 Description of aspects to be assessed as part of the EIA Phase

i.e. 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, power lines, conveyors, etc...etc...etc.).

The following aspects would be assessed as part of the EIA phase based on the environmental attributes description and screened impacts in Table 29:

- Traffic/Access routes to Grasdrift through RNP
- Surface Water
- Ground Water
- Soil and Land use Capability
- Terrestrial Biodiversity (Fauna, Flora and Avifauna)
- Aquatic Biodiversity (Freshwater, Hydropedology, Wetland Impact Assessment, Fish Assessment)
- Noise
- Air Quality
- Visual Impact
- Heritage and Cultural Resources (Archaeological)
- Paleontology

- Socio-Economic aspects
- Community Health

25.3 Description of aspects to be assessed by specialists

The study area consists of the proposed mining right area of 2691.1942, the local topography, current and surrounding land uses. There is also the consideration of the access routes to be used through the Park i.e. Helskloof Pass in particular with occasional use of Akkedis Pass. Consideration will therefore be given to an environmental context where applicable (geographical area).

The specialist studies to be conducted to inform the EIR and EMP include:

25.3.1 Surface (Hydrology) Water Impact Assessment

The surface water study will focus on the characterisation of the baseline hydrology at the project site and assess the potential impacts on surface water quality and quantity due to the project. The following will be included as part of the impact assessment:

- Baseline Hydrology
- A surface water quality analysis and monitoring programme
- A 1:100-year flood line analysis for Orange and Oudannisiep Riviers. Extreme flood events in the Orange River will be statistically derived from historical flow records.
- Development of a conceptual stormwater management plan (SWMP) (in the event of rain)
- Development of a site wide water balance
- Identify potential impacts of the project on:
 - Potential impact on watercourses and land cover of such features
 - Potential impact on hydrology, drainage and land cover changes on surface erosion, sedimentation and flows in streams and water bodies
 - Potential impact of erosion, sedimentation on surface water supply and downstream users;
 - Potential impact on surface water quality;
 - Other water users in the vicinity of the Grasdrift project will be assessed to determine the potential impact on water availability from a holistic perspective.
- Management and Mitigation Measures per identified impact

Basic hydrogeochemical assessment and testing will be conducted for the porrel/tailings and overburden dumps confirm the seepage qualities (inert). Downstream receptors are sensitive and hydrochemical testing may confirm a negligible impact on the Orange River. The test results will inform the hydrological assessment. Refer to section 25.3.3.

25.3.2 Ground (Geohydrology) Water Impact Assessment

The baseline work for geohydrology description has already been done during the scoping phase of which the full details would be included in the EIR. A site inspection took place on 18 November 2022. No boreholes were recorded in a 1km radius of the site and no groundwater was encountered down to 30m below ground level during prospecting drilling operations. A theoretical groundwater level is therefore considered in case of high surface or subsurface water infiltration caused either by mining operations or unlikely event of high rainfall events. In all phases of the proposed project the main risk to groundwater is contamination however is expected to be low.

The baseline findings indicate it's important to quantify the anticipated impacts on groundwater through on-going groundwater investigation.

The Groundwater Impact Assessment will therefore aim to assess the impact of the proposed project activities on the groundwater system which mainly includes quantity and quality impacts during all the phases of the proposed mine.

The following will be assessed:

- Confirm the leach potential of any of the proposed mine facilities and consequent impact on groundwater quality;
- Potential impact on any existing groundwater users and available groundwater quantity
- Development of various mitigation options;
- Make a prediction of the impact on the groundwater regime and assess the potential impact of the proposed project activities on the groundwater regime.

25.3.3 Basic Geochemical Assessment and Testing

The overburden and tailings will be stored temporarily before backfilling and could be considered as residue stockpiles. Overburden is expected to be dry when mined, and will be stored dry, therefore there is expected minimal risk of weathering and leaching from stockpiled overburden. The tailings slurry will be wet, therefore weathering reactions is possible. In addition, due to recycling of water and the low rainfall and high rates of evaporation in the area, it is possible that leachate generated from the tailings facilities will have a high salt load.

It is therefore proposed to collect and analyse a sample of tailings to assess the potential leachate quality that could drain from the tailings.

GNR 632 of 2015: Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits require characterising residue stockpiles and deposits. Not all perimeters set out in the regulations are relevant but an evaluation should be completed to assess what chemical characterised is required.

The scope of works will include:

- Desktop review of available geological and other data i.e. geological logs, exploration boreholes and mineralogical data. It will assist in developing a sampling strategy.
- Sampling and sample analysis i.e.
 - A site visit will be undertaken to collect samples for geochemical analysis. The samples will be analysed for:
 - Total and sulphate sulphur
 - Mineralogical analysis; and
 - 1: 4 distilled water leach tests with analysis of anions, cations and a select suite of trace elements.

- Two samples will be collect of tailings slurry water and will be analysed for a suite of elements i.e. pH, EC, anions, metals, cyanide, chlorine, COD, suspended solids, bacterial analysis, oil and grease.
- Geochemical assessment of key geochemical and flow processes will be developed for each of the facilities identified to be of potential concern.
- A concise geochemical report will be prepared on completion of laboratory testing. The report will provide an indication of the risks of contamination leachate being generated from the residue deposits/stockpiles on site and whether water management issues will be required.

25.3.4 Aquatic Biodiversity (Freshwater, Fish Assessment, Wetland, Hydropedology)

The objective will be to determine the current status of the aquatic ecosystem and to evaluate the extent of site-related effects in terms of selected ecological indicators and to identify important ecological attributes. To adequately describe the aquatic ecosystem response, habitat, stressors and exposure indicators will be selected. The methodology used to characterise these components include:

- In situ water quality: Parameters that will be assessed at each of the sampling sites will include: pH, dissolved oxygen (DO), total dissolved solids (TDS) and temperature;
- Intermediate Habitat Assessment (IHIA): Model used to assess the integrity of the habitats from a riparian and in stream perspective. The focus of this assessment would include a stretch the Orange River. The model compares current conditions with reference conditions expected to have been present. Specification of the reference condition follows an impact-based approach where the intensity and extent of anthropogenic changes are used to interpret the impact on the habitat integrity of the system. To accomplish this, information on abiotic changes that can potentially influence river habitat integrity are obtained from surveys or available data sources. These changes are all related and interpreted in terms of modification of the drivers of the system, namely hydrology, geomorphology and physico-chemical conditions and how these changes would impact on the natural riverine habitats.
- Integrated Habitat Assessment System (IHAS, version 2): This index evaluates habitat suitability specifically for aquatic macro invertebrates and is used in association with the SASS5 index.
- Biotic Integrity Based on SASS5 - Aquatic Invertebrates (SASS5): The South African Scoring System Index (SASS5) will provide an indication of the state of the aquatic environment and will be compared to data collected during previous surveys in order to detect trends in aquatic ecosystem health; and
- The ichthyofaunal assessment will focus on fish species diversity and abundance, fish health assessment and the presence of Red Data species.
- The “Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries” (Macfarlane et al., 2014) will be used to determine the appropriate buffer zone for the proposed activity.

Wetland Delineation

The delineation method documented by the Department of Water affairs and Forestry in the “Updated manual for identification and delineation of wetlands and riparian areas” (DWAF, 2008),and the Classification System for Wetlands and other Aquatic Ecosystems in South Africa-User Manual: Inland Systems (Olli’s et al, 2013) will be followed throughout the field survey. These guidelines

describe the use of indicators to determine the outer edge of the wetland and riparian areas such as soil and vegetation forms as well as the terrain unit indicator.

A hand held Global Positioning System (GPS) will be used to capture GPS co-ordinates in the field. 1:50 000 cadastral maps and available GIS data will be used as reference material for the mapping of the preliminary watercourse boundaries. This will be converted to digital image backdrops and delineation lines and boundaries will be imposed accordingly post field surveying. Due to the transitional nature of wetland boundaries, these are often not clearly apparent and the delineations must therefore be regarded as a human construct. The delineations will be based on scientifically defensible criteria and will aim to provide a tool to facilitate the decision making process.

In assessing the wetlands within the study area the following activities will be conducted:

- A delineation and classification of the wetlands;
- A characterization of the fauna and flora found in the wetlands;
- An assessment of the ecosystem services supplied by the wetlands;
- An assessment of the wetlands Present Ecological Status (PES) or integrity;
- An assessment of the Ecological Importance and Sensitivity (EIS) of wetlands; and
- An assessment of the potential impacts of the proposed activities on the wetlands and potential mitigations relating to the impacts.

Hydropedology

The methodology will be based on the generic guidelines for hydropedology assessments (October 2017) as provided by the Department of Water and Sanitation. According to these guidelines a hydropedology study is required for the following:

A hydropedological study is required whenever a geohydrological and/or hydrological study is required as hydropedology focus on the vadose zone between these focus areas.

This is essential for a holistic understanding of the flow drivers in ecosystems and landscapes in order to propose sound mitigation for the impacts of the development. The hydropedological assessment includes parts of the hydrological cycle hidden between the land surface hydrology and groundwater hydrology.

Developments have different intensities (minor, moderate or severe) and spatial extent (local, hill slope or catchment) and the investigations vary accordingly. A Level 3 hydropedology assessment is required due to the “severe” intensity associated with ‘opencast mining’.

25.3.5 Terrestrial Biodiversity Impact Assessment (Fauna, Flora and Avifauna)

A Terrestrial Biodiversity Assessment will be undertaken for the study site which would consist of desktop analysis of available literature of the site, and consider spatial frameworks, biodiversity and bioregional plans for the study area. A detailed survey of the study site would be undertaken to determine whether any listed and protected ecosystems exist or if any protected species occur on site.

The Terrestrial Biodiversity Assessment would form a detailed assessment of flora, fauna, avifauna, reptiles and mammals that may potential occur on site. The detailed assessment and survey would culminate in thorough reporting and sensitivity mapping of identified protected species and ecosystems. The Report would identify impacts pertaining to the activity and would be assessed according to their significance. Recommendations for mitigation measures would be provided to lower the anticipated impacts. The specialist is to provide ecological input into the Environmental Management Programme (EMPr)

Habitat features

The surveys will include the following:

- The identification of these features and delineation thereof; and
- The location of any unique or protected habitat features.

All sensitive areas, as described by the provincial and national legislation, will be identified. The locality and extent, as well as species composition of sensitive areas such as the wetlands, streams, rivers and mountains will be conducted to identify and map all such sensitive areas present. Sensitive areas will be identified and delineated.

Terrestrial Site Ecological Importance

The different habitat types within the project area will be delineated and identified based on observations during the field assessment, and available satellite imagery. These habitat types will be assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of species of conservation concern and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present on the site) and Receptor Resilience (RR) (its resilience to impacts).

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. The criteria for the CI and FI ratings are provided in **Error! Reference source not found.**³⁰ and **Error! Reference source not found.**³¹, respectively.

Table 30: Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (EEO) of < 10 km ² . Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).

High	<p>Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km². IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A.</p> <p>If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining.</p> <p>Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type.</p> <p>Presence of Rare species.</p> <p>Globally significant populations of congregatory species (> 1% but < 10% of global population).</p>
Medium	<p>Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals.</p> <p>Any area of natural habitat of threatened ecosystem type with status of VU.</p> <p>Presence of range-restricted species.</p> <p>> 50% of receptor contains natural habitat with potential to support SCC.</p>
Low	<p>No confirmed or highly likely populations of SCC.</p> <p>No confirmed or highly likely populations of range-restricted species.</p> <p>< 50% of receptor contains natural habitat with limited potential to support SCC.</p>
Very Low	<p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species.</p> <p>No natural habitat remaining.</p>

Table 31: Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	<p>Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.</p> <p>No or minimal current negative ecological impacts, with no signs of major past disturbance.</p>
High	<p>Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types.</p> <p>Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches.</p> <p>Only minor current negative ecological impacts, with no signs of major past disturbance and good rehabilitation potential.</p>
Medium	<p>Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types.</p> <p>Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches.</p> <p>Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance.</p> <p>Moderate rehabilitation potential.</p>
Low	<p>Small (> 1 ha but < 5 ha) area.</p> <p>Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area.</p> <p>Low rehabilitation potential.</p> <p>Several minor and major current negative ecological impacts.</p>
Very Low	<p>Very small (< 1 ha) area.</p> <p>No habitat connectivity except for flying species or flora with wind-dispersed seeds.</p> <p>Several major current negative ecological impacts.</p>

BI can be derived from a simple matrix of CI and FI as provided in **Error! Reference source not found.32**.

Table 32: Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance (BI)		Conservation Importance (CI)				
		Very high	High	Medium	Low	Very low
Functional Integrity (FI)	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in **Error! Reference source not found.33**.

Table 33: Summary of Receptor Resilience (RR) criteria

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

Subsequent to the determination of the BI and RR, the SEI can be ascertained using the matrix as provided in **Error! Reference source not found.**

Table 34: Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	Very Low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very High	Medium	Low	Very low	Very low	Very low

Interpretation of the SEI in the context of the proposed project is provided in **Error! Reference source not found.35**.

Table 35 *Guidelines for interpreting Site Ecological Importance in the context of the proposed development activities*

Site Ecological Importance	Interpretation in relation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

Flora Survey

The surveys will include the following:

- A survey for Red and Orange Data plant species;
- Vegetation units will be identified, classified and delineated;
- Habitat types will be classified and delineated;
- The survey will be conducted in consultation with local authorities who have information to be considered; and
- The survey would include the project site

The floristic survey should be conducted during the growing season (the rainy season when most plants are in flower or seeding), over the project areas. These will give an indication of the actual species present on site and will be discussed in context of plant communities (should the area support distinct communities) within the ecosystem of the area.

Protected, endemic, exotic, alien invasive and culturally significant species will also be discussed as separate issues and related back to relevant legal requirements. Furthermore the identification of red data and protected species as listed according to the IUCN List, NEMBA and other Provincial and National legislation will be completed.

The fieldwork and sample sites will be placed within targeted areas (i.e., target sites) perceived as ecologically sensitive based on the preliminary interpretation of satellite imagery (Google Corporation) and GIS analysis (which will included the latest applicable biodiversity datasets) available prior to the fieldwork. The focus of the fieldwork will therefore be to maximise coverage and navigate to each target site in the field, to perform a

rapid vegetation and ecological assessment at each sample site. Emphasis will be placed on sensitive habitats, especially those overlapping with the proposed project area.

Homogenous vegetation units will be subjectively identified using satellite imagery and existing land cover maps. The floristic diversity and search for flora SCC will be conducted through timed meanders within representative habitat units delineated during the fieldwork. Emphasis will be placed mostly on sensitive habitats overlapping with the proposed project areas.

The timed random meander method is highly efficient for conducting floristic analysis, specifically in detecting flora SCC and maximising floristic coverage. In addition, the method is time and cost effective and highly suited for compiling flora species lists and therefore gives a rapid indication of flora diversity. The timed meander search will be performed based on the original technique described by Goff et al. (1982). Suitable habitat for SCC will be identified according to Raimondo et al. (2009) and targeted as part of the timed meanders.

At each sample site notes will be made regarding current impacts (e.g., livestock grazing, erosion etc.), subjective recording of dominant vegetation species, and any sensitive features (e.g., wetlands, outcrops etc.). In addition, opportunistic observations will be made while navigating through the project area.

Fauna (mammals, herpetofauna and avifauna)

The surveys will include the following:

- A survey of the project areas (if permitted);
- Compilation of an expected species list;
- Compilation of an identified species list;
- Identify any Red Data or listed species present or potentially occurring in the area;
- A proximity assessment to any protected or ecologically important areas; and
- A habitat assessment and delineation.

The field survey for fauna will be undertaken concurrently with vegetation surveys. All animals observed in the area will be noted. Ecological indicators, such as calls, tracks and dung will be noted and regarded as indicative of the presence of that particular animal.

A detailed fauna lists will be compiled and discussed in relation to the floristic survey findings. The probability of occurrence for species not observed during field surveys will be considered if applicable regarding available habitats. Protected and endemic species will be the focus of discussion. Faunal composition of disturbed sites will be compared to the composition of undisturbed areas. The current status of the faunal environment will be determined and an evaluation of the extent of site-related effects in terms of certain ecological indicators, as well as identification of specific important ecological attributes such as rare and endangered species, protected species, sensitive species and endemic species will be made. The faunal environment and habitat will be characterised in relation to biota and the extent of site related effects. Presence of red data and protected species will be indicated on a map.

The faunal field survey will be comprised of the following techniques:

- Visual and auditory searches - This typically comprises of meandering and using binoculars to view species from a distance without them being disturbed; and listening to species calls;
- Active hand-searches - Used for species that shelter in or under particular micro-habitats (typically rocks, exfoliating rock outcrops, fallen trees, leaf litter, bark etc.);

- Point counts for the avifauna; and
- Utilisation of local knowledge.

Relevant field guides and texts that will be consulted for identification purposes included the following:

- Field Guide to Snakes and other Reptiles of Southern Africa (Branch, 1998);
- A Complete Guide to the Snakes of Southern Africa (Marais, 2004);
- Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland (Bates *et al.*, 2014);
- A Complete Guide to the Frogs of Southern Africa (du Preez and Carruthers, 2009);
- Smithers' Mammals of Southern Africa (Apps, 2000);
- A Field Guide to the Tracks and Signs of Southern and East African Wildlife (Stuart and Stuart, 2000);
- Book of birds of South Africa, Lesotho and Swaziland (Taylor *et al.*, 2015); and
- Roberts – Birds of Southern Africa (Hockey *et al.*, 2005).

25.3.6 Soil and Land Capability Impact Assessment

The study will determine the combination of soil, terrain and climate features. Land capability is divided into 8 classes and these may be divided into three capability groups. The land classes and groups will be arranged in order of decreasing capability and ranges of use. The risk of use increased from class I to class VIII (Smith, 2006). The land potential classes will be determined by combining the land capability results and the climate capability of the region. Land capability has been classified into 15 different categories by the DAFF (2017) which indicates the national land capability category and associated sensitivity related to soil resources.

These land potential classes are regarded as the final delineations subject to sensitivity, given the comprehensive addition of climatic conditions as those relevant to the DAFF (2017) land capabilities. The main contributors to the climatic conditions as per Smith (2006) is that of MAP, Mean Annual Potential Evaporation (MAPE), mean September temperatures, mean June temperatures and mean annual temperatures. These parameters will be derived from Mucina and Rutherford (2006) for each vegetation type located within a relevant project area. This will give the specialist the opportunity to consider micro-climate, aspect, topography etc.

The land use and soil will be identified through desktop analysis and aerial imagery and then ground-truth through an infield visit. The results of the infield assessment will enable the compilation of a soil and land capability map. The map will form the basis for assessment of the land capability. A soil and land capability report describing the soil and land capability will be generated inclusive of an impact assessment and include actions to mitigate significant impacts on soil resources and land capability that may hamper successful rehabilitation and closure of the mine including the post mining land use to be achieved.

25.3.7 Noise Impact

The project site is situated in a rural district and could impact on several noises sensitive areas across the South Africa/Namibia border.

The overall objective of full Noise Impact Assessment Report will be to provide a comprehensive and detailed evaluation of the noise impact of the proposed Grasdrift Diamond Mine through all its phases.

The overall scope of work of the noise study includes the following:

- Conduct a desktop study of available information that can support and inform the specialist noise study and to inform the site sensitivity verification in line with the protocols.
- A description of the current environmental conditions from a noise perspective in sufficient detail so that there is a baseline description against which impacts can be identified and measured i.e. noise sources and sensitive noise receptors.
- The measurement and description of the present residual noise levels at the proposed development site, during both the night and daytime. This has been quantified by collecting noise measurement samples, in line with relevant specifications and regulations, at representative points. Noise measurements were collected with the use of a Rion NL-62 noise meter.
- Identify the components of the project that could generate significant noise levels.
- Identify the sensitive noise receptors in the vicinity of the proposed project.
- Prediction of the future ambient noise levels due to the noise emissions during the construction and operation of the proposed development (and alternatives). This will be carried out by developing a detailed model, using CadnaA Noise Modelling Software provided by Datakustik. The modelling will be conducted in line with relevant specifications and regulations. Where possible and required, measurements of noise for similar activities/operations will be undertaken and used as proxy inputs in the model.
- Identify issues and potential impacts, as well as possible cumulative impacts related to the noise aspects of the project.
- Identify management and mitigation actions to enhance positive impacts and avoid/reduce negative impacts, respectively.
- List and describe any applicable legislation, policies, and guidelines, in preventing a disturbing noise/nuisance from occurring, e.g., SANS noise rating limits and IFC standards for industrial and residential/rural areas (as applicable), especially from key sources of noise.
- Provide guidelines to be incorporated into the design of the facility to attenuate the noise impacts.

25.3.8 Air Quality and Dust Fallout

The following Scope of Work is recommended for the Air Quality Impact Study:

- Describe the baseline air quality situation in the area based on available information.
- Identify the potential sources of fugitive dust emissions resulting from the project.
- Identify all potentially affected sensitive receptors.
- Conduct a review of air quality-related legislation and standards including compliance requirements.
- Quantify emissions of particulates resulting from the project.
- Predict ambient PM₁₀ concentrations and dust fallout resulting from emissions from the proposed mining activities using a suitable dispersion model and representative meteorological data.
- Identify and assess potential impacts resulting from construction, operation and closure of the project using a prescribed impact rating methodology.
- Assess the significance of the impact through the comparison of simulated ambient PM10 concentrations and fallout rates with the NAAQS and WHO ambient air quality guidelines. Identify and describe potential cumulative impacts resulting from the proposed mine in relation to proposed and existing developments in the surrounding area.
- Indicate the acceptability of any alternatives and recommend a preferred alternative. Recommend mitigation to avoid or minimise impacts and/or optimise benefits associated with the project.
- Recommend and draft a Fugitive Dust Management and Monitoring Program.

25.3.9 Landscape and Visual Impact

Objective for the assessment will be to:

- Assess the baseline conditions of the visual context within which the proposed project will take place as detailed in section 17;
- Determine what visual receptor will be affected by the project;
- Establish what visual impacts will arise as a result of the project and determine their social significance; and
- Investigate possible methods with which the potential impacts may be mitigated.

The criteria recommended by the Western Cape Guidelines for justification of level of input for a VIA is the expected level of visual impact. According to the development categorisation in the guideline the project area affected landscape includes 'protected wild areas of international significance' and the project is a 'Category 5' development. According to the guideline, a Level 4 Assessment is required i.e.

- Identification of issues raised in scoping phase, and site visit;
- Description of the receiving environment and the proposed project;
- Establishment of view catchment area, view corridors, viewpoints and receptors;
- Indication of potential visual impacts using established criteria;
- Inclusion of potential lighting impacts at night;
- Description of alternatives, mitigation measures and monitoring programmes;
- Complete 3D modelling and simulations, with and without mitigation; and

25.3.10 Heritage, Cultural Resources and Desktop Palaeontology

A Phase 1 Heritage Impact Assessment will be conducted inclusive of:

- Review of existing databases and alternative
- A systematic field survey of the proposed site will be completed to locate, identify, record, photograph and describe archaeological, historical or cultural interest sites.
 - Ubique Heritage Consultants will inspect the project site and surrounding areas and complete a controlled-exclusive, pre-planned pedestrian and vehicular survey.
 - An inspection of the ground's surface will be performed wherever the surface is visible;
 - The survey will be traced with a handheld Garmin GPS (Garmin eTrex 10).
 - Significant areas will be recorded by taking GPS points of the identified areas using the Garmin Terex 10. Photos will be taken with a Canon IXUS 185-20-megapixel camera.
 - Detailed field notes will be taken of the observations.
- The layout of the area and plotted GPS points, tracks, and coordinates will be transferred to Google Earth, and QGIS and maps will be created.
- All recorded heritage resources in the project area affected would be mapped.
- An assessment of the significance of such resources in terms of heritage assessment criteria would be undertaken;
- The Nama and San have important living heritage, and would be included in the heritage assessment
- An assessment of the impact of the project on the heritage resources including the Nama and San living heritage will be conducted

- An evaluation of the impact of the development on the heritage resources and living heritage relative to the sustainable social and economic benefits to be derived from the project.
- If heritage resources will be adversely affected by the project, the consideration of alternatives;
- Plans for mitigation of any adverse effects during and after completion of the project.

A Desktop Palaeontological Study will be conducted inclusive of:

- Baseline description and possible impacts emanating from project with consideration of the identified fossil important site inclusive of chance find procedures for palaeontological receptors.

25.3.11 Socio-Economic Impact Assessment

The following methodology will be used in the socio-economic impact assessment. The study will commence with a social baseline study which will include the following data:

- Demographic information relevant to the project affected areas obtained from StatsSA, the Namibia Statistic agency, IDP's and other relevant literature. Based on this work, the social area of influence will be determined, but it is anticipated that the Richtersveld and Ausenkehr communities will be included in the study.
- Description of types of land-uses in the social area of influence and identification of vulnerable groups in the project affected area and potential impacts on the groups.
- Description of types of transport available to communities who live in the small towns in Richtersveld.
- Description of tourism activities that attract visitors to the area.
- Fieldwork will be used to obtain additional information and communicate with key stakeholders. Stakeholders typically include social structures such as ward councillors, municipal representatives, landowners, community representatives, farmer's associations, forums and political leaders, amongst others.
- Information will be obtained via focus groups, formal and information interviews, observation, immersions, in-the-moment discussion groups, the Internet and literature reviews. Notes will be kept of all interviews and focus groups. Where possible, communities will be interviewed in the language of their choice, and interpreters may be used.
- The qualitative research conducted during the field work period will assist with understanding the social environment and the impacts the proposed project may have on local communities in the social area of influence.

The final report will focus on current conditions, providing baseline data. Each category will discuss the current situation, but also investigate the possible impacts that might occur in future. Recommendations for mitigation will be made at the end of the report.

25.3.12 Community Health Impact Assessment (cHIA)

The communities where health impacts may reasonably be expected to occur include Richtersveld communities. Aussenkehr community is located across from the site in Namibia and might be at risk due to dust fallout in the surrounding environment. The dust fallout impact is however expected to be low.

The cHIA would consider applicable international standards i.e. IFC Performance Standard 4 (PS4): Community Health, Safety and Security. The impact assessment process will involve:

- Site visit to ground truth the information collected thus far to:
 - Collect primary participatory data in the form of semi-structured, random one-on-one discussions with respondents in the different Project- affected communities;
 - Gather additional information that was not available in the public domain during the desktop review. This includes collection of information from health facilities, from the national health information management system, as well as from unpublished reports and documents – qualitative and quantitative data;
 - Identify key informants and conduct interviews using a semi-structured questionnaire;
 - View the standards of the local health facilities and functionality of the health management information system; and
 - Visualise the Project and location of communities in relation to planned Project activities.
- Key Informant Interview (KII) to:
 - Gain a better understanding of the structure and capacity of the local health system and also to enquire what health statistics would be available at the local level and where possible obtain authorised copies of statistics and reports;
 - The KII will be conducted with the health personnel at this facility in Afrikaans, using a semi-structured questionnaire i.e. health, social and environmental determinants
- Considering the potential future health impacts that the proposed project will have on the health of the respective communities;
- Determining the existing health needs of the community based on health strategies, infrastructure programs, service priorities, delivery plans and challenges;
- Based on the existing evidence, rating the likelihood and consequence of different health impacts to outline their significance and prioritization for mitigation; and
- Considering recommendations for mitigation/management of priority impacts. Recommend measures to avoid/mitigate negative and enhance positive impacts resulting from the project at the relevant project stage.

25.3.13 GNR 1147, 2015 Closure and Rehabilitation Plan

Prepare a Final Rehabilitation, Decommissioning and Closure Plan (FRDCP):

- Identify a post mining land use that is feasible through:
 - Provide a vision, objective, target and critical for final rehabilitation, decommissioning and closure of the project
 - Outline the design principles for closure
 - Consider social aspects of closure
 - Explain the risk assessment approach and outcomes and link closure activities to risk rehabilitation

- Detail the closure actions that indicate the measures that will be taken to mitigate and management identified risks;
- Describe the nature of residual risks that will need to be monitored and managed post closure
- Commit to schedule, budget, roles and responsibilities for final rehabilitation, decommissioning and closure for each relevant activity or item of infrastructure
- Identify knowledge gaps and show these will be addressed
- Detail the full closure costs for the life of the project at increasing levels of accuracy as the project develops and approaches closure in line with the final land use proposed
- Outline the monitoring, auditing and reporting requirements
- The plan must comply with the content requirements stipulated in Appendix 4 of GNR. 1147

Prepare an Environmental Risk Report (ERR). The objective of the ERR is to:

- Ensure timeous risk reduction through appropriate interventions
- Identify and quantify the potential latent environmental risks related to post closure;
- Detail the approach to managing the risks
- Quantify the potential liabilities associated with the management of the risks; and
- Outline the monitoring, auditing and reporting requirements
- The ERR must comply with the content requirements stipulated in Appendix 5 of GNR 1147

Prepare an Annual Rehabilitation Plan. Objective of the annual rehabilitation plan will be to:

- Review concurrent rehabilitation and remediation activities to be implemented;
- Establish rehabilitation and remedial goals and outcomes for the forthcoming 12 months which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified in the holder's final rehabilitation, decommissioning and mine closure plan. This must be measurable and auditable.
- Establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
- Evaluate and update the cost of rehabilitation for the 12 month period and for closure, for purposes of supplementing the financial provision guarantee or other financial provision instruments;
- This must relate to the operations closure vision, clearly indicating what closure objectives and criteria is being achieved through implementation.
- The plan must comply with the content requirements stipulated in Appendices 3 of GNR 1147

25.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

After a list of potential impacts has been identified the aim of the EIA phase is to predict the nature of the impact, rank and quantify it. From the rating system the impacts of most significance can be highlighted. The list of impacts will be further assessed and developed based on engagement and comments solicited from I&APs and recommendations by specialist investigations (as specified under section 24.3 above).

The list of identified impacts for the proposed Grasdrift Mine project will be evaluated by considering several rating scales as listed below. These ratings include: extent, duration, intensity, significance, status of impact, probability. The significance of impacts will be calculated as follows:

Significance = (Extent + Duration + Intensity) X Probability

The rating system is described below.

Table 36: Assessment Methodology

Evaluation	Ranking Scale and Description (Criteria)
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Components	
<p>Extent</p> <p>Defines the physical extent or spatial scale of the potential impact</p>	<p>1- Site specific: Impacts extending only as far as the activity, limited to the site and its immediate surroundings</p> <p>2 – Local: Impacts extending within 5km from site boundary</p> <p>3 – Regional: Impacts extending to the district (20km from boundary of the site)</p> <p>4 – Provincial: Impacts extending to provincial scale e.g. Northern Cape</p> <p>5 – National: Impacts extending to within the country i.e. South Africa.</p> <p>6 – International: Impacts extending beyond international border / the borders of South Africa/Namibia</p>
<p>Duration defines the temporal scale</p>	<p>1 – Immediate: Less than 1 year</p> <p>2 - Short term: 1-5 years</p> <p>3 - Medium term: 6-15 years</p> <p>4 - Long term: Between 16 – 30 years</p> <p>5 – Permanent: Over 30 years. Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.</p>
<p>Intensity</p> <p>“Intensity” establishes whether the impact would be destructive or benign.</p> <p>Negative (-) / Positive (+)</p>	<p>NEGATIVE (-)</p> <p>0 – Negligible: Where impacts do not really affect the environment and no mitigation is required</p> <p>1 – Low: Where impacts will result in short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect. (marginally affected)</p> <p>2 – Medium: Where impacts will result in medium term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate</p> <p>3 – High: Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment. Mitigation is considered challenging and expensive.</p> <p>4 - Very High: Where impacts should be considered as constituting major and usually permanent changes to the environment, and usually results in severe to very severe effects. Mitigation would have little to now effect on irreversibility.</p> <hr/> <p>POSITIVE (+)</p> <p>0 - Negligible: Where impacts affect the environment in such a way that natural, cultural and social functions and processes are not greatly and in instances no mitigation measures will be required. (environment not really affected)</p> <p>1 – Low: Minor improvement is anticipated over a short term on the social and/or natural environment.</p>

	<p>2 – Medium: Where moderate improvements are anticipated over a medium- to long-term on the social and/or natural environment.</p> <p>3 – High: Where large improvements are anticipated over a long term on social, economic and/or bio-physical environment.</p> <p>4 - Very High: This results in permanent improvements of the social/or natural environment.</p>
<p>Probability describes the likelihood of the impact occurring</p>	<p>0 – Improbable: Where the possibility of the impact occurring is low.</p> <p>1 – Probable: Where there is a distinct possibility that the impact will occur.</p> <p>2 - Highly probable: Where it is most likely that the impact will occur.</p> <p>3 – Definite: Where the impact will occur regardless of any prevention measures.</p>
<p>Status “Status of impact” - describes whether the impact would have a negative, neutral or positive effect on the affected environment.</p>	<p>+ Positive Benefit to the environment</p> <p>= Neutral Standard / impartial</p> <p>- Negative Cause damage to the environment</p>
<p>Criteria: SIGNIFICANCE</p> <p>“Significance”- attempts to evaluate the importance of a particular impact with mitigation measures included and also excluded. The significance was calculated using the following formula:</p> <p>Significance = (Extent + Duration + Intensity) X Probability</p>	
0-4: Very Low	Where the impacts will not influence the development, social , cultural or natural environment
5 -12: Low	Where impacts will result in short term effects on the social and / or natural environment. The impacts merits attention however are not deemed largely substantial are likely to have little real effect
13-25: Medium	Where impacts will have a medium-term effect on the social and/or natural environment. These impacts need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts can be mitigated by implementing effective mitigation measures.
26-44: High	Whereby effects will be long term on social economic and or bio-physical environment. The impacts could have a major effect on the environment. This may bring forth the consideration of no-go areas/open areas on the development land regardless of mitigations implemented. Mitigation is however possible.
45: Very High	Whereby effects will be permanent on the social economic and or bio-physical environment. Such impacts cannot be mitigated.

Cumulative and Residual Impacts

Cumulative impacts are defined as the combination of multiple impacts from existing projects, the proposed project, and/or anticipated future projects that may result in significant adverse and/or beneficial impacts that would not be expected in case of a stand-alone project.

An assessment of cumulative impacts therefore considers the proposed project within the context of other similar land uses, in the local study area and greater regional context.

Residual impacts are those impacts that remain significant following the application of mitigation measures. The specialist studies to be conducted as part of the impact assessment phase of EIA will identify and provide an assessment of both the cumulative and residual impacts which are likely to occur as a result of the proposed project.

25.5 Proposed method of assessing duration significance

Refer to section 25.4

25.6 Stages at which the competent authority would be consulted

The Draft Scoping Report will be made available to organs of state with jurisdiction in matters pertaining to the project for 30-days public review and comment.

The DMRE: Springbok will be consulted as follows:

- Submission of the finalised Scoping Report by end of March 2023 which has been subjected to a 30-day consultative process i.e. all consultation results will be included final report;
- DMRE will review the Plan of Study contained in the Scoping Report and indicate whether the plan is accepted within 43 days of submission. If accepted the DMRE will issue an acceptance letter instructing the EAP to continue to the EIA Phase. Specialist field investigations will be commissioned.
- The Draft EIR and EMPR will be prepared based on specialist field investigations and recommendations and be subjected to another 30-day public review and comment period.
- Thereafter, the final EIR and EMPR inclusive of public submissions will be submitted to the DMRE for decision making, within 106 days of acceptance of the Scoping Report;
- During the Draft and or Final EIR and EMPr review or consideration period the DMRE may request a site inspection.
- DMRE will reach a decision on the application and notify the applicant and EAP.

25.7 Particulars of the public participation process with regard to the impact assessment process that will be conducted

25.7.1 Steps to be taken to notify interested and affected parties

- Advertisements of the availability of the Draft EIR and EMPr including planned public engagements will be published in the Plattelander and Gemsbok newspapers;

- Notice boards will be placed in the application area including publicly frequented areas i.e. libraries, municipal satellite offices including local shops;
- Emailed notifications will be sent to the registered of interested and affected parties ranging from stakeholders, organs of state, local and district authorities including ward councillors.
- Key commenting authorities (state departments) will receive a written notification and will be furnished with a copy (hard/electronic) of the draft EIR and EMPr for comments.
- SAHRA will be notified by uploading the draft EIR and EMPr onto the SAHRIS online application system.
- Copies of the Draft EIR and EMPr will be made available for the public review at the respective public libraries in the four communities including Port Nolloth, Alexanderbay and Aussenkehr (Namibia).
- The Draft EIR and EMPr will also be available for public download from the Naledzi website: www.naledzi.co.za/publicdocuments.naledzi;
- Another round of public engagement meetings will be conducted with the Richtersveld CPA, DARDLR and subsequently with the four Richtersveld communities.
- Engagement meeting with SanParks and the RJMC.
- Where necessary a key stakeholder workshop can be hosted for organisations, key stakeholders across the Orange River.

25.7.2 Details of engagement process to be followed

Once the Draft EIR and EMPr are released the following engagements will be undertaken:

- Focus Group Meeting with Richtersveld Local Municipality and Namakwa District
- Focus Group Meeting with Richtersveld CPA and DARLR;
- SanParks and RJMC
- Public meetings with the four Richtersveld communities at Sanddrift, Kuboes, Eksteenfontein, Lekkersing.
- Key stakeholders engagement (virtual) with key stakeholders from Namibia (Aussenkehr)
- All registered I&APs will have access to the environmental reports for 30-days public review and comments from the Naledzi website and at public venues in the Richtersveld and Aussenkehr.

25.7.3 Description of information to be provided to interested and affected parties

- Suggested final post-mining land use will be discussed with SanParks and RJMC.
- Draft EIR and EMPr reports, final layout plan, copies of specialist studies and supporting information for the mining right application.

- The competent authority recommendations and all the specialist investigations findings and recommendations will be included in the draft EIR and EMPr.
- The details of engagements with the DWS and details of the WULA will also be communicated to I&APs;
- The final EIR and EMPr document submitted to the DMRE will also be made available for I&APs on the Naledzi website (except for I&AP contact details).
- A copy of the decision (environmental authorisation and waste management license) will also be made available to I&APs on the Naledzi website and via email to the register of I&APs.
- The commenting period on the draft reports (i.e. Scoping, EIR and EMPr) will be 30-days as per the NEMA EIA Regulations.

25.7.4 Notification of authority decision

During this phase DMRE will review the Final EIR and EMPr and consult with any other key organs of state e.g. the Department of Water & Sanitation (DWS) before granting or refusing an environmental authorisation and waste management license.

The environmental authorisation and waste management license will be made available for public review for a period of 20 consecutive calendar days i.e. sent via email, placed on Naledzi website and advertised in the Plattelander and Gembok newspapers. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&APs are also then informed of the appeal procedure, should they have a reason to appeal.

26. DESCRIPTION OF TASKS TO BE UNDERTAKEN DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

- Specialist site investigations followed by preparation of specialist reports
- The specialist studies will be reviewed and recommendations summarised to gauge any necessary revisions required to the site layout plan to accommodate no-go areas. By this time the 1:100 year flood line assessment will also become available for the Orange River and Oudannisiep Rivers and will be overlaid on the site layout.
- Next, the EIR will be compiled and the findings and recommendations outlined by the specialist studies will be incorporated by the EAP into a single report, the EIR and will contain the following:
 - An assessment of the biophysical and social environment encompassed by the development and direct surroundings and consider the impacts of the development thereon and vice versa
 - Identify and assess the significance of potential impacts the development may have on the dual environments
 - Provide mitigation measures to curb negative impacts and enhance positive impacts
 - Provide an environmental statement of findings of the assessment to the authorising authority for decision making
 - Final Mine Layout Plan overlain with environmental sensitivities

- The EMPr will be prepared for the implementation, operation, rehabilitation, decommissioning and closure phases of the project. The EMPR will ensure compliance with environmental regulations during the cycle of the project and recommend how to operate and implement the project in form of efficient mitigation measures. Mitigations and recommendations will be resultant from the findings and recommendations contained of the EIR.
- Submission of a final EIR and EMPR inclusive of public submissions to DMRE for decision making.

27. 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.	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) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation.	POTENTIAL FOR RESIDUAL RISK
SITE ESTABLISHMENT			
Bringing machinery, equipment and HMEs to site over Helskloof Pass	Traffic	Control vehicle movement Remedy – road maintenance /modify through alternative method of crossing Orange River from Namibia.	No
	Impact on air quality – vehicle entrained dust	Control through enforcing speed limit of 40km/hr. through Park.	No
	Impact on Terrestrial Ecology (flora) – potential trampling of vegetation/dust deposition	Control vehicle speeds. Modify by limiting outside flowering season. Remedy through rehabilitation and road maintenance.	No.
	Socio-economic impact– visitors experience	Control through enforcing speed, courteous to visitors to Park / modify through alternative method will result in prevention.	No
Existing access and haul roads will be used at Grasdrift from prospecting activities.	Impact on air quality – vehicle entrained dust	Control through dust control (water spraying on roads, enforce speed limit)	No
	Noise impact–LDV’s and earth moving equipment	Control through noise control	No
Stripping and stockpile of topsoil to establish infrastructure footprint areas. Establishing site infrastructure: <ul style="list-style-type: none"> ▪ Parking, ▪ Containerised mobile units for staff accommodation, offices and amenities. ▪ In future, revamp existing buildings and structures onsite. ▪ Processing Plants ▪ Upgrade of slimes dams at section 1 and 2 and construction of new slimes 	Impact on Terrestrial Ecology (fauna, flora) Spread of flora alien species. Disturbance of habitat, impact on conservation target of CBA’s, displacement of SCC fauna	Control through alien species eradication plan and management. Topsoil management Remedy – concurrent, final rehabilitation.	Moderate risk – Species will take time to recover/return. Potential further spread of alien invasive species onsite and along Orange River floodplain if not controlled. To be monitored.
	Impact on air quality – dust fallout, increase PM10	Dust control through water spraying	There is a moderate risk for site specific dust.

dam at section 3. <ul style="list-style-type: none"> ▪ Diesel storage areas and concrete apron; ▪ Temporary waste storage areas ▪ Power Generators ▪ Fencing ▪ Storm water management infrastructure 	Noise	Modify by restricting mining behind the riparian vegetation zone with a possible setback. Control through noise control – vehicle silencers in operation, pilling to be done during the day.	None.
	Visual impact – visual exposure and visibility of cleared areas to surrounding land uses	Modify by restricting mining behind the riparian vegetation zone with a possible setback. Remedy – final rehabilitation	Low risk
	Soil – loss of soil, land use capability (erosion, soil compaction)	Control through topsoil management. Erosion control Avoid vehicle access and machinery outside established access tracks and designated infrastructure areas.	None if managed correctly.
	Groundwater – potential fuel/oil leaks	Control, avoid spills and leaks/remedied through immediate clean up. Hydrocarbon spill management.	Low risk
	Surface water – erosion, sedimentation, flood risk where intersects with	Avoid by limiting infrastructure above 1: 100 year flood line Implement SWMP Engineering controls Bunded fuel storage with concrete apron at dispensing point.	Low risk
	Aquatic ecosystem – sedimentation, cement runoff (spillages)	Avoid – Restrict any activities above 1:100 year flood line, above riparian vegetation and river bank. Implement SWMP Aquatic Bio monitoring	No
	Impact heritage resources Impact palaeontological resources	Avoid through heritage no-go zone and important fossil site	No
	Community Health – safety impact on local roads, increased dust at surrounding land use	Enforce speed limits on tar roads and on Park roads (40km/hr.) Implement dust control measures.	No
Establish water transfer pipelines and water abstraction points at river.	Aquatic Ecosystem – negligible disturbance to riparian vegetation (informal pumps used)	Assessment of vegetation through Aquatic Biodiversity Specialist Study. Limit disturbance to riparian vegetation.	No. Anticipated that vegetation would recover quickly from disturbance.
OPERATION			
Removal of topsoil, overburden and excavation of gravel	Noise	Control through noise control measures. Noise monitoring at sensitive receptors	Low-Moderate risk
	Impact on air quality (dust)	Compliance with NAAQS and NDR limit values	If all management measures

		Implement Fugitive Dust Management Plan. Control through dust control i.e. dust suppression (water spraying) on open areas.	implemented. Low risk for residual risk.
	Loss of soil and land capability	Control through topsoil management. Remedy – concurrent rehabilitation. Implement SWMP.	No.
	Visual impact	Control and modify Remedy through successful rehabilitation.	Yes, but low residual risk if river bank, vegetation and setback is maintained.
	Impact on surface water quality – increased silt load and sedimentation to Orange River	Implement SWMP Erosion and sediment control Avoid through restricting mining above 1:100-year flood line, riparian vegetation and river bank, possibly also setback line to Orange River.	No
	Impact on Terrestrial Ecology (Fauna and flora) – spread of flora alien invasive species, loss of habitat and fauna SCC species and diversity. Reduced dispersal/migration of fauna.	Control and eradicate alien invasive species within the mine site and throughout the Orange River floodplain and riparian zone along the stretch of the proposed mining right area. Topsoil management Erosion and sedimentation control Implement noise control and monitoring Implement dust control and monitoring Implementation of Fugitive Dust Management Plan Implement visual and light pollution management measures as prescribed.	Low risk
	Groundwater –potential fuel leaks, oil, hydrocarbon spills.	Control, avoid spills and leaks/remedied through immediate clean up. Hydrocarbon spill management.	No.
	Impact heritage resources Impact palaeontological resources	Avoid by adherence to heritage no-go zone and restricting mining and placement of infrastructure from important fossil site.	Possible, but very low risk.
	Impact on topography	Remedy – direct backfill as part of rehabilitation	No.
Stockpiling of topsoil on stockpiles and overburden on waste dump for use as direct backfill.	Soil and land use capability	Control through topsoil management. Remedy – rehabilitation through backfill of mined out areas.	Low

Topsoil and overburden will be stockpiled at the perimeter of the excavations.		Prevent/stop-protect from wind erosion. Implement storm water control	
	Impact on air quality	Control through dust control	No
	Noise impact	Control through noise control and monitoring at sensitive receptors. I.e. Piling to be restricted to day to take advantage of unstable atmospheric conditions. All mining vehicles to have silencers fitted and serviced regularly.	Low risk.
	Visual impact	Remedy-rehabilitation. Modify impact by maintaining the Orange River bank profile particularly in areas where an existing steep bank is likely to largely screen mining activities. Maintaining all existing riverine vegetation; and where the above measures are not likely to be effective, maintaining a setback from the Orange River.	Moderate risk
	Surface water – sedimentation, silt load to Orange River.	Control through sedimentation and silt control. Implement SWMP Locate stockpiles away from drainage patterns.	Low risk
In pit screening of gravel materials	Noise (transitory – moving according to extraction areas)	Control through noise control measures (all mining vehicles to have silencers fitted and serviced regularly, placement of in pit screen far as possible from Orange River)	Low risk, if mitigation measures are implemented and setback to river is applied.
	Impact on air quality – dust fallout	Control through dust control measures	Low risk
Loading and handling of gravel concentrate to processing plants	Noise This is the most significant noise source from the mine site. It is an impulse noise occurring for short durations at random intervals.	Modify by restricting piling to day to take advantage of unstable atmospheric conditions.	Yes. Moderate risk.
	Impact on air quality - dust	Control through dust control	No.
Processing of gravel concentrate at Sections 1 – 3 gravel plants.	Noise - impact on several NSA on Namibian bank of Orange River.	Modify by placing plants far as possible from Orange River (i.e. section 2 and 3). Control through noise control and monitoring (SANS 10103:2008) and not to exceed noise level limits i.e. 45dB (daytime), 35 dB (night time) (SANS 10103:2008).	Yes. But low risk given distance between plants and Orange River (receptors).

		Ambient noise monitoring to be conducted at the closest receptor when operation commences to verify the noise emissions meet the noise rating limit as per IFC Guidelines or SANS 10103: 2008.	
	Impact on air quality – increase to current PM10 concentrations in surrounding area, dust fallout in surrounding area.	Control through design measures i.e. Dust emission abatement equipment fitted to section 1 – 3 plants (dust extractor, wet scrubbers). Control through dust suppression (i.e. water spraying). Management through Fugitive Dust Management Plan.	Yes, site specific.
	Visual impact	Modify by placing plants far as possible from Orange River. Control through dust control, monitoring.	Yes
	Light pollution at night	Control and modify i.e. minimise lighting, angle floodlighting away from Orange River.	Yes.
	Surface water quantity and quality	Control through design i.e. closed circuit recycling water. Implement SWMP Adherence to water quality monitoring programme.	No
Abstraction of water from Orange River for use at processing plants and contractors area.	Impact surface water quantity – abstraction of river water	Control through installation of flow meters at relevant localities as determined. Modify through reuse and recycle. Plant uses closed circuit system to reduce water usage.	No
Stockpiling of fine and coarse tailings at plant area and used as backfill and surface cover (coarse tailings).	Visual and topography	Mined out areas backfilled and landscape profiled to mimic surrounding terraces.	No
Dust suppression with river water and recycled water.	Surface water use	Control through installation of flow meters at relevant localities as determined. Modify through reuse and storage of water in dams during periods of low flow.	No
Disposal of fine tailings to slimes dam.	Groundwater – infiltration of high salt load seepage from slimes dam	Avoid – proper engineering design. Compacting of ground prior to slimes deposition to limit groundwater contamination.	No.
Waste management/storage of waste at temporary waste storage areas and removal offsite.	Groundwater – potential leachate generated due to improper storage and handling of waste	Avoid – hard surfaces under storage areas. Controlled through proper waste management and removal to registered landfill site.	No.

Use of ablution facilities by staff (septic tank and French drain)	Groundwater pollution – groundwater quality	Avoid - Locate above 1:50-year flood line of river / 1-100year; Avoid – A honey sucker will collect/empty the system on a regular basis. The nearest sewage treatment plant where it can be removed is located in Alexander bay.	No
Use of power generators	Noise	Generator at Section 1 amid dumps. Section 2 and 3 to be located far from Orange River (modify through location). Noise control through housing of generators in building (if feasible).	No.
Use of diesel storage tanks receive and dispense	Groundwater pollution	Prevent spills and leaks through design and maintaining bunding with concrete apron. Remedy - immediate clean up if spill occurs. Implement SWMP	If not remedied, yes.
Aircraft land and take off at existing landing strip.	Noise	Infrequent use – no mitigation proposed	No
Use of workshop and washbay	Groundwater/surface water – spills and leaks (fuel / oil), waste water	Control through SWMP Manage through oil traps/separator. Surface monitoring	No
CONCURRENT REHABILITATION			
<ul style="list-style-type: none"> ▪ Backfilling of mined out areas using overburden from waste dump, tailings and subsequent cover with topsoil and coarse material. ▪ Grading and shaping of land and perched terraces to mimic surrounding landscape. 	Noise Air Quality Groundwater pollution Surface water impact – sedimentation, erosion	Noise and Dust control, monitoring. Control erosion and sedimentation Implement SWMP Control, avoid spills and leaks/remedied through immediate clean up.	No
Remove alien invader species on the mine site and Orange River floodplain that may establish in the area.	Terrestrial and Aquatic Biodiversity – improve habitat integrity	Control and remedy – alien invasive species management plan, monitoring.	Yes. Potential further spread of alien invasive species onsite and along Orange River floodplain if not controlled. To be monitored.
DECOMMISSIONING			
Removal of yellow fleet	Traffic from HME’s moved off site, gravel plants Air pollution - dust Terrestrial ecology – trampling of vegetation along route Socio-economic impact – impact on visitors experience	Control / modify through alternative method (cross Orange River). Control through dust control, enforce speed limit Control / modify through alternative method will result in prevention.	No.

<ul style="list-style-type: none"> ▪ Dismantle/remove/sell off gravel processing plants ▪ Demolish, remove remaining infrastructure off site and sell as scrap metal where relevant. ▪ Remove any remaining foundations, small temporary access roads and buildings and rehabilitate, unless liability is taken over by another party. ▪ Backfill, reshape all previously mined out areas and cover with coarse tailings. 	<p>Noise increase from machinery, vehicles Air pollution – dust fallout Topography Visual Soil and groundwater pollution – fuel/oil leaks/spills Impact surface water quality</p>	<p>Noise and Dust control, enforcement of speed limits. Regulate vehicle movement through Park. Control – rehabilitation success Control, avoid spills and leaks/remedied through immediate clean up. Hydro chemical testing</p>	<p>Yes – Topography as surplus material (if any) will be shaped to mimic gravel terraces, covered with coarse material the mimic surrounding landscape. Would be left in landscape. Impact insignificant.</p>
<p>Rip compacted ground below former infrastructure sites and slope excavated areas.</p>	<p>Noise from machinery, vehicles Air quality - dust Groundwater – fuel/oil leaks from machinery Surface water – sedimentation, erosion</p>	<p>Control noise and dust Control - rehabilitation success Avoid spills and leaks/remedied through immediate clean up. Erosion and sediment control</p>	<p>Potentially erosion - to be monitored.</p>
<p>The main access at Grasdrift from northern to southern extreme and to contractor’s area should remain as a tourist route.</p>			
<p>Depending on the final post mining land use it may be decided retain existing mine buildings and services infrastructure (i.e. water, electricity, sewage) to convert to tourist facilities and accommodation / river rafting stopover sight. To be confirmed with RGBK and SanParks.</p>			
<p>Removal and eradication of alien invader species along Orange River floodplain and on rehabilitated areas.</p>	<p>Terrestrial Ecology - Improve habitat integrity</p>	<p>Control and remedy – alien invasive species management plan, monitoring.</p>	<p>Yes. Potential further spread of alien invasive species onsite and along Orange River floodplain if not controlled. To be monitored.</p>
<p>Cease of water abstraction from river.</p>	<p>Groundwater quantity</p>	<p>Benign effect on groundwater availability</p>	<p>Yes. Benign</p>
<p>Downscaling of and closure of mine</p>	<p>Socio-economic impact – loss of jobs and income, local buying power, quality of living</p>	<p>Formulate Social Closure Plan Engagement with local and district authorities Skills Development and implementation of LED’s (SLP) during operation.</p>	<p>Yes. Usually remains high in this municipal area.</p>
<p>POST CLOSURE</p>	<p>None applicable</p>		

28. OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

28.1 Impact on socio-economic conditions of any directly affected person

i.e. Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix 2.19.1 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6. and 2.12. herein.

- a) The landowner – Richtersveld community represented by Richtersveld CPA will benefit from the project.

The community will benefit from the proposed Grasdrift Mine project through a 20% share hold in the mine in the form of a trust (Nabas Trust), employment, and skills development including adult education for positions at the mine. To support the local community, 90% of the mine staff and supplies are sourced locally demanding frequent travelling i.e. 8 Ton truck and bakkies through the Park.

The mine will further contribute to the community through the Social Labour Plan to the Local Economic Development projects (LED's) where the focus is on food security. The mine also intends to assist Nomadic herders with water points in the Park.

- b) The lawful occupier is SanParks managed jointly with the community through the Richtersveld Joint Management Committee

The proposed Grasdrift Mine is located in the far eastern section of the RNP. Public access to this area is already restricted and perceived not popular with tourists. A loss of income to the Park is not anticipated due to the mine location in the Park boundary (subject to further assessment during the EIA phase). Other diamond mining operations already exist within the boundaries of the Park.

Nabas currently provides support to the SanParks by assisting with road maintenance, law enforcement incidences, conservation and the community and would continue to do so during the proposed Grasdrift Mine operation.

SanParks is however concerned that the movement of HME's and frequent movement of 'increased' general mine traffic along Akkedis Pass and Helskloof Pass may impact road conditions, tourist road users and their experience of the Park.

The impact can however be managed by strict regulation of vehicle movement, traversing hours and speed adherence, especially during Richtersveld flowering season, observed to be the most popular time for tourists. It is proposed that Nabas carefully plan and communicate all plans and events for HME movement to Grasdrift with RNP Park Manager, if not possible across the Orange River. If necessary, Park Management can guide the operation.

- c) Tourist resorts on the Namibian bank of the Orange River and table grape farming (Silverlands Namibia)

The sense of place of both the Silverlands and Norothama Resort may be affected which impact guests may experience. The resorts are concerned with the anticipated increase in noise, visual impact and potential dust fallout. The dust fallout in turn may impact the export quality of the table grapes produced by Silverlands Namibia.

According to the Naledzi and specialist site inspection and screening observations the project could impact on the surrounding land uses on the Namibian bank of the Orange River. However the noise and dust impacts are anticipated to be low with mitigation.

Nabas intends to minimise/ avoid any such socio-economic impacts and will place its gravel processing plants as far as technically possible from the Orange River, grape farming and resorts. The Orange River bank and riparian fringe will also be conserved to act as a visual screen. Dust abatement equipment is proposed at each plant, on access roads and where gravel is to be excavated.

28.2 Impact on any national estate referred to in Section 3 (2) of the National Heritage Resources Act

i.e. Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

National estate relevant to the project include section 3(2) (b) places to which oral traditions are attached or which are associated with living heritage and (f) archaeological and palaeontological site and (g) graves and burial grounds. However these will not be impacted by mining.

The Orange River floodplain at Grasdrift is of high archaeological significance. Stone packed graves were observed and the Nomadic stock farmers graze along the floodplain during summer. No mining will be conducted in the Orange River floodplain or its riparian fringe. Nama herders will continue to have access throughout the proposed Grasdrift Mine LoM and the heritage significance (i.e. graves and any possible additional graves in this area) will be conserved.

There is an important fossil site next to the mine site (P. van Wyk, RNP) limited to the rugged mountains and area west of the proposed mine site. The fossil site falls outside of the mineral interest area. The section 3 gravel processing plant will be located east next to this area.

The applicable mitigation to be applied includes:

- The Orange River floodplain is demarcated as a no-go area for mining.
- Graves should be fenced off buffer zones applied.
- No infrastructure will be placed within the fossil important area. The Desktop Palaeontological study to be conducted will include chance find procedures for palaeontological receptors.

Refer to section 17.14 of this report and Appendix 11 for the Ubique Heritage Consultants Desktop Heritage Scoping detailing the desktop analysis and preliminary site inspection findings to Grasdrift of 18 November 2022.

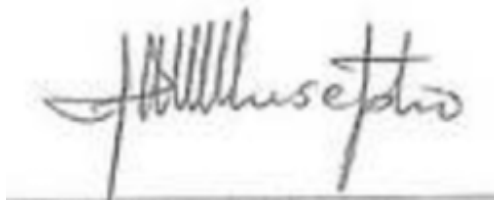
29. OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT

The proposed Grasdrift Mine project location and associated planned mine infrastructure locations have been chosen based the position of the mineral resource thus making an alternative site selection ‘null and void’.

30. UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I **Khangwelo Desmond Musetsho**, the registered EAP, 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 have been correctly recorded in the draft report¹⁵.

I **Marissa Ilse Botha**, the Senior Environmental Scientist, 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 have been correctly recorded in the report.



SIGNATURE OF EAP: Khangwelo Desmond Musetsho
 DATE: 20 February 2023




SIGNATURE BY ENVIRONMENTAL SCIENTIST:
 Marissa Ilse Botha
 DATE: 20 February 2023

¹⁵ This is the Draft Scoping Report subject to a 30-days consultative process wherein the stakeholders and I&APs can verify that all comments and inputs have been recorded correctly. Additional comments may be raised during the review period that need to be addressed and will be recorded in the Final Scoping Report for submission to DMRE.

31. UNDERTAKING REGARDING LEVEL OF AGREEMENT


I **Khangwelo Desmond Musetsho**, herewith undertake that the information provided in the report is correct, and that the level of agreement with the interested and affected parties and stakeholders has been correctly recorded and reported herein.

I **Marissa Ilse Botha**, the Senior Environmental Scientist, 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 have been correctly recorded in the report.



SIGNATURE OF EAP: Khangwelo Desmond Musetsho

DATE: 20 February 2023



SIGNATURE BY ENVIRONMENTAL SCIENTIST:

Marissa Ilse Botha

DATE: 20 February 2023

32. REFERENCES

Sustainable Geohydrological Solutions, December 2022 – Geohydrological Scoping Assessment for the Grasdrift Diamond Mine by Nabas Diamonds (Pty) Ltd on the left bank of the Orange River, Richtersveld, Namakwa District, Northern Cape Province.

Sustainable Geohydrological Solutions, December 2022 – Hydrological Scoping Assessment for the Grasdrift Diamond Mine by Nabas Diamonds (Pty) Ltd on the left bank of the Orange River, Richtersveld, Namakwa District, Northern Cape Province.

Ubique Heritage Consultants, December 2022 – Heritage and Palaeontological Scoping Report Richtersveld No. 18 (Grasdrift), Northern Cape.

Environmental Planning and Design, December 2022 – Landscape and Visual Impact Scoping Report, Proposed Grasdrift Alluvial Diamond Mine, Southern Bank of the Orange River, Remainder of Farm Richtersveld no. 11, Ai Ais Richtersveld National Park.

Safetech, December 2022 – Site Sensitivity Verification Report for Grasdrift Alluvial Diamond Mine on the Southern Bank of the Orange River, Remainder of Farm Richtersveld No. 11, Ai Ais Richtersveld National park.

Umoya-Nilu, December 2022 – Air Quality Baseline Assessment for Grasdrift Diamond Mine by Nabas Diamonds (Pty) Ltd on the left bank of the Orange River, Richtersveld, Namakwa District, Northern Cape Province.

Afzelia Environmental Consultants, December 2022 - Desktop Socio-Economic Impact Scoping, for Grasdrift Diamond Mine by Nabas Diamonds (Pty) Ltd on the left bank of the Orange River, Richtersveld, Namakwa District, Northern Cape Province.

Niara Environmental Consultants, January 2023 - Community Health Impact Assessment Scoping for the proposed Grasdrift Diamond Mine located on the left bank of the Orange River on the Remainder of the Farm Richtersveld No. 11 (Grasdrift), Richtersveld.

The Biodiversity Company, January 2023 - Scoping Assessment for the Nabas Diamonds Grasdrift Mine Mining Right Application.

NDI Geological Consulting Services, May 2022 – Grasdrift Alluvial Diamond Project: Data Review, Geological Modelling and Mineral Resource Estimation, Northern Cape Province, South Africa.

NDI Geological Consulting Services, May 2022 – Mining Works Programme, Nabas Diamonds (Pty) Ltd.

Dr Jurgens Jacob, July 2001 – The Geology of the Grasdrift Deposit, Richtersveld, South Africa.

National Environmental Management Act 107 of 1998, 2014 Environmental Impact Assessment Regulations, GNR 326 (as amended on 7 April 2017).

Richtersveld National Park Protected Area Management Plan, 2018 – 2028.

Municipal Demarcation Board – www.demarcation.org.za, Ward Delimitation 2021.

NEMA 2015 Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits.

Code of Practice for Mine Residue (SANS 0286: 1998).

GN R. 704 'Mine Water Regulations' published under the National Water Act, 1998.

Richtersveld National Park Proclamation (Government Notice 1969 / Government Gazette 13457 dated 16 August 1991).

Richtersveld Integrated Development Plan 2022/2027.

Richtersveld Integrated Development Plan, 2020/2021.

DFFE Environmental Screening Tool - https://screening.environment.gov.za/screeningtool/#/app/screen_tool/

DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs. (DEA), Pretoria, South Africa. ISBN: 978-0-9802694-4-4.

https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/vioolsdrif_south-africa_3359948

https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/richtersveld_south-africa_3362488

Land Type Survey Staff, 1972-2006, ISCW of the ARC

Water Resources Study of South Africa, 2012 (WR 2012)

2022 Red Listed Ecosystems GNR. 2747.

The Vegetation of South Africa, Lesotho and Swaziland, 2006 (Mucina and Rutherford).

Lower Orange Water Management Area Water Resources Situation Assessment Report, March 2002.

33. Appendices