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BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

Section 102/Part 2 amendment application to amend the existing Prospecting Right with DMRE ref: NC30/5/1/1/2/12359PR to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - From Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) and subsequent Environmental Impact. DMRE Ref: NC-00140-PR/102.

NAME OF APPLICANT	**Johan Smit**
PREPARED BY	**Milnex CC**
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REFERENCE NUMBER:	**NC-00140-PR/102 (12359PR)**

PROJECT INFORMATION

Project Name:	Section 102/ Part 2 Amendment Application to amend the existing prospecting right with DMRE ref: NC30/5/1/1/2/12359PR to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) and subsequent Environmental Impact. Kenhardt & Gordonia, Northern Cape Province.
DMRE ref:	NC-00140-PR/102 (NC30/5/1/1/2/12359PR)
Report Title:	Basic Assessment Report and Environmental Management Programme report
Prepared By:	Milnex CC
Date:	June 2023

QUALITY CONTROL:

	Report Author:	**Report Reviewer:**
Name:	Deshney Mapoko Reg. EAP (EAPASA)	Ms. Lizanne Esterhuizen Reg. EAP (EAPASA)
Signature:		

DISCLAIMER:

The DEA screening tool was used in compiling this document.

The Public Participation Process (PPP) must follow Regulation 41 of NEMA EIA Regulations; thus, the process needs to be transparent. However, due to the Protection of Personal Information Act (POPI Act) which commenced on 01 July 2021, Stakeholders, Landowners, surrounding landowners and registered I&AP' addresses, contact details and comments will not be included in any draft report to be circulated. All this information will form part of the final report to be submitted to the Competent Authority only.

Should you be identified as a Stakeholder, Landowner, Surrounding landowner and you do not wish to receive any further communique from Milnex CC regarding the application in question, you may request in writing that your details be removed from the Milnex CC database for this application.

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IMPORTANT NOTICE

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

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

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

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

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

BASIC ASSESSMENT REPORT PROCESS

1) The environmental outcomes, impacts and residual risks of the proposed activity must be set out in the basic assessment report.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

SCOPING OF ASSESSMENT AND CONTENT OF BASIC ASSESSMENT REPORT

A) DETAILS OF:

i) THE EAP WHO PREPARED THE REPORT

ii) EXPERTISE OF THE EAP

Name of Practitioner	Qualifications	Contact details
Ms. Deshney Mapoko	National Diploma in Environmental Science Reg EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: deshney@milnex-sa.co.za
Ms. Lizanne Esterhuizen	Honours Degree in Environmental Science Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za

iii) OTHER CONTACT PERSONS

Name of Practitioner	Qualifications	Contact details
Mr. Christiaan Baron	Master's Degree in Environmental Management (M.ENV.MAN) Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: christiaan@milnex-sa.co.za
M Andile Grant Nxumalo	Honours Degree in Environmental Science Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: andile.grant@milnex-sa.co.za
Ms. Percy Sehaole	Master's degree in environmental science Reg EAP (EAPASA), Pr.Sci.Nat Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: percy@milnex-sa.co.za

Summary of the EAP's past experience. (Attach the EAP's curriculum vitae as **Appendix 2**)

Milnex CC was contracted by **Mr Johan Smit** as the independent environmental consultant to undertake the Basic Assessment process for the proposed section 102 amendment application to the existing prospecting right with DMRE ref: **NC30/5/1/1/2/12359PR** to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) and subsequent Environmental Impact. Kenhardt & Gordonia, Northern Cape Province. DMRE ref: **NC-00140-PR/102**

Milnex CC does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Milnex CC is a specialist environmental consultancy with extensive experience in the mining industry which provides a holistic environmental management service, including environmental

assessment and planning to ensure compliance with relevant environmental legislation. Milnex CC benefits from the pooled resources, diverse skills and experience in the environmental and mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

Ms. Deshney Mapoko and Ms. Lizanne Esterhuizen, have extensive consulting experience in the environmental field. Their key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. They are currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CVs).

B) DESCRIPTION OF THE PROPERTY.

Reason for amendment	Johan Smit is the holder of a prospecting right under reference number NC12359PR to prospect for Diamonds (Alluvial, Kimberlite and General) A portion of the remaining extent of Boegoeberg Nedersetting 48, A portion of remaining extent of Zonderhuis 402, a portion of the remaining extent of Onder plaats 401, a certain portion of the remaining extent of portion 1, a portion of portion 6 (a portion of portion 4), a portion of portion 7 (portion of portion 4) and a portion of portion 9 (portion of portion 4) of the farm Namakwari 656 near the town of Grobblershoop within the Northern Cape Province. Magisterial District: Kenhardt and Gordonia. This application is to amend the existing environmental authorization to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) **DMRE ref: NC-00140-PR/102**
Farm name	Certain portion of the remaining extent of the farm Boegoeberg Nedersetting 48 Title deed: T7083/1938CTN A certain portion of the remaining extent of the farm Zonderhuis 402 Title deed: T4289/2005 Certain portion of the remaining extent of the farm Onder Plaats 401

	Title deed: T4304/2005 Certain portion of the remaining extent of portion 1 of the farm Namakwari 656 Title deed: T2721/2021 Certain portion of portion 6 (portion of portion 4) of the farm Namakwari 656 Title deed: T2585/2010 Certain portion of portion 7 (portion of portion 4) of the farm Namakwari 656 Title deed: T2721/2021 Certain portion of portion 9 (portion of portion 4) of the farm Namakwari 656 Title deed: T2721/2021
Application area (Ha)	9044.74 hectares
Magisterial district:	ZF Mgcawu District Municipality Dawid Kruiper Local Municipality !Kheis Local Municipality
Registration division	Kenhardt & Gordonia
Distance and direction from nearest town	The property is located approximately 37km North of Groblershoop in the Northern Cape Province.
Types of Minerals	**Approved Minerals**
	Diamonds Alluvial (DA) Diamonds General (D) Diamonds in Kimberlite (DK)
	Minerals to be Included
	Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) Stone Aggregate; Gravel – (ST)
Locality map	Attach a locality map at a **scale not smaller than 1:250000 and attach as Appendix 3**
21-digit Surveyor General Code for each farm portion	1) C03600000000004800000 2) C02800000000040200000 3) C02800000000004010000

	4) C02800000000065600001 5) C02800000000065600006 6) C02800000000065600007 7) C02800000000065600009

III. FARM CO-ORDINATES

FID	X	Y
0	21° 51' 46.055" E	28° 32' 24.360" S
1	21° 47' 19.307" E	28° 25' 8.643" S
2	21° 45' 19.556" E	28° 30' 13.184" S
3	21° 45' 46.582" E	28° 30' 52.734" S
4	21° 46' 21.299" E	28° 30' 17.139" S
5	21° 47' 12.935" E	28° 30' 17.139" S
6	21° 47' 29.414" E	28° 30' 40.210" S
7	21° 46' 55.356" E	28° 32' 0.190" S
8	21° 47' 24.800" E	28° 32' 40.181" S
9	21° 47' 9.639" E	28° 32' 56.001" S
10	21° 47' 24.800" E	28° 33' 22.368" S
11	21° 47' 46.992" E	28° 33' 7.866" S
12	21° 48' 39.287" E	28° 34' 16.421" S
13	21° 48' 52.690" E	28° 36' 7.163" S
14	21° 44' 11.425" E	28° 31' 53.011" S
15	21° 43' 49.530" E	28° 31' 47.910" S
16	21° 43' 46.481" E	28° 32' 3.617" S
17	21° 44' 8.293" E	28° 32' 8.293" S
18	21° 44' 41.093" E	28° 32' 57.509" S
19	21° 44' 56.137" E	28° 32' 51.122" S
20	21° 44' 56.198" E	28° 32' 55.601" S
21	21° 44' 43.598" E	28° 33' 1.724" S
22	21° 44' 27.010" E	28° 34' 3.410" S
23	21° 44' 46.522" E	28° 34' 1.657" S
24	21° 44' 45.265" E	28° 34' 7.158" S
25	21° 44' 46.993" E	28° 34' 16.262" S
26	21° 44' 31.794" E	28° 34' 14.750" S
27	21° 44' 52.843" E	28° 37' 8.062" S
28	21° 45' 3.413" E	28° 36' 31.813" S
29	21° 45' 17.042" E	28° 36' 28.930" S
30	21° 45' 26.150" E	28° 37' 5.095" S
31	21° 47' 11.342" E	28° 40' 1.938" S
32	21° 47' 11.573" E	28° 40' 4.823" S
33	21° 47' 12.678" E	28° 40' 7.778" S
34	21° 47' 14.831" E	28° 40' 10.682" S
35	21° 47' 17.812" E	28° 40' 12.997" S
36	21° 47' 21.054" E	28° 40' 14.353" S
37	21° 47' 23.501" E	28° 40' 14.864" S
38	21° 47' 26.909" E	28° 40' 14.930" S
39	21° 49' 13.400" E	28° 43' 38.312" S
40	21° 49' 10.769" E	28° 43' 39.050" S
41	21° 49' 10.337" E	28° 43' 41.628" S
42	21° 49' 10.898" E	28° 43' 45.977" S
43	21° 49' 12.787" E	28° 43' 47.630" S
44	21° 49' 15.485" E	28° 43' 47.240" S
45	21° 50' 39.779" E	28° 45' 23.756" S
46	21° 50' 36.528" E	28° 45' 24.372" S
47	21° 50' 36.470" E	28° 45' 27.932" S
48	21° 50' 41.518" E	28° 45' 27.198" S
49	21° 50' 45.784" E	28° 45' 34.945" S
50	21° 50' 50.569" E	28° 45' 50.609" S
51	21° 50' 54.856" E	28° 45' 57.258" S
52	21° 51' 0.920" E	28° 46' 4.601" S
53	21° 51' 8.947" E	28° 46' 14.336" S
54	21° 51' 14.403" E	28° 46' 20.954" S

C. LOCALITY MAP (show nearest town, scale not smaller than 1:250000 attached as **Appendix 3**).

A Locality map is attached in **Appendix 3** and on figure 1 below.

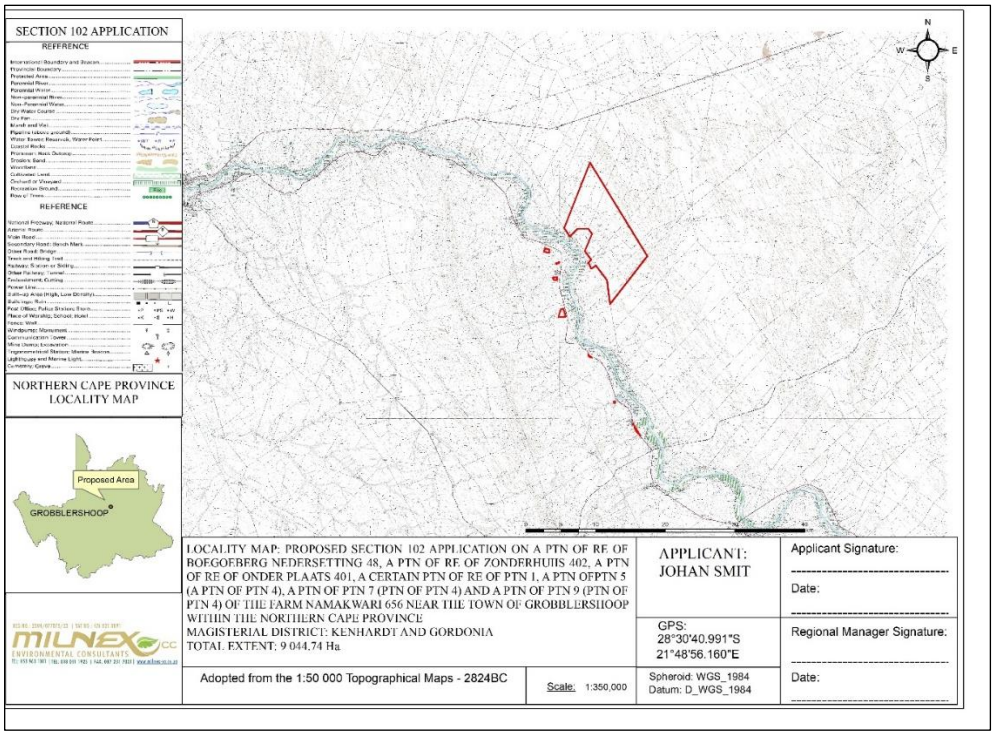

Figure 1: Locality Map

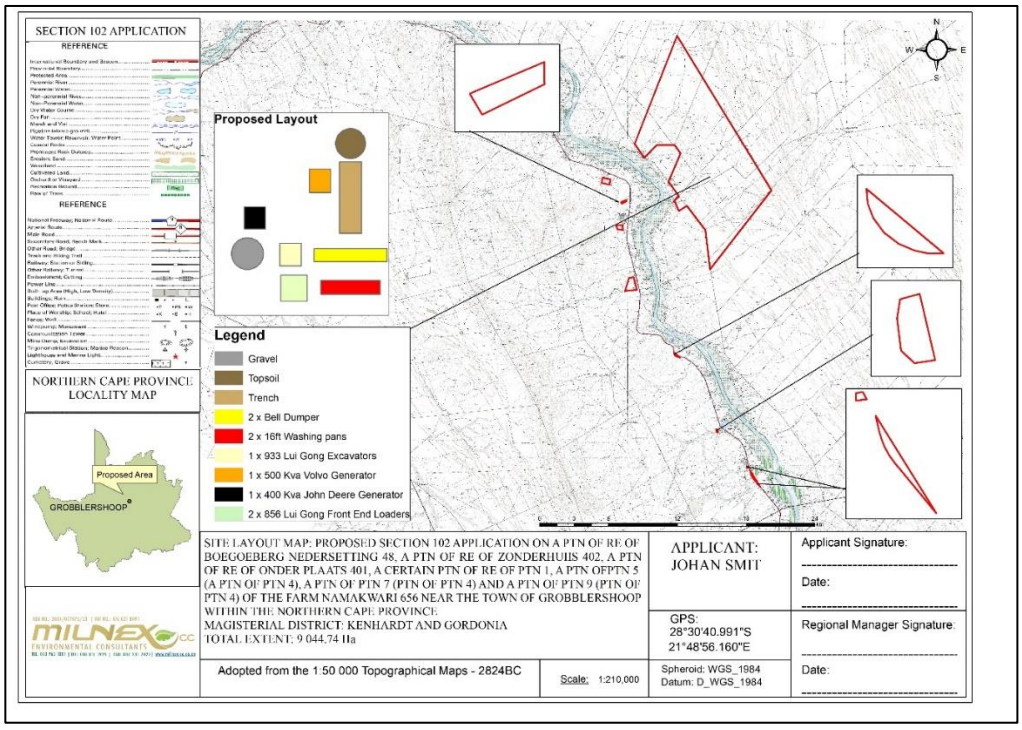

Figure 2: Site Plan Map

D. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

i) LISTED AND SPECIFIED ACTIVITIES

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as Appendix 4

Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	**Approved activities under NC30/5/1/1/2/11873PR**
	1) **Listing Notice 1 (GNR 327), Activity 20:** *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource[,] ; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies* 2) **Listing Notice 2, (GNR 325), Activity 15:** *"The clearance of an area of 20 hectares or more, of indigenous vegetation"* 3) **Listing Notice 2, (GNR 325), Activity 19:** *"The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral*

	resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies." **4) NEM:WA 59 of 2008** **Residue stockpiles or residue deposits** **Category A: (15)** *The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).*
	New activities applying for
	1) ***Listing Notice 1, (GNR 327), Activity 19:*** *"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;"* 2) ***Listing Notice 3 GNR 324, Activity 4:*** *The development of a road wider than 4 metres with a reserve less than 13,5 metres,* ***(g) Northern Cape (ii)*** *Outside urban areas:* ***(ee)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* 3) ***Listing Notice 3 GNR 324, Activity 12****: The clearance of an area of 300 square metres or more of indigenous vegetation;* ***(g) Northern Cape (ii)*** *Within critical biodiversity areas identified in bioregional plans;* 4) ***Listing Notice 1, GNR 327, Activity 20 (As amended GNR 517: 2021):*** *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and*

	Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right" 5) ***Listing Notice 1, GNR 327, Activity 21D (Amendment of Listing Notice 1):*** *Any activity including the operation of that activity which requires an amendment or variation to a right or permit as contemplated in section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.*

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. for mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** (Mark with an **X** where applicable or affected).	**APPLICABLE LISTING NOTICE** ***(GNR 324, GNR 325 or GNR 326)***	**WASTE MANAGEMENT AUTHORISATION** (Indicate whether an authorisation is required in terms of the Waste Management Act) **(Mark with an X)**
Prospecting Right: **<u>BULK SAMPLING:</u>** 9044.74 Ha **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. ***Listing Notice 1, (GNR 327), Activity 19:*** *"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;"*	Vegetation clearance over a 9044.74 hectares area. Concurrent rehabilitate will take place.	**X**	Listing Notice 1, (GNR 327), Activity 19:	-
Prospecting Right: **<u>BULK SAMPLING:</u>**	Vegetation clearance over a 9044.74 hectares area.	**X**	Listing Notice 3, (GNR 324), Activity 4:	-

9044.74 Ha **Pits:** 100 pits with dimensions of (3m x 2m x 4m) each. **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. ***Listing Notice 3 GNR 324, Activity 4****: The development of a road wider than 4 metres with a reserve less than 13,5 metres,* ***(g) Northern Cape (ii)*** *Outside urban areas:* ***(ee)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;*	Concurrent rehabilitate will take place.			
Prospecting Right: **BULK SAMPLING:** 9044.74 Ha **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. **Listing Notice 1, GNR 327, Activity 20 (As amended GNR 517: 2021):** "*Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right*"	Vegetation clearance over a 9044.74 hectares area. Concurrent rehabilitate will take place.	**X**	Listing Notice 1 (GNR 327), Activity 20 (Amended GNR 517: 2021)	-
Prospecting Right: **BULK SAMPLING:** 9044.74 Ha **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. **Listing Notice 1, GNR 327, Activity 21D (Amendment of Listing Notice 1):** *Any activity including the operation of that activity which requires an amendment or variation to a right or permit as contemplated in section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment."*	Vegetation clearance over a 9044.74 hectares area. Concurrent rehabilitate will take place.	**X**	Listing Notice 1, GNR 327, Activity 21D (Amendment of Listing Notice 1):	-

Clearance of indigenous vegetation: **<u>BULK SAMPLING:</u>** 9044.74 Ha **Pits:** 100 pits with dimensions of (3m x 2m x 4m) each. **Trenches**: 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. **Listing Notice 3 GNR 324, Activity 12:** *The clearance of an area of 300 square metres or more of indigenous vegetation;* ***(g) Northern Cape (ii)*** *Within critical biodiversity areas identified in bioregional plans;*	Vegetation clearance over a 9044.74 hectares area. Concurrent rehabilitate will take place.	**X**	**Listing Notice 3 (GNR 324), Activity 12:**	-

ii) DESCRIPTION OF THE ASSOCIATED STRUCTURES AND INFRASTRUCTURE RELATED TO THE DEVELOPMENT

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

Mr. Johan Smit is the holder of the Prospecting Right under the reference number NC12359PR to prospect for Diamonds (Alluvial, Kimberlite and General) on the above-mentioned properties which was issued on the 17th of December 2020. This amendment application is aimed at amending the existing Prospecting Right with DMRE ref: NC30/5/1/1/2/12359PR to include the Prospecting of Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) and subsequent Environmental Impact. DMRE Ref: NC-00140-PR/102. The geology of the area justifies that the applied minerals occur on the area of interest.

Access road

It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions can be accessed using the national road N10 and the road extending from the N14.

Water Supply

Additional water requirements related to the portable water supply for employees and workers will be supplied.

A Water use license with ref: WU21287 was previously applied for this proposed project. This Water use application was applied in terms of sections 21(a), 21(c&i) and section 21(g) of the National Water Act, 1998 (act No.136 of 1998) and will therefore remain active and valid for the life of this proposed project.

Ablution

Sufficient ablution facilities will have to be provided, in the form of portable/VIP toilets. In cases where portable toilet services might not be reached regularly, it is advised that French drains system be investigated for the proposed activity.

Dust Suppression

It is the intention of the applicant to implement dust management on site to determine if unacceptable levels of dust fallout occur. Monitoring compliance with the requirements of the National Dust Control Regulations for an activity, in terms of nuisance or disturbance.

The National Framework for Air Quality Management in the Republic of South Africa (the National Framework), as published under Government Notice No. 1144 of 26 October 2018, underpins NEM:AQA by providing national norms and standards for air quality management to ensure compliance with legislation. The National Framework serves as the country's AQMP.

Section 32 of the NEM:AQA makes provision for the Minister or the MEC to prescribe measures for the control of dust in specific places or areas, or by specified machinery or in specific instances. While dust generally does not pose a health risk, it may be regarded as a nuisance. It is the responsibility of the owner of the dust generating activity to take reasonable measures to limit the nuisance factor.

With respect to this, the Minister has published in the gazette the regulations for the control of dust in 2013 (Notice 827, Government Gazette No. 36974). These regulations provide requirements for

measures for the control of dust, which includes the requirements for monitoring, dust management plan development and implementation and reporting.

According to dust levels set out by the National Dust Control Regulations 2013 (GNR. 827). The limits have the following threshold.

Dust fall standard

Acceptable dust fall rates -

Restriction Areas	***Dustfall rate (D) (Mg/m²/day/30 day average)***	***Permitted frequency of exceeding dust fall rate***
Residential area	D > 600	Two within a year, non-sequential months
Non-residential area	600 < d < 1200	Two within a year, non-sequential months

When it comes to dust suppression two main methods were considered, namely molasses stillage and the wetting (water) of roads. The table below provides a short summary of the advantages and disadvantages of each.

Water	**Molasses stillage**
More cost effective	Much more expensive
Could lead to the depleting of water resources	Requires less water
No damage (only if used excessively)	The product may be toxic to aquatic organisms. (As this product could have physical effects on aquatic organisms for e.g. floating, osmotic damage)
No harm to humans or animals (Only a high quantity will have harm to humans or animals)	Not Hazardous or toxic. Could cause irritation to eyes, skin or when ingested and inhaled.
Non-flammable	Non-flammable
Eye-wash fountains not needed	Eye-wash fountains in the work place are strongly recommended
	Working procedures should be designed to minimize worker exposure to this product.
Basic storing methods	Storing methods are a bit more complicated. Should be stored in a plastic, plastic lined or stainless steel, tight closed containers between 5 and 40 degrees Centigrade.

Considering the above-mentioned information, water will be used for dust suppression purposes.

Storage of dangerous goods

During the prospecting activities, limited quantities of diesel and fuel, oil and lubricants if any will be stored on site. These goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored. Less than 30 cubic metres of dangerous good will be stored on site.

List of equipment's & infrastructure -

List of equipment
1 x 400 Kva John Deere Generator 1 x 500 Kva Volvo Generator 1 x 933 Lui Gong Excavators 2 x 856 Lui Gong Front End Loaders 2 x 16ft Washing pans 2 x Bell Dumper

Prospecting activities and phases

Please find the Prospecting Work Programme attached as **Appendix 8**.

ii) DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN INCLUDING ASSOCIATED STRUCTURES AND INFRASTRUCTURE.

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.).

Both invasive and non-invasive methods will be used during the prospecting operation.

SITE VISIT

The applicant will appoint Pierre de Jager as the project geologist to conduct the site visit. A formal site visit will be done within 90 days after the prospecting right has been executed. It is foreseen that more than one site visit will be conducted on the farms.

The purpose of the site visit is to assist the applicant to be familiar with the environment and with the assessment of the topography and the general geology before invasive prospecting activities. During this process the applicant will also review all documentation that has been received in relation to the geology of the area.

DESKTOP STUDIES

Desktop studies will be undertaken after a site investigation is done to determine the target areas including the identification of any infrastructure to be build and any potential problems that may need to be addressed.

This phase involves reviewing the literature surveys, interpretation of aerial photographs, satellite images and ground validation of targets. A preliminary analysis of the environment will be obtained which will improve the project's efficiency and cost by providing a clearer understanding of the challenges may be encountered. Compilation of the results of analysis will be done by the geologist after the finalization of the desktop studies.

PITTING

A trial pit / test pit or inspection pit investigation is a highly effective way of obtaining data on the sub surface soil and rock conditions which underlie a prospecting sight. It allows for the various soils and rock types to be locked, the soil to be sampled and a preliminary assessment to be made.

Pits will be dug, locked, sampled and backfilled. To dig the pits the applicant will make use of the systems of Pierre de Jager, the appointed project geologist.

The applicant will at the end of the pitting process have locked the pits with the following information:

- A description of the soil and rock types from ground level to the base of the pits;
- Record of rock head depth and refusal depth, a list of where the samples will be taken, a record of where ground water seepage will be recorded;
- A general note of the geology and conditions in the vicinity of the test pits

It is planned that 100 pits will be dug (it may be less depending on the results) at an extent of 3m (length) x 2m (breath) x 4m (depth).

TRENCHES

Due to nature of the alluvial diamond deposit, samples are not taken for assay as would be normal practice to evaluate hard rock precious or base-metal prospects. The diamond distribution pattern grade of alluvial diamonds is also of such a nature that there is no repeatability of sample results, even from adjacent samples.

Bulk samples will have to be taken to determine the average sample grade. By taking of the bulk samples, the applicant foresees to determine the grade of the diamond deposits as the number of carats contained in 100 tons (cpht) of gravel and to determine the average diamond sizes.

During these activities the applicant will then find out the size and value distribution of trenches. Diamond distribution patterns of alluvial deposits varies to such a nature that there is no repeatability of sample results even from adjacent samples.

Alluvial diamond deposits can only be sampled through bulk sampling comprising thousands of cubic meters of gravel. Given the extent of the area and the grades expected to be very low, the applicant will have to process bulk samples of approximately 207 900 tonnes.

The appointed geologist will advise where the samples will be taken. Bulk samples will not be taken along a systematic grid as in the case of drilling.

As the anticipated mining plan for the properties will be based on high volumes (low grades), the bulk samples will have to address average recovery.

As indicated, the bulk sampling exercise has to be conducted to determine the grades (cpht), the diamond size distribution and thereafter to sell the diamonds to determine the diamond values.

The plant/ bulk sampling technique will be that of a typical South African alluvial diamond mining operation. The method is a strip-mining process with oversize material and tailings recovered from the plant will be used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the treatment facility using dump trucks.

The bulk sampling operation will be conducted using a fleet of conventional open pit mining equipment compromising of dump trucks supported by appropriate excavators and front-end- loaders. All equipment is planned to be diesel driven.

Before excavation commences vegetation will be cleared from the proposed bulk sampling block. These will be done as per environmental regulations. Top soil will then be removed and stored separately for later used for rehabilitation.

The bulk samples will be made in the form of box cuts the dimensions of these individual box cuts will on average be 30m long x 30m wide. It is estimated that the bulk samples will be 5 m in depth.

Gravel will be removed by excavators and will be loaded directly into dump trucks. Ore will be hauled to the screening plant. The material will be screened where after the screened material will be moved to the processing plant where the gravel will be processed. Concentrate will be moved to the sorting plant were the concentrate will be sorted.
It is estimated that pitting and trenching will take approximately 48 months.

CONSOLIDATION AND INTERPRETATION OF RESULTS DATA

The prospecting activities will be conducted to determine an inferred diamond resource and an indicated diamond resource. An inferred diamond resource has a lower level of confidence then that applying to an indicated diamond resource. The inferred resource indication will be where the geological and or grade continuity could not be confidently interpreted. It cannot be assumed that an inferred resource will necessarily be upgraded to an indicated resource. Such a resource is normally also not sufficient to enable an evaluation of economic viability.

To obtain an indicated resource the confidence level of information obtained from the prospecting will have to be sufficient for the information to be applied to mine design, mine planning to enable an evaluation of economic viability.

The project geologist, Pierre de Jager, will monitor the program and consolidate and process the data and amend the program depending on the results received after each phase of prospecting. The DMRE will be updated of any amendments made. This will be a continuous process throughout the prospecting work program.

Each physical phase of prospecting will be followed by desktop studies involving interpretation and modeling of all data gathered. These studies will determine the manner in which the work programme is to be proceeded with in terms of the activity, quantity, resources, expenditure and duration.

A GIS data base will be constructed capturing all the exploration data. All data will be consolidated and processed to determine the diamond bearing resource on the property.

E. POLICY AND LEGISLATIVE CONTEXT

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act No. 107 of 1998 as amended.	Department of Environmental Affairs	27 November 1998
Constitution of South Africa Act 108 of 1996	National	18 December 1996
The National Heritage Resources Act (Act No. 25 of 1999)	SAHRA	1999
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Department of Mineral Resources & Energy (DMRE)	2002
Mineral and Petroleum Resources Development Regulations, 2014.	Department of Mineral Resources & Energy (DMRE)	
National Infrastructure Plan	National	
National Environmental Management: Biodiversity Act No. 10 of 2004	Department of Environmental Affairs	7 June 2004
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	National & Provincial	1 July 2009
National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008). Regulations regarding the Planning & Management of Residue Stockpiles & Residue Deposits from a Prospecting, Mining, Exploration or Production Operation		
EIA regulations under NEMA	Department of Environmental Affairs	14 December 2014
Conservation of Agricultural Resources Act,1983 (Act No. 43 of 1983)	Department of Agriculture Forestry and Fisheries	1 June 1984
National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004).	National and Provincial	11 September 2004
National Water Act, 1998 (Act No. 36 of 1998).	National	20 August 1998
National Forest Act (Act 84 of 1998) (NFA)	National	30 October 1998
National Veld & Forest Fires Act (Act 101 of 1998)	National	27 November 1998
National Environmental Management: Protected Areas Act 57 of 2003		
Hazardous Substances Act (No. 15 of 1979)		
Subdivision of Agricultural Land Act (No. 70 of 1970)		
Occupational Health and Safety Act (No. 85 of 1993)		
Mine Health and Safety Act (No. 29 of 1996)		
Government Notice Regulation 704 of 1999		
ZF Mgcawu District Municipality Integrated Development Plan (IDP)	Municipal	

!Kheis Local Municipality Integrated Development Plan (IDP)	Municipal	
Dawid Kruiper Local Municipality	Municipal	

POLICY AND LEGISLATIVE CONTEXT

Title of legislation, policy or guideline:	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Constitution of South Africa Act 108 of 1996	Section 24	The Constitution is the supreme law of the Republic and all law and conduct must be consistent with the Constitution. The Chapter on the Bill of Rights contains a number of provisions, which are relevant to securing the protection of the environment. Section 24 of the Constitution of the Republic of South Africa (Act 108 of 1996) states the following: *"Everyone has the right –* *(a) to an environment that is not harmful to their health or well-being; and* *(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –* *i) prevent pollution and ecological degradation;* *ii) promote conservation; and* iii) *secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."* The Constitution, therefore, compels government to give effect to the people's environmental right and places government under a legal duty to act as a responsible custodian of the countries environment. It compels government to pass legislation and use other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development.
National Environmental Management Act No. 107 of 1998 as amended.	S24(1) of NEMA S28(1) of NEMA	NEMA provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are accountability; affordability; cradle to grave management; equity; integration; open information; polluter pays; subsidiary; waste avoidance and minimisation; co-operative governance; sustainable development; and environmental protection and justice. The mandate for EIA lays with the National Environmental Management Act (107 of 1998) and the EIA Regulations No. 326, 327, 325, and 324 promulgated in terms of Section 24 of NEMA. The EIA Regulations determine that an Environmental Authorisation is required for certain listed activities, which might have a detrimental effect on the environment.

EIA regulations as amended under NEMA	Listing Notice 1, Listing Notice 2 and Listing Notice 3	The National Environmental Management Act107 of 1998 (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment. These activities are detailed in Listing Notice 1 (as amended by GNR 327 of 7 April 2017), Listing Notice 2 (as amended by GNR325 of 7 April 2017) and Listing Notice 3 (as amended by GNR324 of 7 April 2017). Undertaking activities specified in the Listing Notices are only allowed once Environmental Authorisation has been obtained from the competent authority. Such Environmental Authorisation will only be considered once there has been compliance with the EIA Regulations, 2014. The Environmental Authorisation which may be granted subject to conditions.
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Section 10, 16, 22, 27 and 48	The Minerals and Petroleum Resources Development Act identifies the state as the official custodian of South Africa's Mineral and Petroleum Resources. Therefore, all activities relating to the reconnaissance, prospecting rights, mining rights, mining permits and retention permits are regulated by the State. One of the objectives of the Act is to give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.
Mineral and Petroleum Resources Development Regulations, 2014.	Regulations 3, 5, 10 and 14	MPRDA Regulations prescribe how an application for a permit or right must be lodged.
The National Heritage Resources Act (Act No. 25 of 1999)	Section 35 Section 38	The National Heritage Resources Act (Act No 25 of 1999, Section 35) protects South Africa's unique and non-renewable archaeological and palaeontological heritage sites. These sites may not be disturbed without a permit from the relevant heritage resources authority. Section 38 of the NHRA provides guidelines for Cultural Resources Management and proposed developments:
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	Category A Category B Category C	Section 24S of NEMA deals with the management of residue stockpiles and residue deposits and provides that Residue stockpiles and residue deposits must be deposited and managed in accordance with the provisions of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), on any site demarcated for that purpose in the environmental management plan or environmental management programme in question. The management of residue stockpiles and residue deposits must be done in accordance with any conditions set out and any identified measures in the environmental authorisation issued in terms of NEMA, an environmental management programme and a waste management licence issued in terms of NEMA (Regulation 3(2)).

		The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA) regulates waste management in all aspects and created a list of waste management activities that have, or are likely to have, a detrimental effect on the environment, which requires an impact assessment and licensing process. Activities listed in Category A require a Basic Assessment process, activities listed in Category B require a Scoping and EIA process and activities under Category C must comply with the relevant requirements or standards, in order for competent authorities to consider an application in terms of NEM:WA.
National Environmental Management: Biodiversity Act No. 10 of 2004	Chapter 4 Chapter 5	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is part of a suite of legislation falling under NEMA. The Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant protection; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith (SANBI). Chapter 4 of NEMBA deals with threatened and protected ecosystems and species to ensure the maintenance of their ecological integrity, their survival in the wild, the utilisation of biodiversity is managed in an ecologically sustainable way and to regulate international trade in specimens of endangered species. Chapter 5 of NEMA deals with species and organisms posing potential threats to biodiversity. The purpose of this chapter is to prevent the introduction and spread of alien species and invasive species, also to manage, control and eradicate alien species and invasive species
National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004).	Section 21	The object of this Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development. Regulations No. R248 (of 31 March 2010) promulgated in terms of Section 21(1) (a) of the National Environmental Management Act: Air Quality Act (39 of 2004) determine that an Atmospheric Emission License (AEL) is required for certain listed activities, which result in atmospheric emissions which have or may have a detrimental effect on the environment. The Regulation also sets out the minimum emission standards for the listed activities. It is not envisaged that an Atmospheric Emission License will be required for the proposed development.

National Water Act, 1998 (Act No. 36 of 1998).	Section 21	Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. The intention of the Act is to promote the equitable access to water and the sustainable use of water, redress past racial and gender discrimination, and facilitate economic and social development. The Act provides the rights of access to basic water supply and sanitation, and environmentally, it provides for the protection of aquatic and associated ecosystems, the reduction and prevention of pollution and degradation of water resources. As this Act is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, a person can only be entitled to use water if the use is permissible under the Act. Chapter 4 of the Act lays the basis for regulating water use.
National Forest Act (Act 84 of 1998) (NFA)	Regulation 7	The protection, sustainable management and use of forests and trees within South Africa are provided for under the National Forests Act (Act 84 of 1998). Regulation 7 from the Act states the following: **Prohibition on destruction of trees in natural forests.** (1) No person may - (a) cut, disturb, damage or destroy any indigenous tree in a natural forest; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from a tree contemplated in paragraph (a), except in terms of- (i) a licence issued under subsection (4) or section 23; or (ii) an exemption from the provisions of this subsection published by the Minister in the Gazette on the advice of the Council.
National Veld & Forest Fires Act (Act 101 of 1998)	Regulation 13 Chapter 5	The purpose of the Act is to prevent and combat veld, forest and mountain fires throughout the Republic and provides for a variety of institutions, methods and practices for achieving the purpose. Regulations 13 provides the requirement for firebreaks. Chapter 5 places a duty on all owners to acquire equipment and have available personnel to fight fires.

Conservation of Agricultural Resources Act (Act No. 85 of 1983)		The purpose of the Act is to provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. The objects of this Act are to provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.
National Infrastructure Plan		The National Government adopted a National Infrastructure Plan in 2012. With the plan they aim to transform the South African economic landscape while simultaneously creating significant numbers of new jobs, and strengthening the delivery of basic services. Government will over the three years from 2013/14 invest R827 billion in building and upgrading existing infrastructure. These investments will improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. On the other hand, investments in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams will contribute to faster economic growth. This mining activity will indirectly contribute to the growing of the South African economy by supplying SANRAL with material to build and upgrade road infrastructure.
District Municipality Integrated Development Plan (IDP)		The IDP and SDFs of the relevant municipalities was examined and relevant information was included in the EIA report.
Local Municipality Integrated Development Plan (IDP)		The IDP and SDFs of the relevant municipalities was examined and relevant information was included in the EIA report.
National Environmental Management: Protected Areas Act 57 of 2003		This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.

National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008) Regulations regarding the Planning & Management of Residue Stockpiles & Residue Deposits from a Prospecting, Mining, Exploration or Production Operation		The purpose of these Regulations is to regulate the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation.
Hazardous Substances Act (No. 15 of 1979)		The object of the Act is inter alia to 'provide for the control of substances which may cause injury or ill health to, or death of, human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances; for the control of electronic products; for the division of such substances or products into groups in relation to the degree of danger; for the prohibition and control of such substances.' In terms of the Act, substances are divided into schedules, based on their relative degree of toxicity, and the Act provides for the control of importation, manufacture, sale, use, operation, application, modification, disposal and dumping of substances in each schedule.
Subdivision of Agricultural Land Act (No. 70 of 1970)		This Act regulates the subdivision of agricultural land and its use for purposes other than agriculture. The Directorate of Resource Conservation is responsible for the enforcement thereof. Investigations are done by the Provincial Department in support of the execution of the Act. The Act also deals with aspects associated with rezoning land.
Occupational Health and Safety Act (No. 85 of 1993)		The Occupational Health and Safety Act (No. 85 of 1993) (OHSA) provides a legislative framework for the provision of reasonably healthy and safe conditions in the workplace. It also places extensive legal duties on employees and users of machinery and makes major inroads on employers' and employees' common law rights. The OHSA is applicable and states that any person involved with construction, upgrades or developments for use at work or on any premises shall ensure as far as reasonably practicable that nothing about the manner in which it is installed, erected or constructed makes it unsafe or creates a risk to health when properly used

Mine Health and Safety Act (No. 29 of 1996)		The Mine Health and Safety Act (No. 29 of 1996) (MHSA) aims to protect and promote the health and safety of employees and persons that may be affected by the activities at a mine and outlines both the rights and responsibilities of an employer, as well as the obligations of employees working thereat. The following principles are considered applicable to the Proposed Project and are detailed below: • The primary responsibility for ensuring a health and safe working environment in the mining site is placed on the mine owner. The Act sets out in detail the steps that employers must take to identify, assess records and control health and safety hazards in the mine; • The right of workers to participate in health and safety decisions, the right to receive health and safety information, the right to training and the right to withdraw from the workplace in face of danger; • The Act requires the establishment of institutions to promote a culture of health and safety and develop policy, legislation and regulations; and • The responsibility for enforcing MHSA lies with the Mine Health and Safety Inspectorate. The Inspectorate's powers are recast and include the power to impose administrative fines upon employers who contravene the MHSA. The Act also contains innovative approaches to the investigation of accidents, diseases and other occurrences that threaten health and safety.
Government Notice Regulation 704 of 1999		GNR.704 of 1999 under the NWA provides regulations on the use of water for mining and related activities aimed at the protection of water resources (requirements for clean and dirty water separation). GNR.704 requires inter alia the following: • Separation of clean (unpolluted) water from dirty water; • Collection and confinement of the water arising within any dirty area into a dirty water system; • Design, construction, maintenance and operation of the clean water and dirty water management systems so that it is not likely for either system to spill into the other more than once in 50 years; • Design, construction, maintenance and operation of any dam that forms part of a dirty water system to have a minimum freeboard of 0.8m above full supply level, unless otherwise specified in terms of Chapter 12 of the Act; and • Design, construction, and maintenance of all water systems in such a manner as to guarantee the serviceability of such conveyances for flows up to and including those arising as a result of the maximum flood with an average period of recurrence of once in 50 years. <u>GNR.704 also stipulates that no person in control of a mine or activity may:</u> Locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 m from any watercourse or

		estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked; Place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation; or Use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any watercourse or estuary.

F. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

Economic activity in modern-day South Africa has been centered on mining activities, their ancillary services and supplies. The country's stock exchange in Johannesburg was established in 1887, a decade after the first diamonds were discovered on the banks of the Orange River, and almost simultaneously with the gold rush on the world-famous Witwatersrand.

In many ways, South Africa's political, social and economic landscape has been dominated by mining, given that, for so many years, the sector has been the mainstay of the South African economy. Although gold, diamonds, platinum and coal are the most well-known among the minerals and metals mined, South Africa also hosts chrome, vanadium, titanium and a number of other lesser minerals.

In 2018 the mining sector contributed R351 billion to the South African gross domestic product (GDP). A total of 456,438 people were employed in the mining sector in 2018. Each person employed in the mining sector has up to nine indirect dependents. The mining sector has, for many years, attracted valuable foreign direct investment to South Africa. (Mineral Council, 2021)

Diamonds, arguably the ultimate luxury mineral, comprise an intricate lattice of carbon atoms, a crystalline structure that makes them harder than any other form in nature. This characteristic makes diamonds not only popular in jewellery, but also desirable in high-tech cutting, grinding and polishing tools (Chamber of Mines, South Africa, 12:2016).

According to the Chamber of Mines the country's diamond sector is far from reaching the end of its life even though diamond mining has been taking place in South Africa for almost a century and a half. The primary sources of all of South Africa's diamonds are kimberlites in ancient, vertically dipping volcanic pipes most of which were located in the vicinity of the city of Kimberley and which were initially amenable to open-cast.

Economic growth - South Africa's total reserves remain some of the world's most valuable, with an estimated worth of R20.3-trillion. Overall, the country is estimated to have the world's fifth-largest mining sector in terms of GDP value.

With South Africa's economy built on gold and diamond mining, the sector is an important foreign exchange earner, with gold accounting for more than one-third of exports. In 2009, the country's diamond industry was the fourth largest in the world.

Mining is a cornerstone of the economy, making a significant contribution to economic activity, job creation and foreign exchange earnings. Mining and its related industries are critical to South Africa's socio-economic development.

G. A FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED DEVELOPMENT FOOTPRINT WITHIN THE APPROVED SITE, INCLUDING:

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

Each of the phases are dependent on the results of the preceding phase. The location and extent of soil sampling, and possible bulk sampling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken. For the purposes of this report, the overall prospecting area is presented in **Appendix 3**.

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

(a) The property on which or location where it is proposed to undertake the activity

The prospecting rights activities are proposed to be undertaken over portion of the remaining extent of Boegoeberg Nedersetting 48, a portion of remaining extent of Zonderhuis 402, a portion of the remaining extent of onder plaats 401, a certain portion of the remaining extent of portion 1, a portion of portion 6 (a portion of portion 4), a portion of portion 7 (portion of portion 4) and a portion of portion 9 (portion of portion 4) of the farm Namakwari 656 near the town of Grobblershoop within the Northern Cape Province. Magisterial District: Kenhardt and Gordonia.

As discussed in the previous sections, based on the outcomes of the desktop studies in the vicinity of the proposed site indicate that Diamonds Alluvial (DA), Diamonds General (D), Diamonds in Kimberlite (DK), Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST) may be found on this property.

(b) The type of activity to be undertaken

In terms of the technologies proposed for the applied activities, these have been chosen based on long term success in terms of their prospecting history. The prospecting activities proposed in the Prospecting Work Programme is dependent on the success of the preceding phase, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The alternatives that exist for the proposed prospecting are mainly, prospecting with bulk sampling or prospecting without bulk sampling, it is important to note however, the negative

impacts are significant when prospecting with bulk sampling. In this case, prospecting with bulk sampling will be the type of activity that will be undertaken.

(c) The design or layout of the activity

The location of the activities will be determined based on the location of the prospecting activities, which will only be determined during phase 1 and 2 of the Prospecting Work Programme (see **Appendix 8** for the Programme).

According to the map below (Figure 21), the proposed project area is dominated by karoo & fynbos shrubland, natural grassland vegetation shrubs, as well as a portion of the extraction site. The land cover map (Figure 20) also shows that the proposed area is dominated by shrubland, grassland as well as cultivated land. There is a river, Orange River, that flows between the applied portions. There are also farming activities that take place along the Orange River located within 1 km of all the applied farm portions, refer to Figure 21 below. There are houses at the boundaries as well as within the project area. It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions are located near communities, others near the national road N10, and others have farmhouses and farming activities within them.

All infrastructure will be temporary and/or mobile.

(d) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long-term success of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 8**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The preferred technology for the proposed mining activity, will be to do pitting and trenching. The bulk sampling operation will be conducted using a fleet of conventional open pit mining equipment comprising of dump trucks supported by appropriate excavators and front-end-loaders. All equipment is planned to be diesel driven. Please find the Prospecting Work Programme attached as **Appendix 8**.

(e) The operational aspects of the activity

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage services are required.

Pits will be dug by an excavator for the purpose of soil sampling. If gravel is found, the applicant will determine the composition and quality of the gravel.

The applicant will proceed with this way of prospecting by means of the open cast/trenching method, simultaneously or after pitting depending on the information obtained from the earlier work done. The trenches will be dug to remove and process the gravel. Gravel will be removed by excavators and will be loaded directly into dump trucks. Ore will be hauled to the screening plant. The material will be screened where after the screened material will be moved to the processing plant where the gravel will be processed. Concentrate will be moved to the sorting plant where the concentrate will be sorted.

All data will be consolidated and processed to determine the diamond bearing resources on the property. This will be a continuous process throughout the prospecting work programme.

No feasible alternatives to the pitting and trenching method currently exists. Impacts associated with the prospecting operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

(f) The option of not implementing the activity

The option of not approving the activities will result in a significant loss of valuable information regarding the mineral status (in terms of diamonds) present on these properties. In addition to this, should economical reserves be present, and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

i) DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

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

The Public Participation Process (PPP) must follow Regulation 41 of NEMA EIA Regulations; thus, the process needs to be transparent. However, due to the Protection of Personal Information Act (POPI Act) which commenced on 01 July 2021, Stakeholders, Landowners, surrounding landowners and registered I&AP' addresses, contact details and comments will not be included in any draft report to be circulated. All this information will form part of the final report to be submitted to the Competent Authority only.

Should you be identified as a Stakeholder, Landowner, surrounding landowner and you do not wish to receive any further communique from Milnex CC regarding the application in question, you may request in writing that your details be removed from the Milnex CC database for this application.

ADVERTISEMENT AND NOTICES

An advertisement was placed in English in the local newspaper **(Noordkaap Bulletin)** (see **Appendix 6**) on the 22nd of June 2023 notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement.

22 Junie 2023 NoordkaapBulletin CLASSIFIEDS GEKLASSIFISEERD 11

Geklassifiseerd

NOTICE IN TERMS OF SECTION 34(1) OF THE INSOLVENCY ACT, NO. 24 OF 1936 (AS AMENDED)

Notice is hereby given in terms of section 34(1) of the Insolvency Act No. 24 of 1936, as amended, to interested parties and creditors of **R AND S AMBITION TRADING CC**, Registration Number **2010/113284/23** t/a Lucid Lounge (the "Company") of the intention of the Company to dispose of all of its right, title and interest in and to its business situated at 86 Du Toitspan Road, Kimberley, 8301, Northern Cape Province, Remaining Extend of Erf 344 Kimberley, including certain immovable and movable property as well as the name and goodwill attached to such business to **FOUNTAIN LOGISTIC (PTY) LTD**, Registration Number **2016/095392/07**, who will thereafter own the assets and continue the business for its own benefit and account, which transfer will take place not less than 30 days and not more than 60 days after the date of last publication of this notice.

WERKSMANS INC – A KENNY LEVEL 1, NO. 5 SILO SQUARE, V&A WATERFRONT, CAPE TOWN, 8001 REF: A KENNY/JK/BUSI4703.1077

ADERAM TRUSTEES

INSOLVENT ESTATE:
Millard Lionel Joshua
IDENTITY Nr:
751209 5054 08 3

MASTER REFERENCE:
K43/19

Notice is hereby given that the trustees' The First and Final Liquidation Distribution Account in the above mentioned estate, will lie for creditors' inspection for a period of fourteen **(14) days**, at the offices of the Master of the High Court Kimberley as well as the Magistrate Richmond (NC) from the **23 June 2023**, up and until the **7 July 2023**

TRUSTEES: W Van Rooyen / A POOLE C/O: ADERAM TRUSTEES (PTY) LTD P.O. BOX 29208 SUNNYSIDE 0132
TEL: 012 004 0363

DISCLAIMER FOR QUACKERY ADVERTISEMENTS

Geklassifiseerde Ads and Media24 have not verified whether any of the services or products advertised will have the desired effect or outcome. Readers will note that some of the promised results in the advertisements are extraordinary and may be impossible to achieve. Beware some of the procedures and claims advertised may be dangerous if not executed by a qualified medical practitioner. Readers are warned that they should carefully consider and verify the advertiser's credentials. Classified Ads and Media24 do not accept any liability whatsoever in respect of any of the services or goods advertised.

Vrystaat Kroon Vista Bloem Nuus Express Noordkaap Bulletin
MEDIA24

APPLICATION FOR A PROSPECTING RIGHT AND ASSOCIATED ENVIRONMENTAL AUTHORISATION (EA) AND WASTE MANAGEMENT LICENCE (WML) FOR PROPOSED ALLUVIAL DIAMONDS (DA), KIMBERLITIC DIAMONDS (DK), GRAVEL (GRAV), SAND GENERAL (QY) AND POTENTIAL ACCOMPANYING TRACE GOLD (AU) ORE ON A PORTION OF FARM MIER 585 WITHIN SIYANDA DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE. DMR REFERENCE: NC30/5/1/1/2/13169PR

NOTIFICATION OF THE AVAILABILITY OF THE DRAFT ENVIRONMENTAL IMPACT REPORT (Draft EIR) FOR REVIEW AND COMMENT

Notice is hereby given that the Draft Environmental impact Report (Draft EIR) for the abovementioned application is available for review and comment from **23 June 2023 to 24 July 2023.**

Chapter 6 of the NEMA requires the applicant to provide all registered Interested and Affected Parties (I&APs) with an opportunity to review and comment on the Draft EIR. All comments received will be collated into a Comments and Responses Register (CRR) that will be submitted to the Department of Mineral Resources (DMR), Northern Cape Province Regional Office as part of the Final EIR. Where required, the comments received will be incorporated into the Final EIR that will be submitted to the DMR for decision making.

The Draft EIA/EMPr will be made available on the Ndi Geological website (http://www.ndigeoservices.co.za/).

Please submit your written comments by mail, fax, or email by **24 July 2023 to:**

Ndivhudzannyi Mofokeng
38 Ophelia Street, Kimberley, 8301
Contact Numbers: 082 760 8420/ 053 842 0687
Fax: 086 538 1069
atshidzaho@gmail.com/ndi@ndigeoservices.co.za

Please do not hesitate to contact us should you require additional information or clarification regarding the proposed project and findings. Our team welcomes your participation and looks forward to your involvement throughout the Stakeholder Engagement Process.

NOTICE OF APPLICATION: PART 2 AMENDMENT OF EXISTING ENVIRONMENTAL AUTHORISATION COMBINED WITH WASTE LICENSE APPLICATION AND SUBSEQUENT ENVIRONMENTAL IMPACT ASSESSMENT

Notice is given in terms of Section 16, 102 and 10 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) and Regulations 3, 5 and 51 of the Regulations published in Government Notice GN R527, & Notice is given in terms of the EIA regulations published in Government Notice No. R326 under Section 39-44 of the National Environmental Management Act (Act No. 107 of 1998) of the intent to carry out an Environmental Impact Assessment (i.t.o Listing Notice 1 of 2017 – GNR 327 in Gazette No. 40772 (Activity 19, 20, & 21D (Amended GNR 517: 2021)), (i.t.o Listing Notice 2 of 2017 – GNR 325 in Gazette No. 40772 (Activity 15 & 19, (Amended GNR 517: 2021)) and (i.t.o Listing Notice 3 of 2017 – GNR 324 in Gazette No 40772 (Activity 4 & 12 Amended GNR 517: 2021). NEM:WA 59 of 2008: Category A: (15) of the intent to carry out the above-mentioned activity.

PROJECT TITLE

Environmental Impact Assessment (Basic Assessment process) for the proposed prospecting right of Johan Smit for Part 2 Amendment of the existing Environmental Authorisation under DMRE ref: NC30/5/1/1/2/12359PR to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - From Hardrock – (QH), Sand (Manufactured) - From Waste Dump – (QWD), Stone Aggregate (From Waste Dump) – (STW) And Stone Aggregate; Grave – (ST).

Environmental Impact Assessment (Basic Assessment process) for the proposed prospecting right for the part 2 amendment of the existing Environmental Authorisation under DMRE ref: NC30/5/1/1/2/12359PR to include the prospecting of Sand (General) – (QY), Sand (Manufactured) - From Hardrock – (QH), Sand (Manufactured) - From Waste Dump – (QWD), Stone Aggregate (From Waste Dump) – (STW) And Stone Aggregate; Gravel – (ST) on the following properties:

APPLICATION AREA

A portion of the remaining extent of Boegoeberg Nedersetting 48, A portion of remaining extent of Zonderhuis 402, a portion of the remaining extent of onder plaats 401, a certain portion of the remaining extent of portion 1, a portion of portion 6 (a portion of portion 4), a portion of portion 7 (portion of portion 4) and a portion of portion 9 (portion of portion 4) of the farm Namakwari 656 near the town of Grobblershoop within the Northern Cape Province. Magisterial District: Kenhardt and Gordonia.

PROPERTY'S LOCATION:	The property is located approximately 37km North of Groblershoop in the Northern Cape Province.
APPLICANT:	**Johan Smit**
SIZE OF SITE:	9 044.74 ha
DMRE REF:	NC30/5/1/1/2/12359PR / NC-00140-PR/102

CO-ORDINATES OF APPLICATION AREA

Latitude	Longitude
21° 51'46.055"S	28°32'24.360"E
21° 47'19.307"S	28° 25'8.643"E
21° 45'19.556"S	28° 30'13.184"E
21° 48'52.690"S	28° 36'7.163"E

Any inquiries/objections must be lodged in writing or verbally if unable to write to the below mentioned consultants:

Environmental Consultants	Milnex CC
	Ms. Lizanne Esterhuizen EAP (EAPASA) Miss. Deshney Mapoko EAP (EAPASA) Mr Christiaan Baron EAP (EAPASA) Andile Grant Nxumalo EAP (EAPASA) Percy Sehaole EAP (EAPASA)
	Tel: (018) 011 1925
	Fax: 087 231 7021
	E-mail: Lizanne@milnex-sa.co.za; deshney@milnex-sa.co.za ; christiaan@milnex-sa.co.za; andile.grant@milnex-sa.co.za; percy@milnex-sa.co.za
	Postal Address: P.O Box 1086, Schweizer-Reneke, 2780

Any meetings will be conducted virtually via Zoom or Microsoft Teams upon request by the I&APs.
The Environmental Authorization application was submitted to the Department of Mineral Resources & Energy (DMRE). Please note that this publication follows the initial publication made in the NoordkaapBulletin on the 04th of May 2023, which was initially for the EIA process. This application therefore was acknowledged to follow a new Basic Assessment process. In order to ensure that you are identified as an interested and/or affected party please submit your name, contact information and interest in the matter, in writing or verbally to the contact persons given above, on or before the 24th of July 2023.

SOEK, KOOP, VERKOOP

SITE NOTICES

Site notices were placed (as anticipated on the coordinates below) on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments. Photographic evidence of the site notices is available under **Appendix 6**. Below are the coordinates where the site notices were placed:

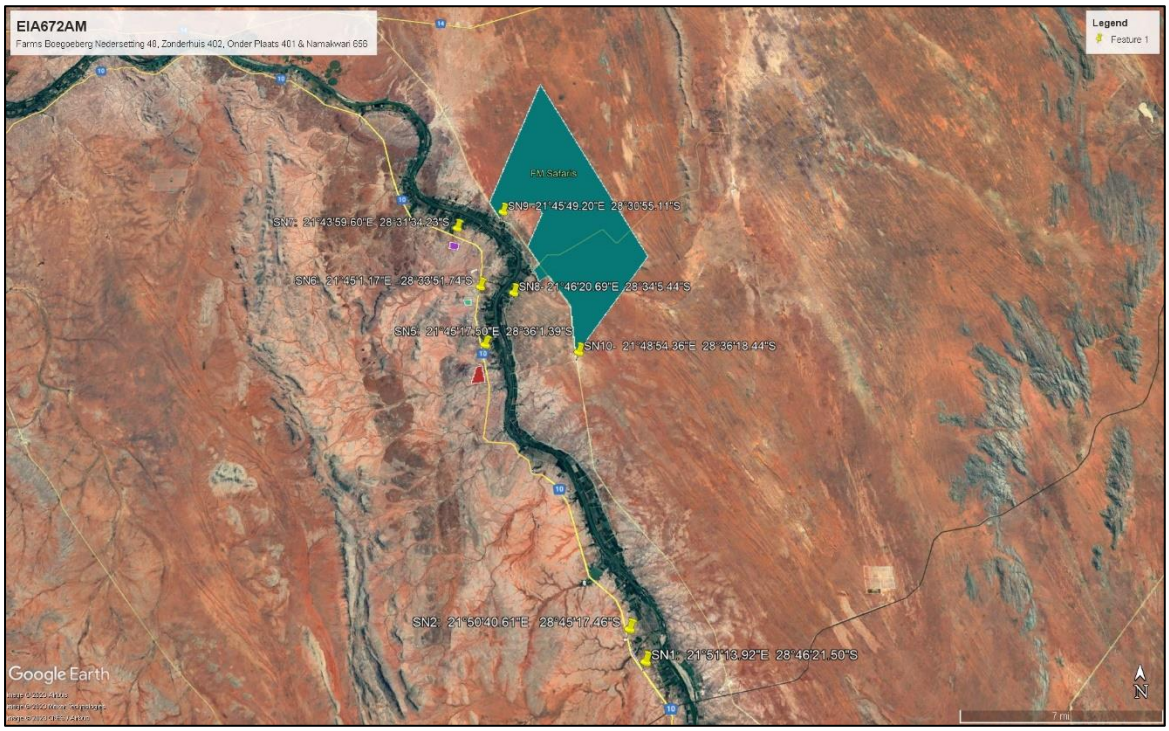

Figure 3: Site notices

Direct notification and circulation of Basic Assessment Report to identified I&AP, stakeholder, landowners, surrounding landowners, and occupiers.

Identified I&APs, including key stakeholders representing various sectors, were directly informed of the proposed development and the availability of the Basic Assessment Report & EMPr via registered post on the **29th of June 2023** and were requested to submit comments on/or before the **31st of July 2023** (30 days).

A copy of the report is available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Thursday and between 07:30AM and 16:00PM on Friday. For a complete list of I&AP details and for proof of registered post see **Appendix 6**. The consultees included:

Table 1: List of Stakeholders, Landowners, & surrounding landowners

Stakeholders
Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (AGRINC)
Department of Economic Development and Tourism (DEDAT)

Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
Department of Roads and Public Works (DR&PW)
Department of Transport, Safety and Liaison (DTSL)
Department of Social Development (DSD)
Northern Cape Tourism Authority
Northern Cape Heritage Resources Authority (NCHRA)
Department of Mineral Resources and Energy (DMRE)
Department of Water and Sanitation (DWS)
ZF Mgcawu District Municipality: Municipal manager
Khara Hais Local Municipality: Municipal manager
Khara Hais Local Municipality: Ward 9 Councillor
!Kheis Local municipality: Municipal manager
!Kheis Local municipality: Ward 1 Councillor
!Kheis Local municipality: Ward 2 Councillor
WESSA
SAHRA
Landowner
Republic of South Africa
FM Safaris Pty Ltd
Nooitgedacht Agri Pty Ltd
Tirisano Trust
Surrounding landowners
Provincial Government of North West Province
Schonegevel Holdings Pty Ltd
Nooitgedacht Agri Pty Ltd
Van Ellewee Familie Trust
Eselfontein Noord Boerdery Pty Ltd
FM Safaris Pty Ltd

It is expected from I&APs to provide their inputs and comments within 30 days after receipt of the notification or Basic Assessment Report. When the comment period ends, all comments received will be included in the final Basic Assessment Report & EMP Report.

Public Meeting

Please note that the Stakeholders & Interested and Affected Parties (I&APs) were informed about the proposed project with the use of press advertisement, registered letters and site notices. Any meetings to be conducted in relation to the proposed project will be conducted in adherence to all COVID-19 regulations either virtually via Zoom or Microsoft Teams or face-to-face upon request by the I&APs.

No meeting was requested by stakeholders and/or I&APs to date.

Issues Raised by Interested and Affected Parties

Comments received during this period will be included in the comment & response report and populated in the table of summary of issues raised (See **Appendix 6** for comments and response form).

ii) SUMMARY OF ISSUES RAISED BY I&APS

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

Interested and Affected Parties **List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.**		**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issue and or response where incorporated**
Organisation	**Contact person**			
Landowners				
Boegoeberg Nedersetting 48, RE	Department of Agriculture, Land Reform and Rural Development (DALRRD), National office On behalf of Republic of South Africa	No comments received.		
	Land Restitution Support Ms. Mangalane du Toit	No comments received.		
Zonderhuis 402, RE	FM Safaris Pty Ltd Abdullah Mohammed Alameel	No comments received.		
Onder Plaats 401, RE	Fm Safaris Pty Ltd	No comments received.		
Namakwari 656, RE of P1	Nooitgedacht Agri Pty Ltd	No comments received.		
Namakwari 656, P6	Tirisano Trust	No comments received.		
Namakwari 656, P7	Nooitgedacht Agri Pty Ltd	No comments received.		
Namakwari 656, P9	Nooitgedacht Agri Pty Ltd	No comments received.		
Adjacent landowners				

Karreeboom Vlakte No. 377	Provincial Government of North West Province	No comments received.		
Ganna Vlakte No. 385	Schonegevel Holdings Pty Ltd	No comments received.		
Namakwari 656, P8	Nooitgedacht Agri Pty Ltd	No comments received.		
Rooidraai 49	Van Ellewee Familie Trust	No comments received.		
Ezelfontein Noord 50, P1	Eselfontein Noord Boerdery Pty Ltd	No comments received.		
Swartkop 403	Fm Safaris Pty Ltd	No comments received.		
Local Municipality in which jurisdiction the development is located				
Khara Hais Local Municipality	Municipal Manager: Mr Martin Fillis (Acting)	No comments received.		
!Kheis Local municipality	Municipal Manager: Mr Floyd Leeuw	No comments received.		
Municipal councillor of the ward in which the site is located				
Khara Hais Local Municipality	Ward 9 Councillor	No comments received.		
!Kheis Local municipality	Ward 1 Councillor	No comments received.		
!Kheis Local municipality	Ward 2 Councillor	No comments received.		
Organs of state having jurisdiction				
Department of Agriculture, Environmental	**Head of Department:** Mr. Lerato Wa Modise	No comments received.		

Affairs, Rural Development and Land Reform (AGRINC)	Elsabe Swart	No comments received.		
Department of Forestry, Fisheries and Environment (DFFE)	Jacoline Mans	No comments received.		
Department of Economic Development and Tourism (DEDAT)	**Head of Department:** Mr T Mabija	No comments received.		
Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)	**Head of Department:** Mr Bafedile Lenkoe	No comments received.		
Department of Roads and Public Works (DR&PW)	Deputy Information Officer: **Head of Department:** Dr. Johnny Mac Kay	No comments received.		
Department of Transport, Safety and Liaison (DTSL)	**Head of Department** Mr. M. Dichaba	No comments received.		
Department of Social Development (DSD)	**Head of Department** To whom it may concern	No comments received.		

Northern Cape Tourism Authority	**Chairperson:** To whom it may concern	No comments received.		
Northern Cape Heritage Resources Authority (NCHRA)	Mr Ratha Andrew Timothy and Mrs Rose Kelebogile	No comments received.		
Department of Mineral Resources and Energy (DMRE)	**Regional Manager:** Mr Ndlelenhle Zindela	No comments received.		
	Secretary: Ms Ntombi Mayekiso	No comments received.		
Department of Water and Sanitation (DWS)	Mr Khutjo Kwena Sekwaila (WUL Manager)	No comments received.		
	Mudau Mashudu	No comments received.		
Commission on Restitution of Land Rights.	**Chief Director:** Ms. M. Du Toit	No comments received.		
Other				
WESSA	Graham Avery	No comments received.		
SAHRA	Online consultation			
ZF Mgcawu District Municipality	**Municipal Manager**: Mr Alfred Tieties (Acting)	No comments received.		
I & AP	Jacobus Beukes	No comments received.		

iii) THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITES

Baseline Environment

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape.

According to the DEA Screening Tool the proposed development area Environmental sensitivity

The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Due to the vast size of the proposed project area and taking into consideration the location of the dispersed farm portions, the screening tool was unable to develop as single report but rather 2 reports (one assessing the portions within the farm Boegoeberg Nedersetting 48 and another assessing the remaining farm portions). The environmental sensitivities identified in this report therefore include the results of both the reports.

Several solar developments with an approved Environmental Authorisation or applications under consideration with 30 km of the proposed area have been identified by the screening report and included in the screening report in **Appendix 7:**

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

Geology

Kheis Terrane (Mle – Metabasalt, felsic lava, Greenschist, conglomerate & ferruginous schist)

Classification

The Leerkrans Formation of the Wilgenhoutsdrif Group is a succession of highly sheared metasedimentary and metavolcanic rocks separating the western margin of the Archean Kaapvaal Craton from the polydeformed and highly metamorphosed Proterozoic Namaqua Sector of the Namaqua-Natal Province. Highly chloritised and epidotised metabasalts from the Lower Basalt are typically flow-banded, massive, vesicular or amygdaloidal, and have primitive tholeiitic, MORB-like geochemical characteristics.

The Upper Basalt and Mixed Zone of the Leerkrans Formation are comprised of basaltic lavas showing similar geochemical features to the Lower Basalt. The metavolcanic rocks of the Leerkrans Formation overlap in age with the oldest units of the ~1.3 to ~1.23 Ga Areachap Group, the polydeformed and highly metamorphosed remnants of a volcanic arc that separates the western margin of the Kaapvaal Craton from the Namaqua Sector. The

Leerkrans Formation likely represents the remnants of a related back-arc basin to the volcanic arc which was accreted onto the western margin of the craton.

Ecological habitat and landscape features

As according to the superimposed map (Figure 4) shows that the proposed prospecting right area is overlain by a number of vegetation units including Gordonia Duneveld (SVkda), Bushmanland Arid Grassland (NKb3), Kalahari Karroid Shrubland (NKb5), Bushmanland Vloere (AZi5), as well as the Lower Gariep Broken Veld (NKb1). The mentioned vegetation types are part of the Kalahari Duneveld Bioregion, Bushmanland Bioregion and the Alluvial Vegetation.

The Bushmanland Arid Grassland is dominating the overall project area which according to Mucina and Rutherford (2006:340), Distribution Northern Cape Province: Spanning about one degree of latitude from around Aggeneys in the west to Prieska in the east. The southern border of the unit is formed by edges of the Bushmanland Basin while in the northwest this vegetation unit borders on desert vegetation (northwest of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariep Broken Veld, Kalahari Karroid Shrubland and Gordonia Duneveld. Most of the western border is formed by the edge of the Namaqualand hills. Altitude varies mostly from 600–1 200 m.

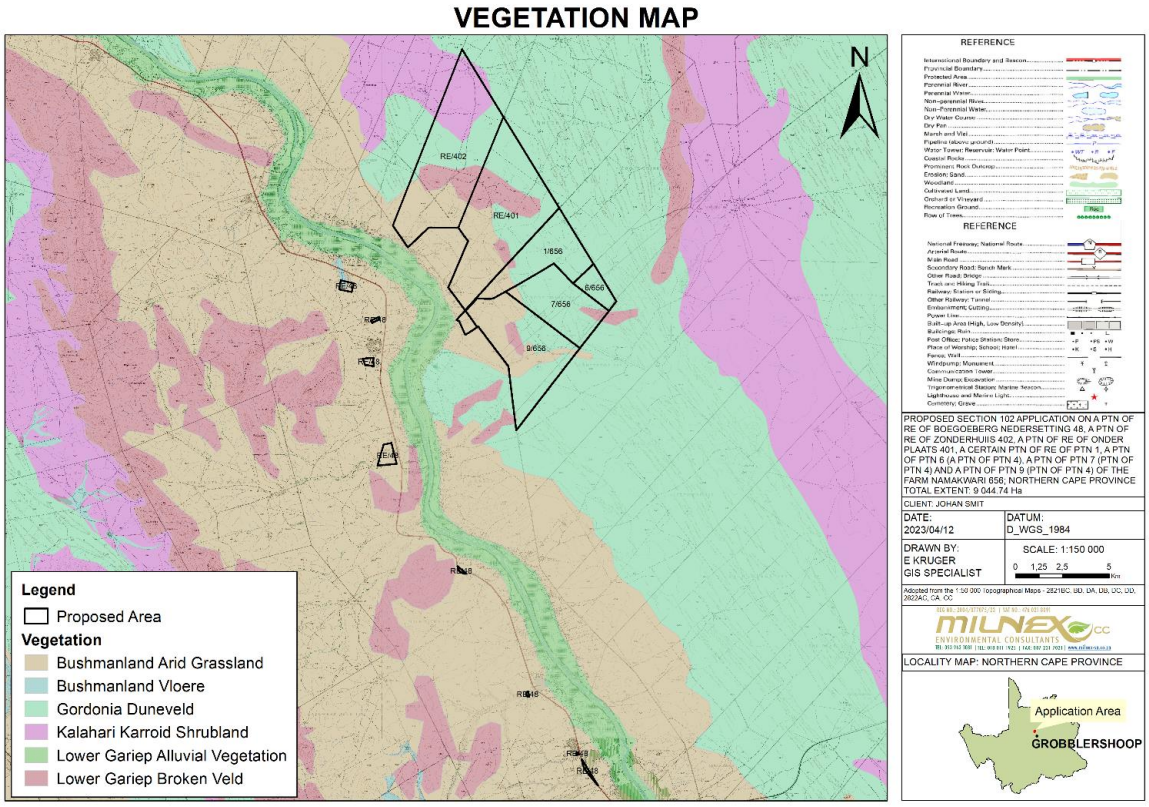

Figure 4: Vegetation Unit Map

According to the DFFE Screening Report the Plant Species theme sensitivity of the proposed area mostly falls in a low sensitivity and to a lesser extent, within medium sensitivity. Please see Figure 5 and **Appendix 7** for the colour map.

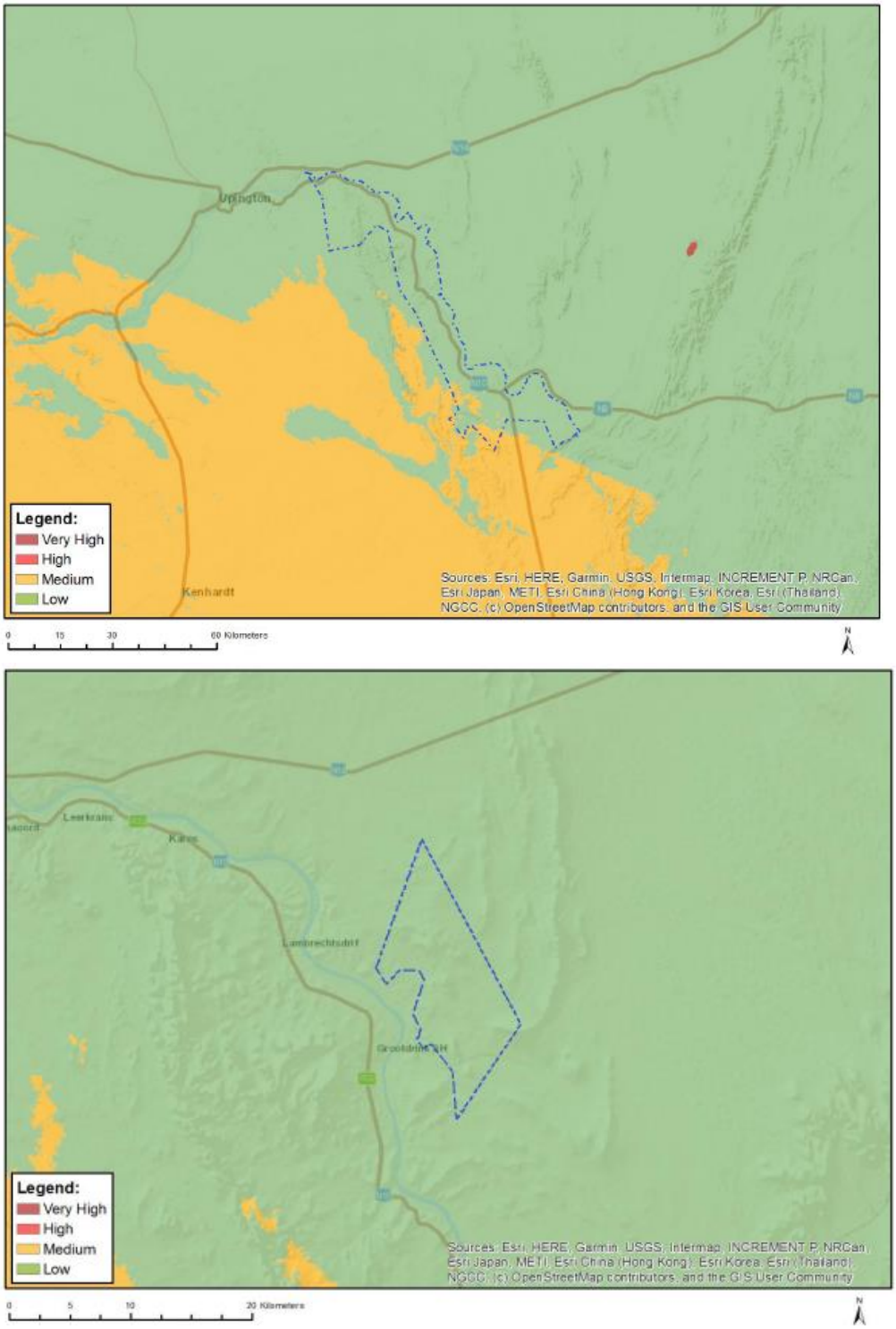

Figure 5: Plant Species Combined Sensitivity

Land capability and Agricultural potential

According to an article on the Grain SA website by Garry Paterson from ARC-Institute for Soil, Climate and Water on the Grain SA website, agriculture rests on three pillars where natural

resources are concerned. These are the soil (comprising the growth medium for the plant), the climate conditions (which supply the plant with sufficient water and heat) and the terrain (enabling the crop to be physically planted, to grow and to be harvested sustainably).

The concept of land capability combines the three natural resource elements or factors listed above (soil, climate and terrain) and uses set parameters to determine a specific class for a given area. The basis of the land capability assessment in South Africa is the well-known Land Type Survey, which is a country-wide inventory of natural resources, i.e. soil pattern, macroclimate and terrain type, carried out between 1972 and 2002 by the ARC-Institute for Soil, Climate and Water.

Each unique land type is allocated to one of eight land capability classes. These classes are based on the original USDA land capability system, whereby Classes 1 and 2 comprise areas with little or no limitations to rainfed agriculture, Classes 3 and 4 comprise those areas which are still considered arable, but with moderate to severe restrictions. Classes 5 to 8 comprise non-arable land with increasingly serious restrictions, either in terms of restricted soil, steep terrain, rockiness and/or an unfavourable climatic regime. (Garry Paterson, ARC-Institute for Soil, Climate and Water, November 2014.)

Majority of the proposed area falls within Land in Class 7 and 8 (refer to Land capability map on Figure 6 and attached as **Appendix 5**) which is limited in terms of crop production, non-arable land.

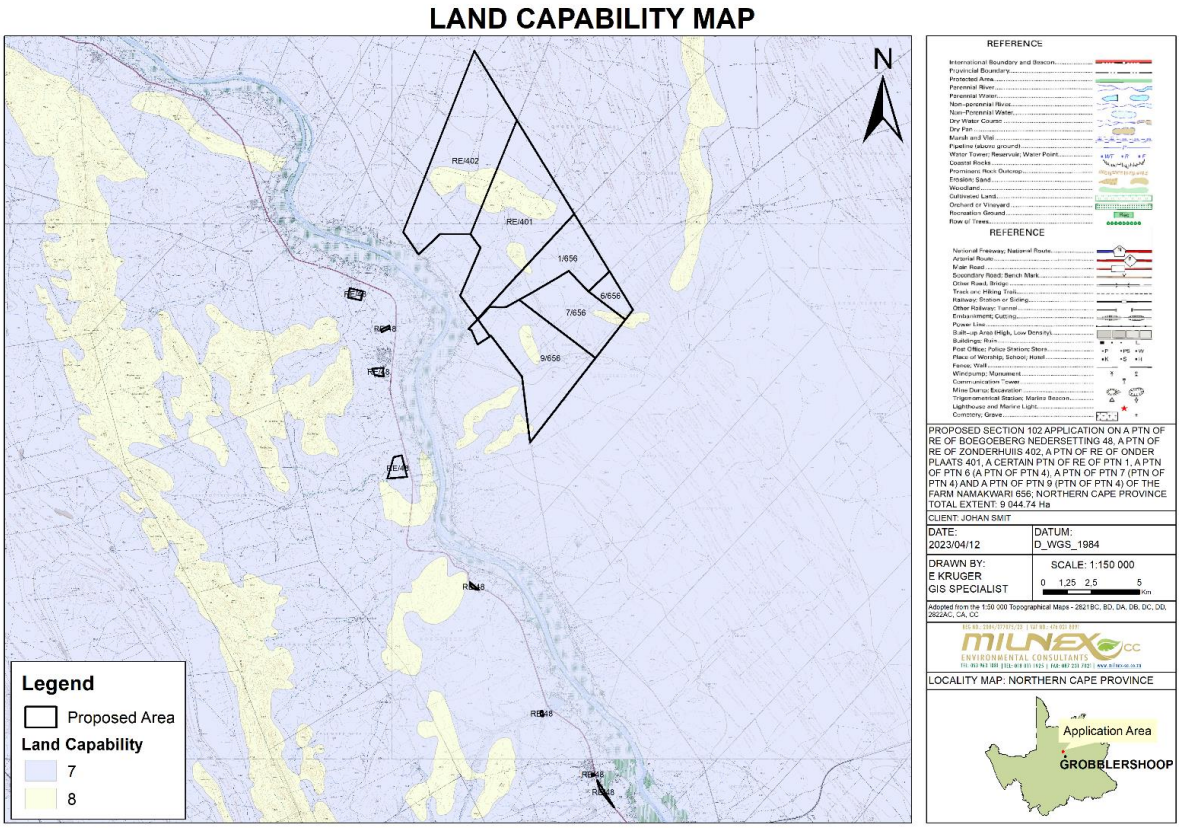

Figure 6: Land capability map

According to the DFFE Screening Report the Agriculture theme sensitivity of the proposed area fall mostly within medium sensitivity, with areas of high sensitivity along the Orange

river floodplains.

Please see Figure 7 and **Appendix 7** for the colour map.

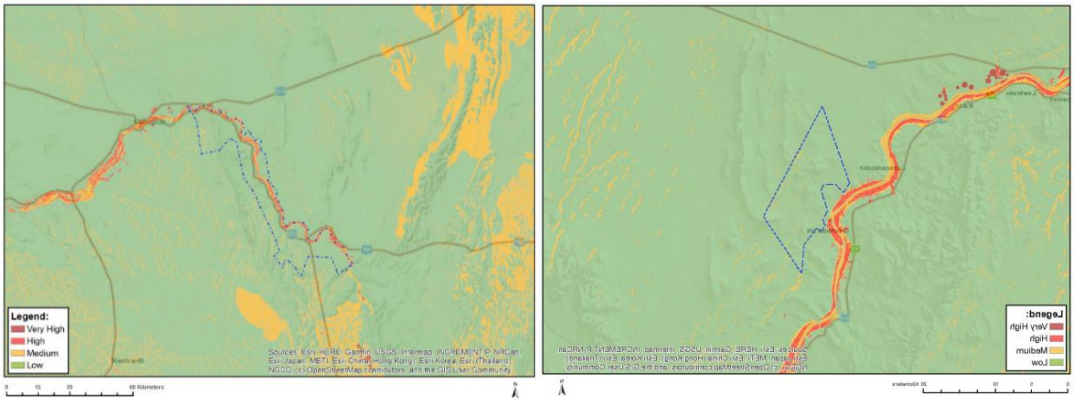

Figure 7: Agriculture Combined Sensitivity

Threatened Ecosystems

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Driver *et al.* 2011). Datasets have been developed by SANBI (2016) in order to outline threatened ecosystems, with the primary objective of limiting the rate of ecosystem extinctions. Four established categories group these ecosystems namely: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and Protected.

The proposed project area has the Orange River passing through which is overlain by the Lower Gariep Alluvial vegetation as also shown in Figure 8. This vegetation is classified as endangered. The conservation target for the area is 31% and only approximately 5.8% is statutorily conserved.

Protected Areas

According to the data for protected areas (Figure 8), the proposed area has the Orange River passing through. Most farm portions are within the National Protected Areas Expansion Strategy: Priority Focus Areas.

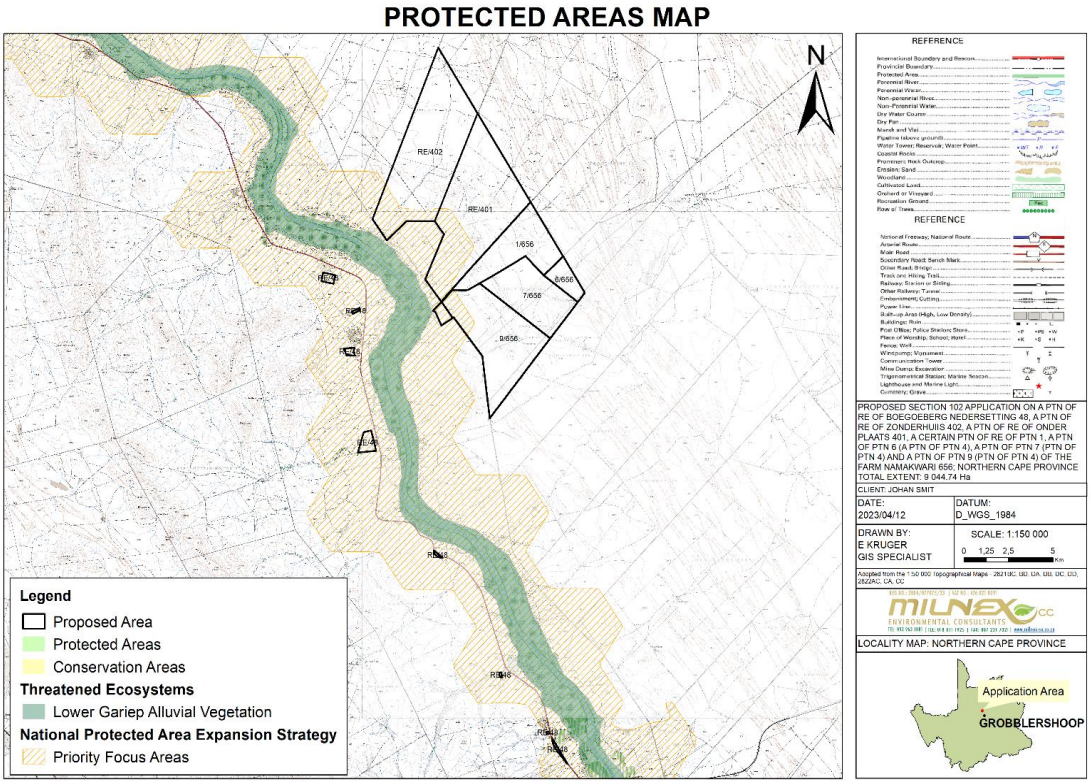

Figure 8: Threatened and Protected Areas Map

Critical Biodiversity Area

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of high biodiversity value that need to be conserved and maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services (MTPA, 2014). According to the National Environmental Management Act (NEMA) (Act no. 107 of 1998) certain activities have strict guidelines or are prohibited within CBAs and ESAs. Refer to the listed activities under the NEMA: Environmental Impact Assessment Regulations of 2014 (GNR 982) as promulgated in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) [as amended] for a comprehensive breakdown. The following terms are used to categorise the various land used types according to their biodiversity and environmental importance:

- Critical Biodiversity Area One (CBA1);
- Critical Biodiversity Area Two (CBA2);
- Ecological Support Area (ESA);
- Other Natural Areas (ONA); and
- Protected Area (PA)

Based on the desktop information, Figure *9* below shows that the proposed area falls within CBA 2 and ONA. The ecological sensitivity of the proposed area will be thoroughly investigated during the EIA phase of the project.

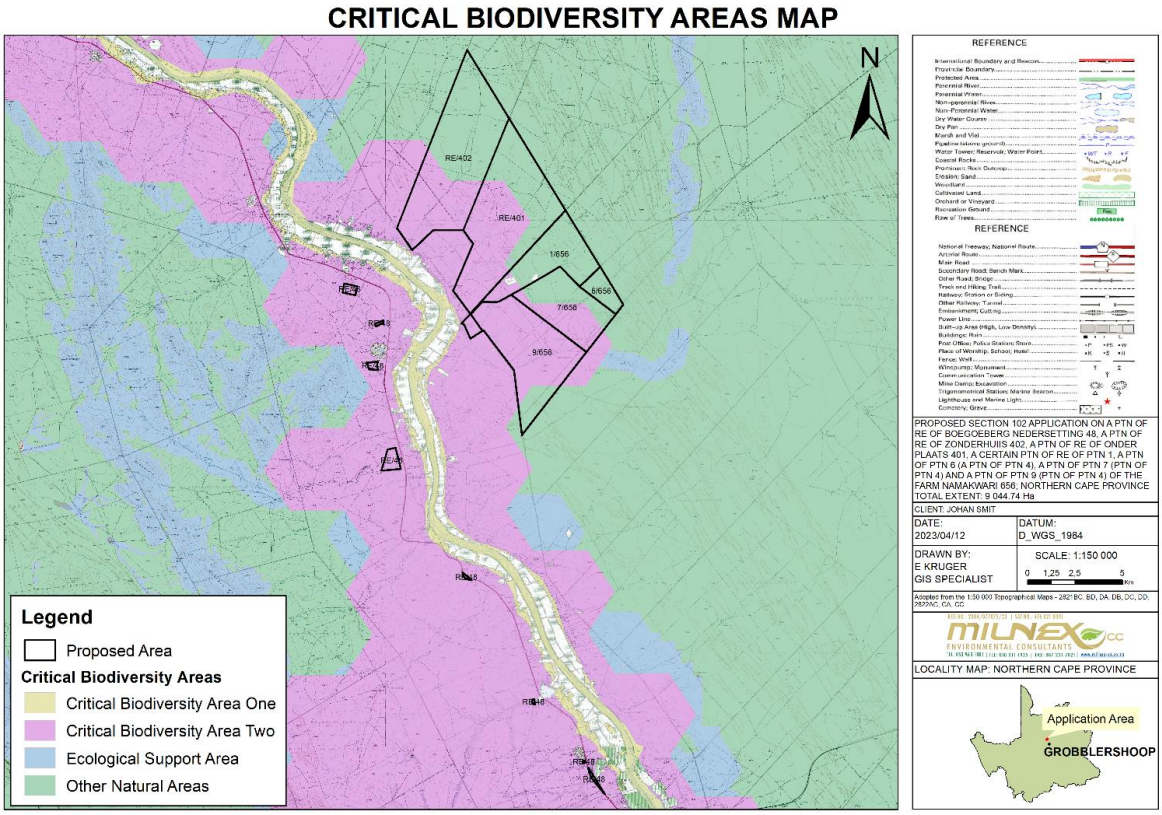

Figure 9: Critical Biodiversity Areas Map.

According to the DFFE Screening Report most of the proposed area falls mostly within low Aquatic Biodiversity sensitivity and other parts within very high sensitivity with features including the rivers, FEPA subcatchment, wetlands_(River), wetlands - Bushmanland Bioregion (Depression), and Wetlands-Kalahari Duneveld Bioregion (Depression). Refer to Figure 10 below and **Appendix 7** for the colour map.

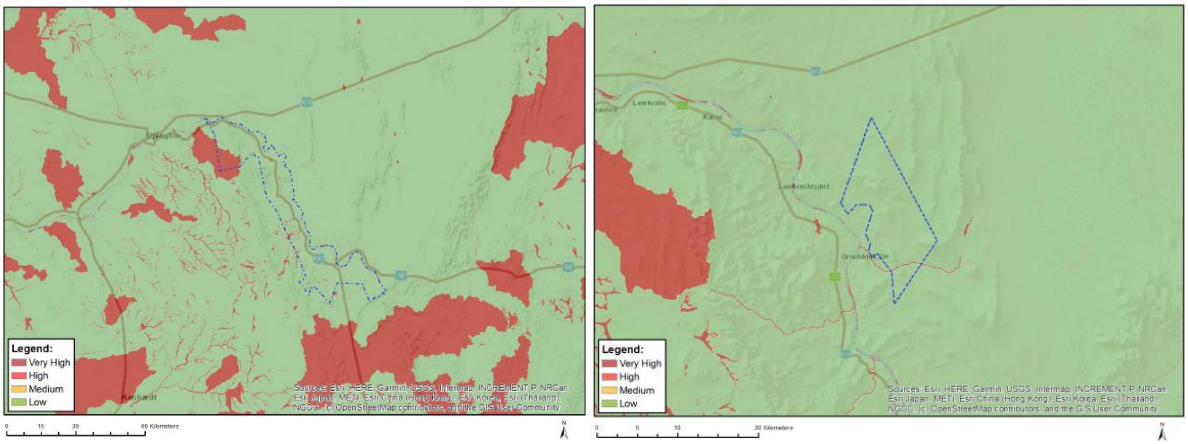

Figure 10**:** Aquatic Biodiversity Combined Sensitivity

The DEA Screening Report shows that the proposed area falls mostly within very high Terrestrial Biodiversity theme sensitivity followed by low sensitivities to a lesser extent with features including CBA1, CBA2, ESA, Protected Areas Expansion Strategy and FEPA Sub catchments. Please see Figure 11 below and **Appendix 7** for the colour map.

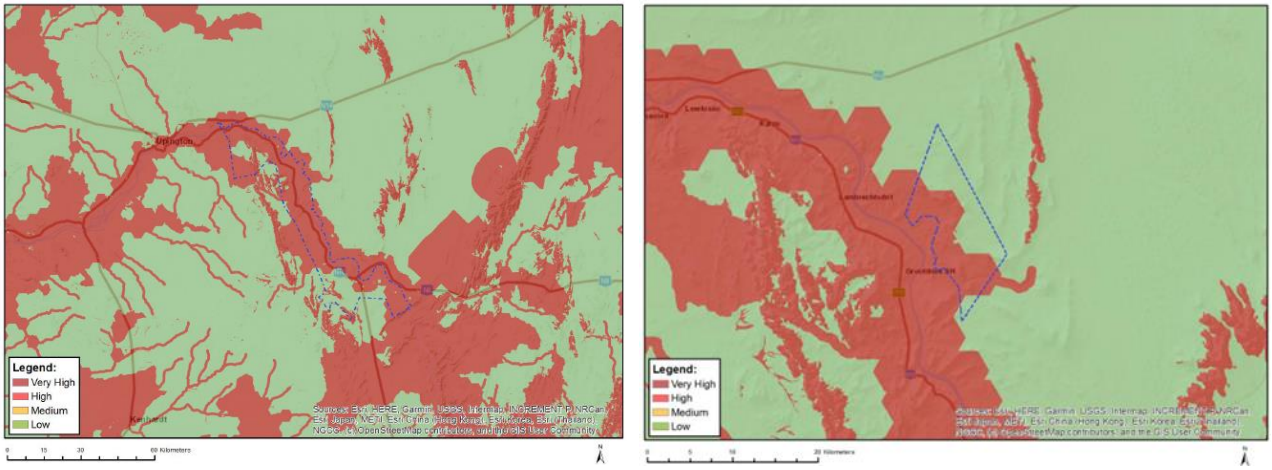

Figure 11: Terrestrial Biodiversity Combined Sensitivity

According to the DEA Screening Report the proposed portions fall within medium and high Animal Species theme sensitivity. Please see Figure 12 and **Appendix 7** for the colour map.

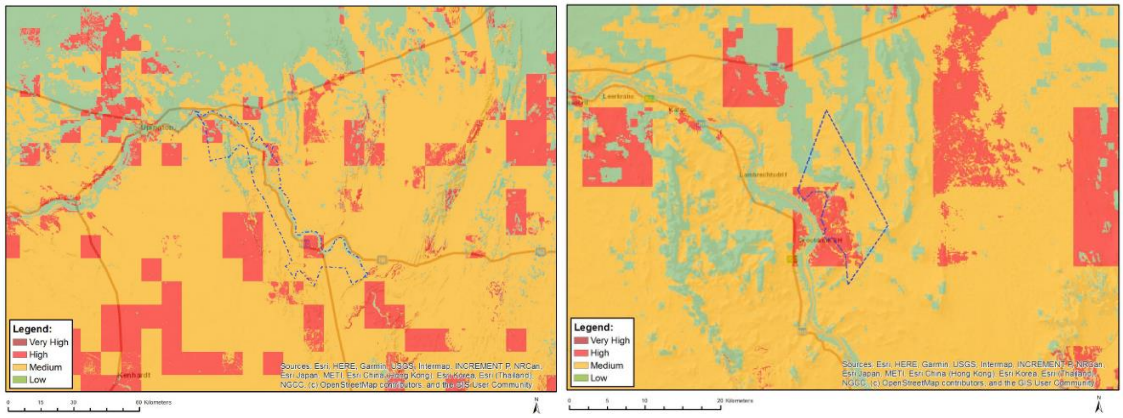

Figure 12: Animal Species theme sensitivity

Biodiversity Priority Areas for Mining

The Mining and Biodiversity Guideline was developed in 2013 for the purpose of mainstreaming biodiversity management practices into the mining sector (DEA, DMR, Chamber of Mines, SAMBF & SANBI 2013). This Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining. The Guideline distinguishes between four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service perspective as well as the implications for mining in these areas (**Table 1**).

Table 1: Four categories of biodiversity priority areas in relation to their biodiversity importance and implications for mining.

Category	Biodiversity Priority Areas	Risks for Mining	Implications for Mining
A. Legally Protected	• Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected	**Mining Prohibited**	Mining projects cannot commence as mining is legally prohibited. Although mining is prohibited in Protected Areas, it may be allowed in Protected Environments if both the Minister of Mineral Resources and

	Environments, Nature Reserves) • Areas declared under Section 49 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002)		Minister of Environmental Affairs approve it. In cases where mining activities were conducted lawfully in protected areas before Section 48 of the Protected Areas Act (No. 57 of 2003) came into effect, the Minister of Environmental Affairs may, after consulting with the Minister of Mineral Resources, allow such mining activities to continue, subject to prescribed conditions that reduce environmental impacts.
B. Highest Biodiversity Importance	• Critically endangered and endangered ecosystems • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites	**Highest Risk for Mining**	Environmental screening, environmental impact assessment (EIA) and their associated biodiversity specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licences, and environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An EIA should include the strategic assessment of optimum, sustainable land use for an area and will determine the significance of the impact on biodiversity. This assessment should fully consider the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country.

			Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.
C. High Biodiversity Importance	• Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves) • Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) • Other identified priorities from provincial spatial biodiversity plans • High water yield areas • Coastal Protection Zone • Estuarine functional zone *Note that the status of buffer areas of World Heritage Sites is subject to a current intra-governmental process	**High Risk for Mining**	These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, and for maintaining important ecosystem services for communities or the country. An EIA should include an assessment of optimum, sustainable land use for an area and will determine the significance of the impact on biodiversity. Mining options may be limited in these areas, and limitations for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.
D. Moderate Biodiversity Importance	• Ecological support areas • Vulnerable ecosystems • Focus areas for protected area expansion (land-based and offshore protection)	**Moderate Risk for Mining**	These areas are of moderate biodiversity value. EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (e.g. threatened (land-based and offshore protection) species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy.

			Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.

Based on Figure 13, the area overlaps with Category B and is within 500m of Category C. The unnamed tributaries traversing the study site overlaps with Category B, Highest Risk for Mining and therefore has highest biodiversity importance. Rigorous evaluation of the biodiversity content of applications is required, as well as the application of the mitigation hierarchy to reduce impacts on biodiversity in these areas. Therefore, the general area has the highest biodiversity importance.

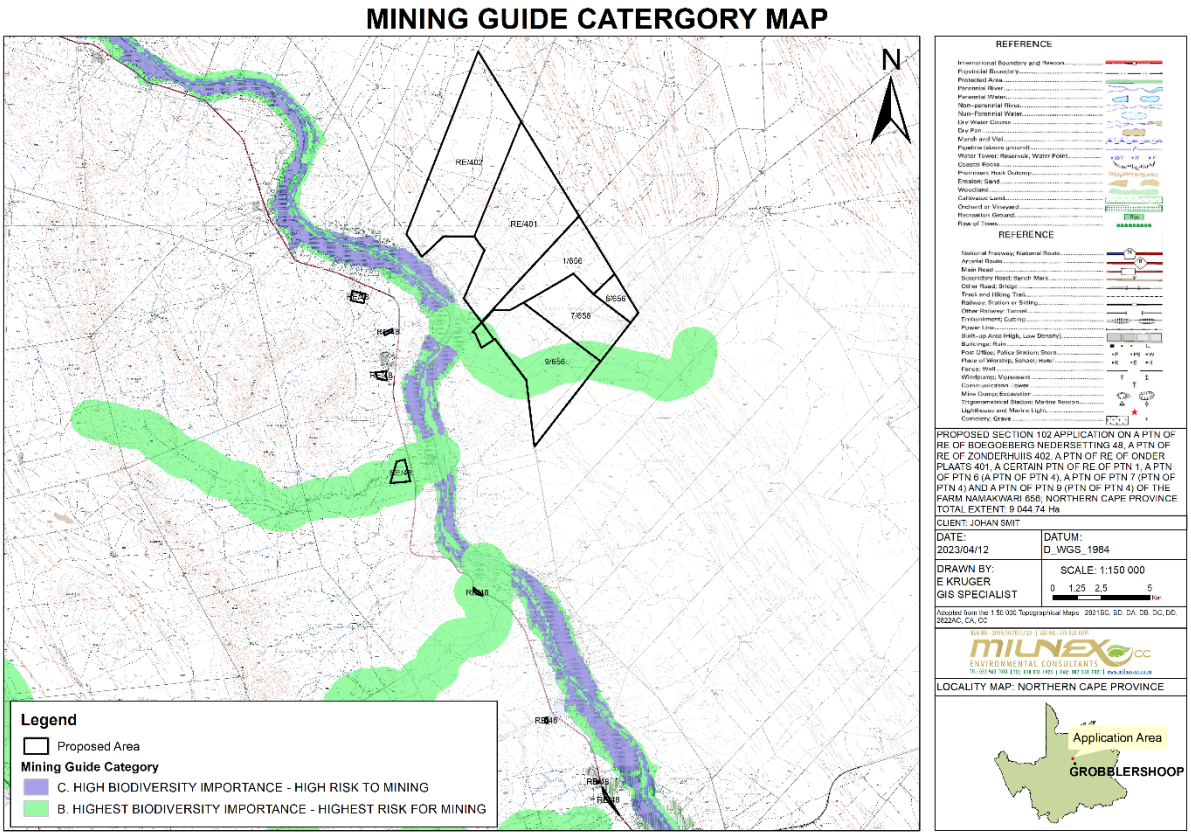

Figure 13: Biodiversity priority areas, in accordance with the Mining of Biodiversity Guidelines, associated with the study site.

Wetland Areas

In terms of Section 1 of the National Water Act (No. 36 of 1998) (NWA), wetlands are legally defined as: "*land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil*" (NWA 1998).

Wetlands are defined by the presence of unique soils and vegetation that do not occur in terrestrial and purely aquatic environments (Edwards *et al.* 2018). Wetland soils are referred to as hydric soils that develop under anaerobic conditions (condition where oxygen is virtually

absent from the soil). Wetlands are also typically characterized by relatively large and dense stands of plants sticking out of shallow water or wet soil. Plants adapted to such waterlogged conditions are referred to as hydrophytes. Wetlands are distinct from true aquatic ecosystems like river ecosystems, which are characterized by fast flowing water within channels, and lake ecosystems, that are flooded to great depth; both of which are not primarily characterized by the occurrence of hydric soils and hydrophytes.

A wide variety of wetland types are present in South Africa, and can be classified into six broad types, namely floodplain wetlands, unchanneled valley bottom wetlands, channelled valley bottom wetlands, seeps, depressions and wetland flats. Owing to the large variations in climate and topography across South Africa, vegetation and habitat associated with these wetland types vary tremendously from subtropical reed beds and tall swamp forests to arid salt pans, which all support unique and varied animal life.

Figure 14 illustrates all wetland types associated with the study area. According to the map below, the project area is located closer to a floodplain, Channelled Valley Bottom Wetland, and the Orange River that passes through the farm portions.

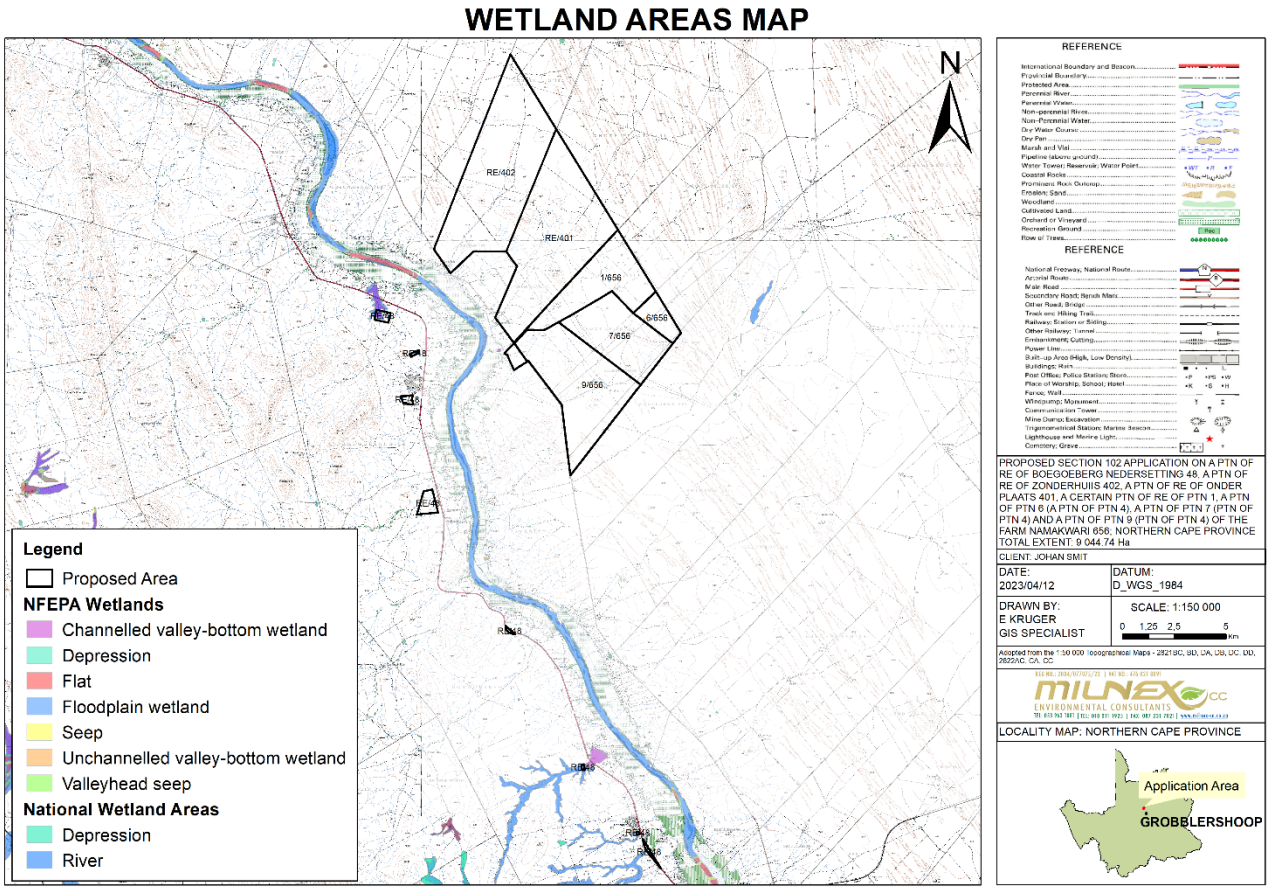

Figure 14: Wetland types located within or near the study site.

The Wetland vegetation that the site has been associated with the Kalahari Duneveld as well as the Nama karoo Bushmanland as depicted on the figure below.

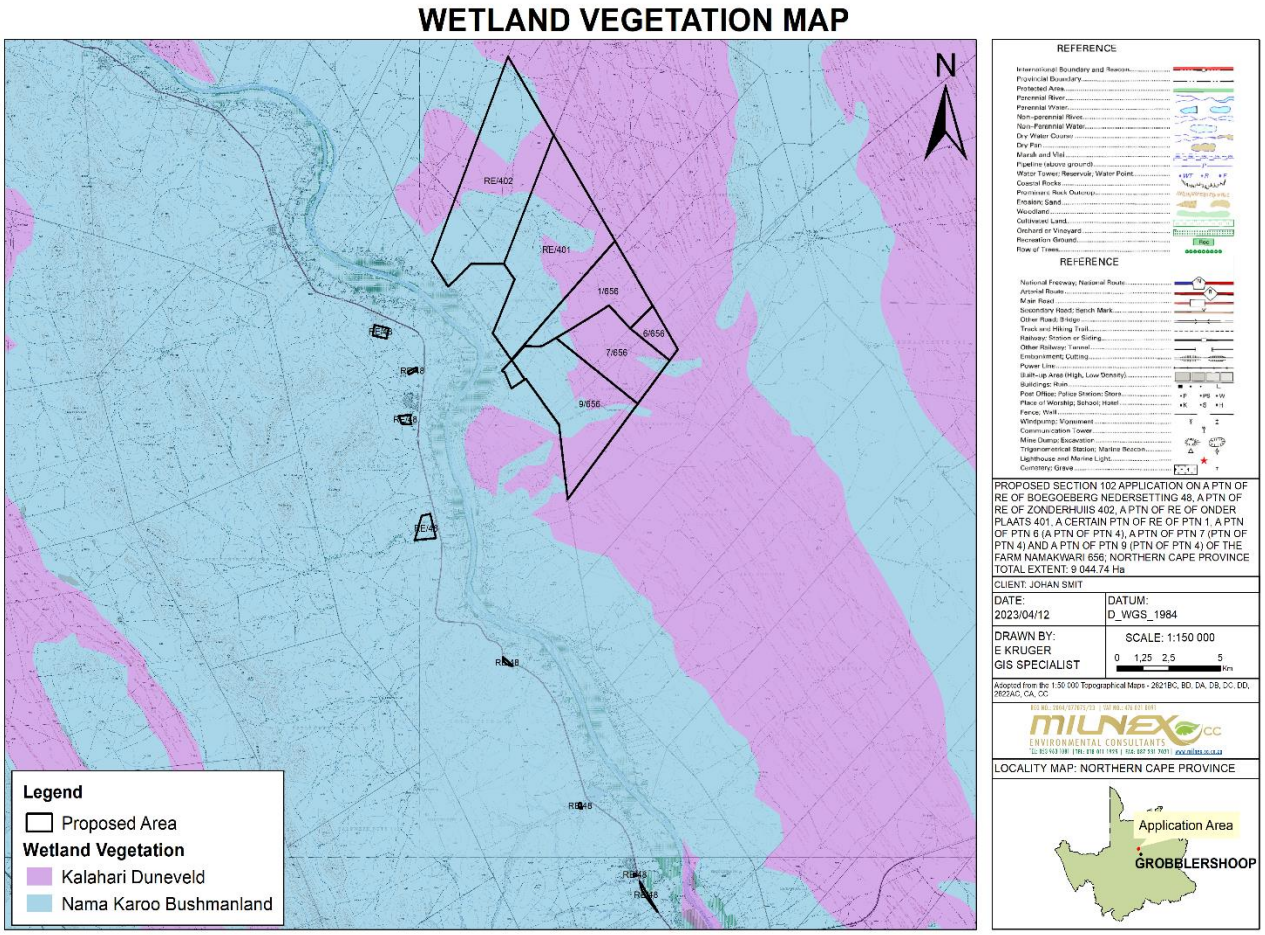

Figure 15: Wetland vegetation type map

Important Bird and Biodiversity Areas

Important Bird and Biodiversity Areas (IBAs) are a network of sites that are significant for the long-term viability of naturally occurring bird populations (Birdlife 2019). Many sites are also important for other forms of biodiversity; therefore, the conservation of Important Bird & Biodiversity Areas ensures the survival of a correspondingly large number of other animals and plants. No IBAs were identified within the vicinity of the study site, refer to the figure below.

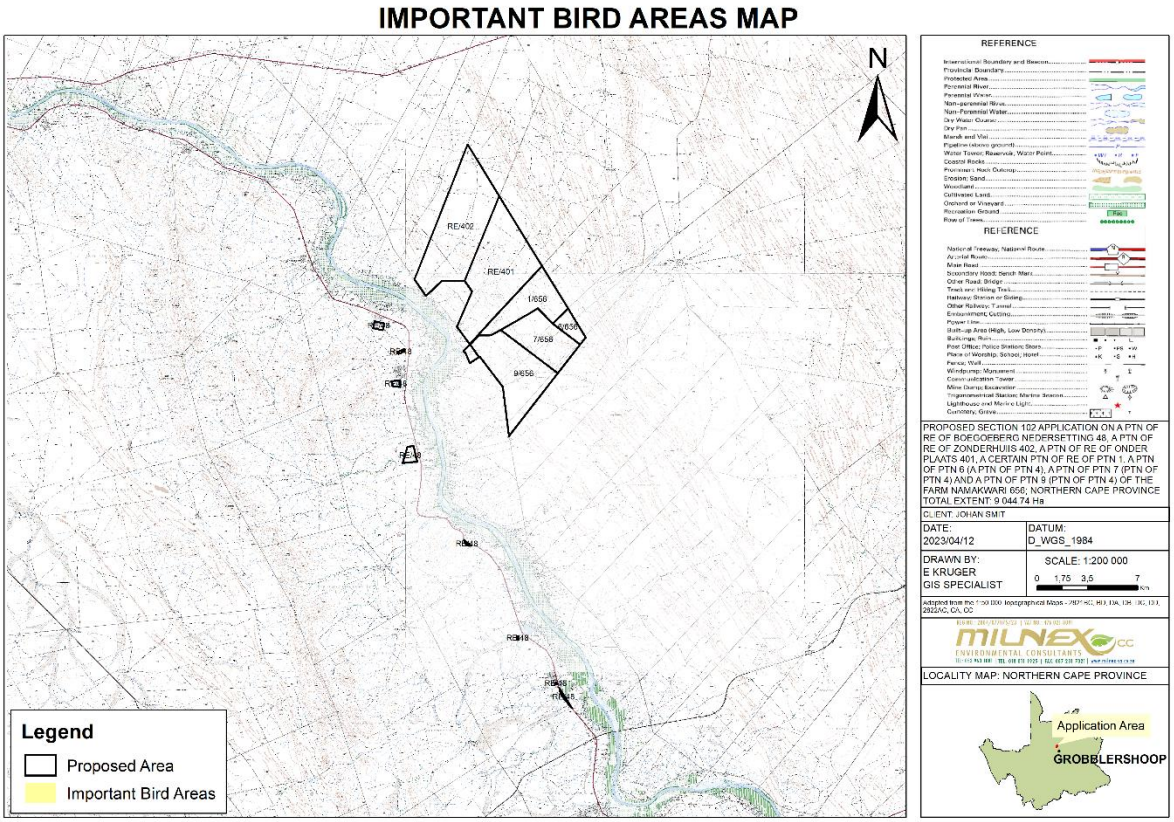

Figure 16: Important Bird Areas map

River Ecosystem Status

According to Figure 17, there is perennial river (Class C – Moderately Modified) which is known as the Orange River that passes through the project farm portions. Refer to the map below.

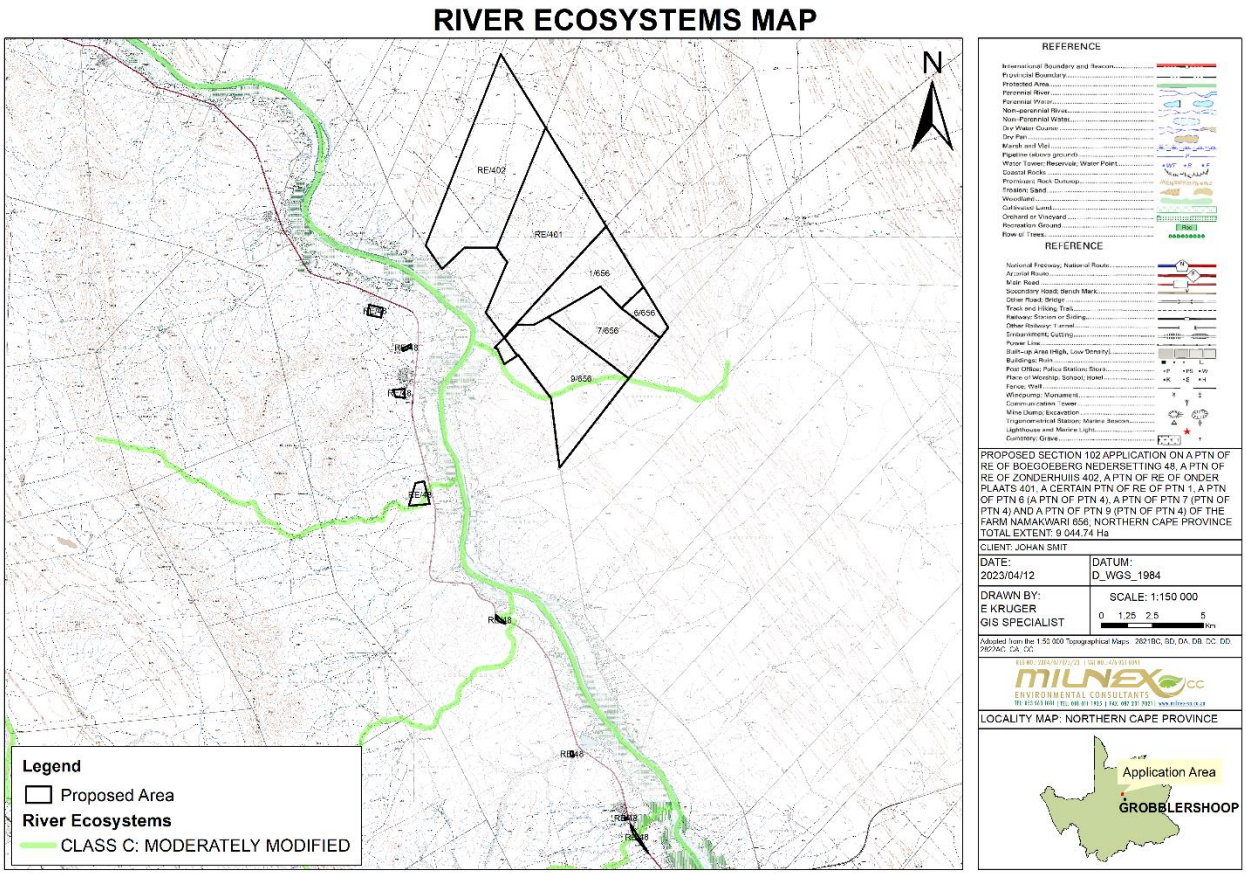

Figure 17: Ecosystem status of the rivers occurring in close proximity to the study site.

Cultural and Heritage Aspects

According to the DFFE Screening Report the proposed area falls mostly within low Archaeological and Cultural Heritage Theme Sensitivity and a certain area within high sensitivity. Please see Figure 18 below and the colour map under **Appendix 7.**

The Cultural Heritage Impact assessment for the proposed project compiled by J A van Schalkwyk (D Litt et Phil), mentions that the cultural landscape qualities of the region are made up of a pre-colonial element consisting of Stone Age and a much later colonial (farmer) component, which eventually gave rise to an urban component which manifest in a number of small towns and an intensive farming industry. Please refer to **Appendix 10** for the full Cultural Heritage Impact Assessment study.

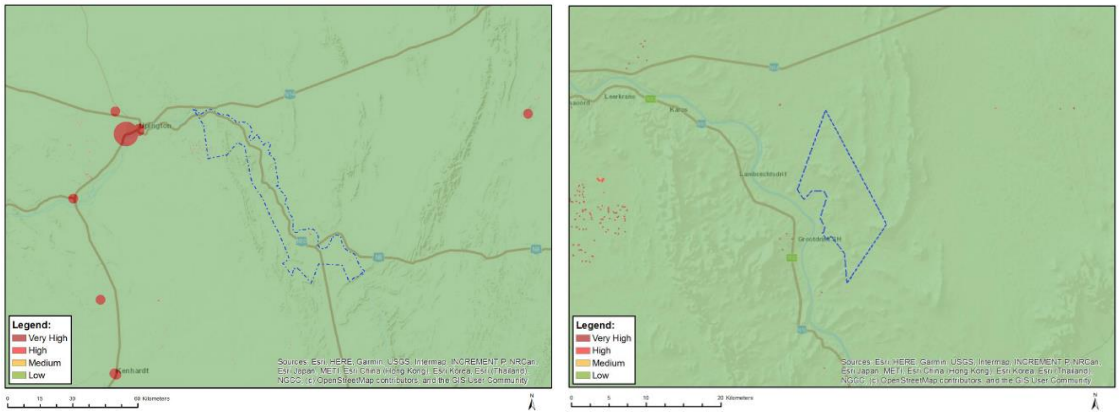

Figure 18 Archaeological and Cultural Heritage Combined Sensitivity

According to the DFFE Screening Report the proposed area falls mostly within medium and low Palaeontology Theme Sensitivity. Please see map colour map under **Appendix 7**.
According to the Palaeontological Desktop Assessment for the applied project area, the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the paleontological resources of the area. Thus, the construction and operation of the facility may be authorized as the whole extent of the development footprint is not considered sensitive in terms of paleontological resources. Please refer to **Appendix 10** for the specialist study conducted.

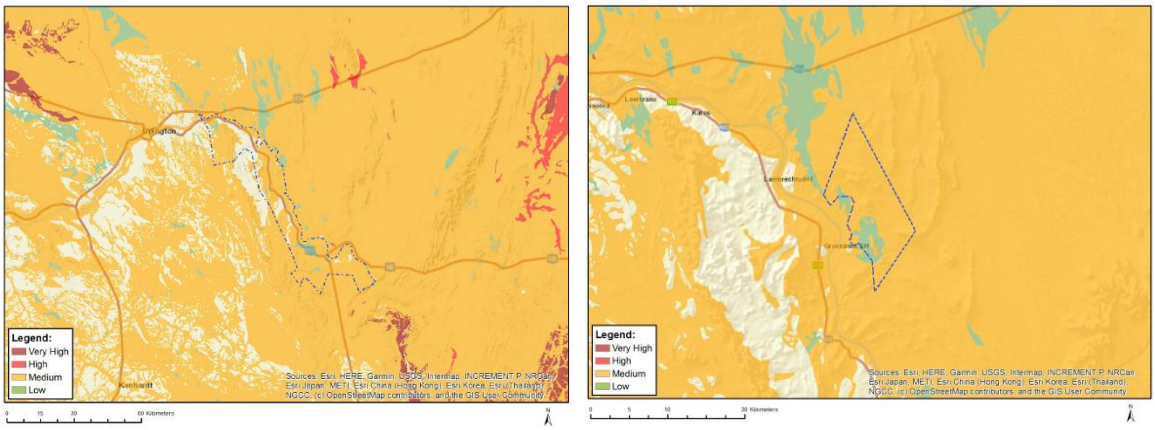

Figure 19: Relative Palaeontology Theme Sensitivity

Cultural Heritage in South Africa (includes all heritage resources) is protected by the **National Heritage Resources Act (Act 25 of 1999) (NHRA).** According to Section 3 of the Act, all Heritage resources include **"all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens**".

If such resources are found during the mining or development activities, they shall not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA must be contacted immediately, and work must stop.

If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:

- NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.
- NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.
- NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.
- If fossil remains or trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations the **Chance Find Protocol** must be implemented by the Environmental Control Officer (ECO) in charge of these developments. These discoveries ought to be protected and the ECO must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation can be carry out by a palaeontologist.

Chance Find Procedure

- If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.
- The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.
- A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.

Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.

- The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized

and covered by a plastic sheet or sandbags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.

- In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.

Description of the socio-economic environment

ZF Mqcawu District Municipality

The ZF Mgcawu District Municipality (previously Siyanda District Municipality) is a Category C municipality forming the mid-northern section of the Northern Cape Province, bordering with Botswana in the north and Namibia in the west.

It makes up just under a third of the province's geographical area, of which 65 000km² comprise the vast Kalahari Desert, Kgalagadi Transfrontier Park and the former Bushmanland. This district comprises five local municipalities: Dawid Kruiper, Kai !Garib, Tsantsabane, !Kheis and Kgatelopele. Upington is the district municipal capital, where the municipal government is located.

Khara Hais Local Municipality (Now known as Dawid Kruiper Local Municipality).

The proposed project area falls within the Dawid Kruiper Municipality. This local municipality is a Category B municipality that forms part of the ZF Mgcawu District Municipality in the Northern Cape Province. It borders with the Kgalagadi Transfrontier Park in the north, Botswana in the north-east, and Namibia in the west. It is the largest of five municipalities in the district, making up almost half its geographical area. It was established by the amalgamation of the Mier and //Khara Hais Local Municipalities in August 2016. It consists of small towns and the !Khomani San community within its jurisdiction. Rietfontein, which is one of the main towns, is situated approximately 280km north-west from the nearest big town of Upington.

Upington is situated 400km west of Kimberley and has an airport and a landing strip. Natural boundaries provide a unique aspect to the town – one is the Kalahari Desert, and another is the Orange River, South Africa's largest river, which it straddles. The municipality is the acknowledged commercial, educational, military, agricultural, medical, transport and tourism centre of the area.

Population growth

According to the draft Integrated development Plan (2022/2027) Dawid Kruiper Local Municipality is considered as the most populous municipality in ZF Mcgawu District. There is currently 6 879 people within the Mier area which in terms of the demographic spread are scattered compared to the 100 282 within the former Khara Hais / Upington area, which brings the total population to 107 162 within the Dawid Kruiper jurisdiction. The coloured population is in the majority, followed by whites and then the Black African population and Indian/Asian. The most commonly spoken language is Afrikaans, spoken by 85% of the residents.

Unemployment rate and education

The unemployment rate fell drastically, from 34% in 2001 to 22.1% in 2011. The young unemployment rate also fell dramatically, from 42.3% in 2001 to 29% in 2011, however it remains quite high in relation to the municipality's total unemployment rate. Despite the fact that 44.7% of the Dawid Kruiper population is between the ages of 14 and 35, youngsters remain disenfranchised. People over the age of twenty in Dawid Kruiper finished the 12th grade at a rate of 5.1% (20.9% in 2001 to 26% in 2011), but there was a considerable reduction of 6.5% (13.6 in 2001 to 7.1% in 2011) in those who had no schooling at all. Higher education has increased from 20.9% to 21.9% in 2001 to 26% in 2011.

Key Statistics Summary

Demographic Information

	2016	2011
Population	107 161	100 498
Age Structure		
Population under 15	28.6%	30.0%
Population 15 to 64	65.8%	64.4%
Population over 65	5.6%	5.7%
Dependency Ratio		
Per 100 (15-64)	52.1	55.3
Sex Ratio		
Males per 100 females	97.2	97.6
Population Growth		
Per annum	1.46%	n/a
Labour Market		
Unemployment rate (official)	n/a	n/a
Youth unemployment rate (official) 15-34	n/a	n/a
Education (aged 20 +)		
No schooling	4.5%	7.1%
Matric	31.8%	24.9%
Higher education	6.4%	7.3%
Household Dynamics		
Households	28 704	25 028
Average household size	3.7	3.8
Female headed households	40.2%	39.7%
Formal dwellings	69.7%	76.3%
Housing owned	73.7%	54.3%
Household Services		
Flush toilet connected to sewerage	64.5%	66.3%
Weekly refuse removal	80.9%	84.6%
Piped water inside dwelling	50.4%	54.4%
Electricity for lighting	88.0%	89.9%

Main Economic Sectors:
Agriculture, business services, game farming, tourism and hospitality, manufacturing, transport, community services, social and personal services.

According to the draft IPD, 2021-2027; the following economic sectors have been observed and evaluated:

Transport and logistics: Road, Rail and Air Network
The Transport sector has a number of economic linkages with the agricultural, manufacturing, mining and finance and business services sector: • Transport of raw materials and value adding products • Storage of the raw materials and value adding products before transporting to markets (needs to be further exploited in the district) • Businesses in the area need to market their products (requiring communication services) which need to be further exploited in the district • Research and development of products also require communication services (internet, etc) Upington is seen as the hub for all the Transport services, with the location of the airport and Upington being the centre of large transport corridors. The majority of the infrastructure development is taking place in and around Upington.

Manufacturing
The manufacturing sector is focused on value adding of agricultural products, mining products, construction, and renewable energy products. As indicated the Dawid Kruiper Municipality has a very well-established agricultural sector within livestock and high value produce as well as very rich mineral deposits within the area. Manufacturing activities are dispersed throughout the ZF Mgcawu District Municipality with the highest concentration of manufacturing activities located within the Dawid Kruiper Local Municipality in Upington. The three most prominent manufacturing firms in the Upington area in terms of agriculture are SAD Vine Fruit (Pty) Ltd and Orange River Wine Cellars Co-Op and in terms of the renewable industry and construction are MEAPSA.

Agriculture and Agro-Processing
Agriculture is the base of developing economies and is still regarded as an important sector in South Africa as it is the sector that most people depend on for survival. Furthermore, it is the sector that offers the best potential for poverty and inequality reduction, as it provides sources of productivity from which the most disadvantaged people working in the sector can benefit. A healthy agricultural industry is also central to a country's gross domestic product (GDP), food security, social welfare, job creation and ecotourism, while adding value to raw materials.

Construction
Construction is the process of constructing a building or infrastructure. Building construction is the process of adding structure to real property or construction of buildings. The South African construction industry is a strategic sector that supports the government's National Development Plan (NDP) and has reiterated its commitment to infrastructure development. The Construction sector around the Dawid Kruiper Municipality area comprises of the following: Production of building materials, Production of renewable energy plants equipment, Assembling of steel pipes, Welding of storage equipment. Increased demand for housing in urban areas, construction of shopping malls and industrial space both within and beyond the municipality. Dawid Kruiper Municipality is responsible for nearly half of all construction related activities in the ZF Mgcawu District.

Tourism
The tourism industry is a major growth sector in terms of investment, employment and the diversification of services. Less directly, tourism stimulates the property market – especially prime residential and cluster projects – and strengthens business contacts, often are the forerunners of trade, joint ventures and immigration plans. The tourism industry also has strong linkages with the major routes (routes between Johannesburg and Upington, leading to Namibia) as well as with other countries such as Namibia and Botswana.

Mining
The mining and quarrying sector is small economic sector in the Dawid Kruiper Municipality. The industry is mostly around the production of raw salt, gravel minerals and semi-precious tones. It is important that beneficiation take place in the Dawid Kruiper Municipality in order to promote job creation within the sector as well as to increase the benefits (mostly financial) of these products.

Renewable Energy
Renewable energy is energy that is collected from renewable resources, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat. Upington falls within the Northern Cape Solar Corridor and one of South Africa's Renewable Energy Development Zones (REDZs). The town experiences an ideal level of solar irradiation (power per unit area received from the sun in the form of electromagnetic radiation) for solar energy production. Renewable energy sources, other than biomass, are currently being optimally exploited in South Africa, especially in the Northern Cape.

Description of the current land uses

According to the map below (Figure 21), the proposed project area is dominated by karoo & fynbos shrubland, natural grassland vegetation shrubs, as well as a portion of the extraction site. The land cover map (Figure 20) also shows that the proposed area is dominated by shrubland, grassland as well as cultivated land. There is a river, Orange River, that flows between the applied portions. There are also farming activities that take place along the Orange River located within 1 km of all the applied farm portions, refer to Figure 21 below. There are houses at the boundaries as well as within the project area. It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions are located near communities, others near the national road N10, and others have farmhouses and farming activities within them.

There is an existing application for grapes on a certain Portion of Portion 9 of the Farm Namakwari 656, Registration Division Gordonia, Northern Cape Province. There are also prospecting activities that exist within the applied farm area by the applicant (Johan Smit) for to prospect for Diamonds (Alluvial, Kimberlite and General) on the same project area, hence this application is to amend the existing Environmental Authorisation with DMRE ref: NC12359PR. Therefore, the dominant land use in the area is animal and crop farming as well as water abstraction from the Orange River. Some housing and several access roads are present on the study site, including fenced off areas used for game farming. FM Safaris is also situated on site and specializes in game farming. Old diamond diggings were observed. Some roads and fences were observed traversing the drainage lines on site.

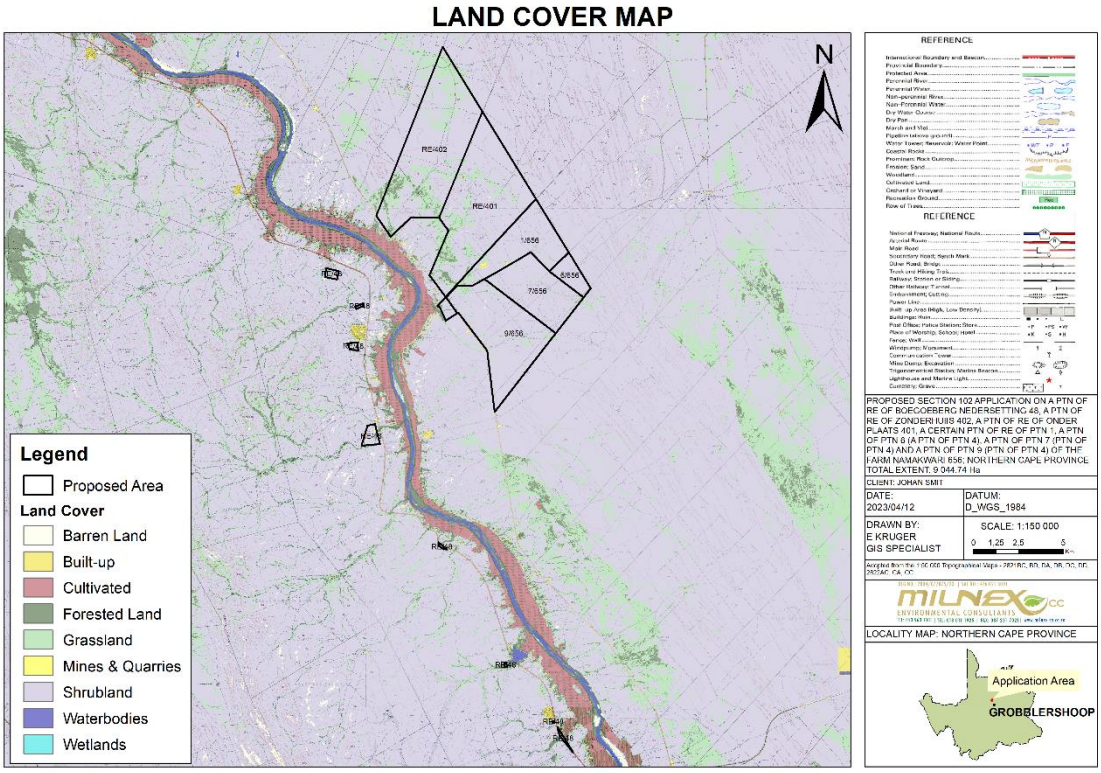

Figure 20: Landcover map associated with study site and surrounding areas.

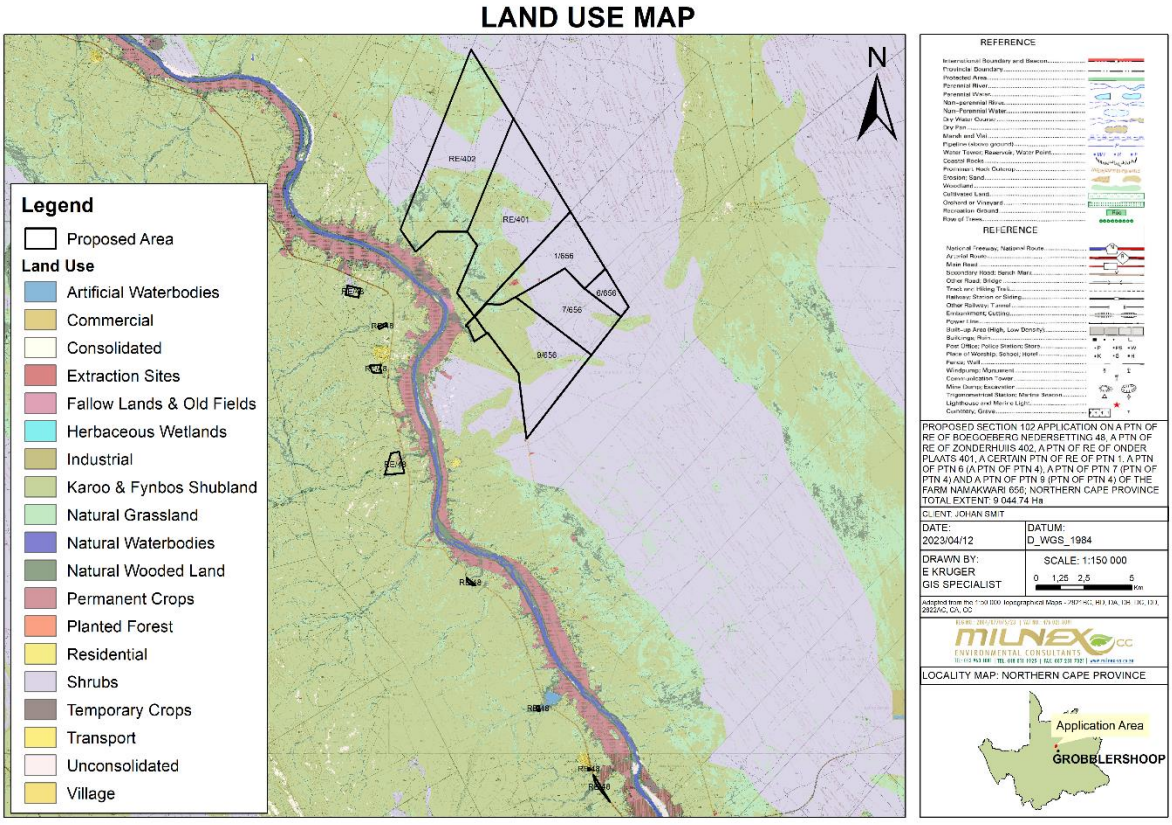

Figure 21: Land use map

iv) IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS -

(aa) can be reversed;
(bb) may cause irreplaceable loss of resources; and
(cc) can be avoided, managed or mitigated;

Significance of potential impacts

The following sections present the outcome of the significance rating exercise. The results suggest that the prospecting activities will have an impact on the natural vegetation and the agricultural activities, if not properly mitigated.

INITIAL CLEARANCE AND SITE PREPARATION PHASE

Direct impacts: During this phase minor negative impacts are foreseen over the short term. The latter refers to a period of weeks. The site preparation may result in the loss or fragmentation of indigenous natural fauna and flora, loss or fragmentation of habitats, soil erosion, hydrology, and temporary noise disturbance, generation of waste, visual intrusions, increase in heavy vehicle traffic, and risk to safety, livestock and farm infrastructure, and increased risk of veld fires. The abovementioned impacts are discussed in more detail below:

- Loss, destruction or fragmentation of indigenous natural fauna and flora:

The proposed prospecting right area is overlain by a number of vegetation units including Gordonia Duneveld (SVkda), Bushmanland Arid Grassland (NKb3), Kalahari Karroid Shrubland (NKb5), Bushmanland Vloere (AZi5), as well as the Lower Gariep Broken Veld (NKb1). The mentioned vegetation types are part of the Kalahari Duneveld Bioregion, Bushmanland Bioregion and the Alluvial Vegetation.

The Bushmanland Arid Grassland is dominating the overall project area which according to Mucina and Rutherford (2006:340), Distribution Northern Cape Province: Spanning about one degree of latitude from around Aggeneys in the west to Prieska in the east. The southern border of the unit is formed by edges of the Bushmanland Basin while in the northwest this vegetation unit borders on desert vegetation (northwest of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariep Broken Veld, Kalahari Karroid Shrubland and Gordonia Duneveld. Most of the western border is formed by the edge of the Namaqualand hills. Altitude varies mostly from 600–1 200 m.
The Kalahari Karroid Shrubland has the conservation status of this vegetation type is considered as the least threatened vegetation type with 21% target and is minimally transformed as well as conserved statutorily.

DEA Screening Report findings:

- *Plant Species theme sensitivity:* dominated by low sensitivity with parts of medium sensitivity.
- *Aquatic Biodiversity sensitivity:* Very High as the project area has the Orange River passing through the project area and some wetlands are also located within some portions of the project area.

- *Terrestrial Biodiversity sensitivity:* Very High on most areas within the project are and some parts in low sensitivity.
- *Animal Species sensitivity:* Dominated by medium sensitivity with parts that are of both low and high sensitivities.

Please refer to **Appendix 7** for the screening report of the proposed project area.

Loss or fragmentation of indigenous natural fauna and flora	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Low cumulative impacts (2)	
Significance	**Negative Low (28)**	**Negative low (11)**
Can impacts be mitigated?	If the development is approved, contractors must ensure that no mammalian species are disturbed, trapped, hunted or killed. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for the development and have the least possible edge effects on the surrounding area. The EMPr also provides numerous mitigation measures – refer to section (f) of the EMPr. The potential impacts associated with damage to and loss of farmable land should be effectively mitigated. The aspects that should be covered include: • The site should be fenced off prior to commencement of construction activities; • The footprint associated with the construction related activities (access roads, construction platforms, workshop etc.) should be confined to the fenced off area and minimised where possible; • An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase; • All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase; • The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. Specifications for the rehabilitation are provided throughout the EMPr – section (f) of the EMPr.	

	• The implementation of the Rehabilitation Programme should be monitored by the ECO.

- Loss destruction or fragmentation of habitats –
  According to the map on Figure 21, the proposed project area is dominated by karoo & fynbos shrubland, natural grassland vegetation shrubs, as well as a portion of the extraction site. The land cover map (Figure 20) also shows that the proposed area is dominated by shrubland, grassland as well as cultivated land. There is a river, Orange River, that flows between the applied portions.

Loss or fragmentation of habitats	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Low cumulative impacts (2)	
Significance	**Negative low (26)**	**Negative low (8)**
Can impacts be mitigated?	Exotic and invasive plant species should not be allowed to establish, if the development is approved. Where exotic and invasive plant species are found at the site continuous eradication should take place. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for development – section (f) of the EMPr also provides numerous mitigation measures related to fauna and flora.	

- Loss of topsoil – Topsoil may be lost due to poor topsoil management (burial, erosion, etc.) during construction related soil profile disturbance (levelling, excavations, disposal of spoils from excavations etc.) The effect will be the loss of soil fertility on disturbed areas after rehabilitation.

Loss of topsoil	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impacts (3)	
Significance	**Negative low (28)**	**Negative low (11)**

Can impacts be mitigated?	The following mitigation or management measures are provided: • If an activity will mechanically disturb below surface in any way, then any available topsoil should first be stripped from the entire surface and stockpiled for re-spreading during rehabilitation. • Topsoil stockpiles must be conserved against losses through erosion by establishing vegetation cover on them. • Dispose of all subsurface spoils from excavations where they will not impact on undisturbed land. • During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. • Erosion must be controlled where necessary on top soiled areas. Establish an effective record keeping system for each area where soil is disturbed for constructional purposes. These records should be included in environmental performance reports, and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation of constructional (or operational) activities at the particular site. • Photograph the area on cessation of constructional activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. Section (f) of the EMPr also provide mitigation measures related to topsoil management.

- Soil erosion – Soil erosion due to alteration of the land surface run-off characteristics. Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal and the establishment of roads. Erosion will cause loss and deterioration of soil resources. This will result in grazing and cultivation areas being lost.

Soil erosion	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative

Geographical extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Long term (3)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Barely reversible (3)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resources (2)
Cumulative impact	Medium cumulative impact (3).	
Significance	**Negative Medium (34)**	**Negative low (24)**
Can impacts be mitigated?	The following mitigation or management measures are provided: • Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. • Monitor the area regularly after larger rainfall events to determine where erosion may be initiated and then mitigate by modifying the soil micro-topography and revegetation or soil erosion control efforts accordingly. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to section (f) of the EMPr.	

- Temporary noise disturbance - Preparation activities will result in the generation of noise over a period of months. Sources of noise are likely to include vehicles, the use of machinery such as excavators & and people working on the site. The noise impact is unlikely to be significant; but activities should be limited to normal working days and hours (6:00 – 18:00). Agricultural activities as well as traffic in the area also contribute to noise disturbance.

Temporary noise disturbance	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Negligible cumulative impact (1).	
Significance	**Negative low (20)**	**Negative low (9)**
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

- Generation of waste - general waste, construction waste, sewage and grey water - The workers on site are likely to generate general waste such as food wastes, packaging, bottles, etc. Construction waste is likely to consist of packaging, scrap metals, waste cement, etc, if any. The applicant will need to ensure that general and construction waste is appropriately disposed of i.e. taken to the nearest licensed landfill. Sufficient ablution facilities must be provided, in the form of portable/VIP toilets. Due to the location of the project area, as it located approximately 20km away from any nearby town Upington and it is surrounded by farming areas, communities, as well as the Orange River. It is foreseen that French drains system be investigated for the proposed activity.

Generation of waste	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Low cumulative impact (2) - An additional demand for landfill space could result in significant cumulative impacts if services become unstable or unavailable, which in turn would negatively impact on the local community.	
Significance	**Negative low (20)**	**Negative low (7)**
Can impacts be mitigated?	Yes, it is therefore important that all management actions and mitigation measures included in section (f) of the EMPr are implemented.	

Impacts on heritage objects – According to the DEA Screening Report the Archaeological and Cultural Heritage Theme Sensitivity is low and the Palaeontology Theme Sensitivity of the project area falls within medium sensitivity, with parts of low sensitivity.

Cultural Heritage in South Africa (includes all heritage resources) is protected by the **National Heritage Resources Act (Act 25 of 1999) (NHRA).** According to Section 3 of the Act, all Heritage resources include **"all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens**".

If such resources are found during the mining or development activities, they shall not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA must be contacted immediately and work must stop.

If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:

- NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;

If fossil remains or trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations the **Chance Find Protocol** must be implemented by the Environmental Control Officer (ECO) in charge of these developments. These discoveries ought to be protected and the ECO must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation can be carry out by a paleontologist.

Chance Find Procedure

- If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.
- The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.
- A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.

Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.

- The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.
- In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.

Impacts on heritage objects	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Low cumulative impact (2). Should these impacts occur, there may be a cumulative impact on the preservation of heritage objects in the area.	
Significance	**Negative low (28)**	**Negative low (12)**
Can impacts be mitigated?	If archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. Also refer to section (f) of the EMPr.	

Indirect impacts: The nuisance aspects generally associated with the installation of infrastructure or ground preparation will also be applicable to this development, which relates primarily to the increase in vehicle traffic associated with prospecting practices, the influx of job seekers to the area, risk to safety, livestock and farm infrastructure, and increased risk of veld fires.

- Increase in vehicle traffic – The movement of heavy vehicles have the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Access will be obtained from national road N10 that passes close to most applied farm portions, as well as the secondary road that extends from the N14. The movement of heavy vehicles along this road is likely to damage the road surface and impact on other road users.

Increase in vehicle traffic	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)

Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3). If damage to roads is not repaired, then this will affect the surrounding road users, and result in higher maintenance costs for vehicles of the road users. The costs will be borne by road users who were not responsible for the damage.	
Significance	**Negative Low (24)**	**Negative low (11)**
Can impacts be mitigated?	The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include: • The contractor must ensure that damage caused by construction on the off-gravel roads. The costs associated with the repair must be borne by the contractor; • Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers; • All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. Also refer section (f) of the EMPr. For mitigation measures related to traffic.	

- Risk to safety, livestock / game, and infrastructure - The presence on and movement of workers on and off the site poses a potential safety threat to the natural area and the communities in the vicinity of the site. In addition, infrastructure, such as fences and gates, may be damaged and livestock losses may also result from gates being left open and/or fences being damaged, or livestock theft linked either directly or indirectly to the presence of mine workers on the site.

Risk to safety, livestock and infrastructure	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	Low cumulative effects (2), provided losses are compensated for.	
Significance	**Negative low (22)**	**Negative low (8)**

Can impacts be mitigated?	Key mitigation measures include: • **Mr Johan Smit** should enter into an agreement with the landowner / local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences; • The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area; • Contractors appointed by **Mr Johan Smit** should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties. • **Mr Johan Smit** should hold contractors liable for compensating landowner/local farmers in full for any crop losses / livestock losses and/or damage to infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below); • The Environmental Management Programme (EMPr) should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested. • Contractors appointed by **Mr Johan Smit** must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. • Contractors appointed by **Mr Johan Smit** must ensure that construction workers who are found guilty of trespassing, stealing livestock and/or damaging infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation;

- Increased risk of veld fires - The presence of construction workers and construction-related activities on the site poses an increased risk of grass fires that could in turn pose a threat to livestock, crops, wildlife, farmsteads and the communities in the area. In the process, infrastructure may also be damaged or destroyed and human lives threatened. The potential risk of grass fires was heightened by the windy conditions in the area, especially during the dry, windy winter months from May to October. In terms of potential mitigation

measures, a fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase. In addition, fire-fighting equipment should be provided on site during the different phase of prospect.

Increased risk of veld fires	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Long term (3)	Medium term (2)
Magnitude	High (3)	Medium (2)
Reversibility	Barely reversible (3)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Negligible cumulative effects (1), provided losses are compensated for.	
Significance	**Negative medium (42)**	**Negative low (20)**
Can impacts be mitigated?	The mitigation measures include: • A firebreak should be constructed around the perimeter of the site prior to the commencement of the construction phase; • Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas; • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months; • Contractor to provide adequate firefighting equipment on-site, including a fire fighting vehicle; • Contractor to provide fire-fighting training to selected construction staff; • No construction staff, with the exception of security staff, to be accommodated on site over night; • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities.	

OPERATIONAL PHASE

Direct impacts: During the operational phase the study area will serve as a prospecting area and the impacts are generally associated with soil erosion, change in land use, impacts associated with the, increase in storm water runoff, increased consumption of water, visual intrusion, the generation of general waste, leakage of hazardous materials, and the change in the sense of place. The operational phase will also have a direct positive impact through the provision of permanent employment opportunities and facilitating a positive economic growth. The abovementioned impacts are discussed in more detail below:

- Soil erosion – The largest risk factor for soil erosion will be during the operational phase when the prospecting activity ensues, and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly.

Soil erosion	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Long term (3)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Completely reversible (1)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Low cumulative effects (2), should these impacts occur, there will be a cumulative impact on the air and water resources in the study area in terms of pollution.	
Significance	**Negative medium (30)**	**Negative Low (20)**
Can impacts be mitigated?	Yes, to avoid soil erosion it will be a good practice to not remove all the vegetation at once but to only clear the area as it becomes necessary and to implement rehabilitation. • The following mitigation or management measures are provided: Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. • Monitor the area regularly after larger rainfall events to determine where erosion may be initiated and then mitigate by modifying the soil micro-topography and revegetation or soil erosion control efforts accordingly Also refer to section (f) of the EMPr.	

- Change in land-use – The use of the area for the operation of the prospecting activity will not disturb existing activities on most of the portions as both (existing activities and prospecting activities) can be done concurrently.

Change in land use	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Low cumulative effects (2) – the right holder should enter into a surface use agreement with the landowner to compensate for any financial losses.	
Significance	**Negative low (20)**	**Negative low (9)**
Can impacts be mitigated?	The proponent should establish a Rehabilitation Fund to be used to rehabilitate the area once the proposed facility has been decommissioned. The fund should be funded by revenue generated during the operational phase of the project. The motivation for the establishment of a Rehabilitation Fund is based on the experience in the mining sector where many mines on closure have not set aside sufficient funds for closure and decommissioning. Also refer to section (f) of the EMPr.	

- Generation of alternative land use income – Income generated through the potential prospecting with bulk sampling of the minerals applied for will provide the community as well as farming enterprises with increased cash flow and rural livelihood and thereby improve the financial sustainability of farming on site.

Generation of alternative land use income	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Geographical extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	low cumulative impact (2)	
Significance	**Positive low (24)**	**Positive Low (24)**
Can impacts be mitigated?	No mitigation required.	

- Increase in storm water runoff – The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion, especially where

vegetation will be cleared. Not all the vegetation should be removed at once. Only the specific trench being excavated at the specific time should be cleared

Increase in storm water runoff	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Barely reversible (3)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3) - Should these impacts occur, there will be a cumulative impacts on the wider area.	
Significance	**Negative medium (30)**	**Negative low (10)**
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in section (f) of the EMPr. are implemented to ensure that these impacts do not occur	

- Increased consumption of water – Additional water requirements related to the potable water supply for employees and workers. Water will also be used for dust suppression.

Increased consumption of water	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Low (1)	Low (1)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resources (2)	Marginal loss of resources (2)
Cumulative impact	Medium cumulative impacts (3) - An additional demand on water sources could result in a significant cumulative impact with regards to the availability of water.	
Significance	**Negative low (17)**	**Negative low (15)**
Can impacts be mitigated?	Yes, management actions and mitigation measures related to the use of water are included in section (f) of the EMPr.	

- Generation of waste – Workers will be present on site from 6:00 – 18:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on site in a skip bin with a lid, when the skip bin is full the content must be removed to a license landfill site.

Generation of waste	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative

Extent	Site (1)	Site (1)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal of resource (2)	No loss of resource (1)
Cumulative impact	Low cumulative impact (2) - An additional demand for landfill space could result in significant cumulative impacts with regards to the availability of landfill space.	
Significance	**Negative low (26)**	**Negative low (10)**
Can impacts be mitigated?	Yes, management actions related to waste management are included in section (f) of the EMPr.	

- Leakage of hazardous materials - The proposed prospecting activity will make use of machinery that use fuel and oil. Leakage of these oils and fuel can contaminate water supplies and must be prevented by constructing oil and diesel permeable bunds to ensure that any spills are suitably attenuated and not released into the environment.

Leakage of hazardous materials	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1) if mitigation measures and management plans are put in place.	
Significance	**Negative low (20)**	**Negative low (7)**
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in the section (f) of EMPr are implemented to ensure that these impacts do not occur.	

- Noise disturbance - Prospecting activities may result in the generation of noise over a period of 5 years. Sources of noise are likely to include vehicles, the use of machinery such as back actors, drill rigs and people working on the site; but prospecting activities should be limited to normal working days and some Saturdays and hours (6:00 – 18:00).

Temporary noise disturbance	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)

Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Low cumulative impact (2).	
Significance	**Negative low (24)**	**Negative low (11)**
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

Indirect impacts: The operational phase will have an indirect negative impact through the change in the sense of place and an indirect positive impact through the provision of additional electrical infrastructure.

- Potential impact on tourism – The impact of the proposed prospecting activities on the areas sense of place with mitigation is likely to be medium to high. FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.

Potential impacts on tourism	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Unlikely (1)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	N/A	N/A
Cumulative impact	N/A	
Significance	**Negative low (10)**	**Negative low (5)**
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in the section (f) of EMPr are implemented to ensure that these impacts do not occur.	

DECOMMISIONING PHASE (MINE CLOSURE AND REHABILITATION)

Direct impacts: Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live. If infrastructures are removed after a 5-year period, the site will be returned to its natural state. Therefore, the physical environment will benefit from the closure of the prospecting area.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the prospecting area since the site will be restored to its pre-prospecting state or as close as practically possible. The areas that were prospected must be rehabilitated in such a way that it can support the existing pre-prospecting activity of that specific area.

Rehabilitation of the physical environment	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	High (3)
Reversibility	N/A	N/A
Irreplaceable loss of resources	N/A	N/A
Cumulative impact	The impact would result in low cumulative effects (2)	
Significance	**Positive medium (30)**	**Positive medium (30)**
Can impacts be mitigated?	No mitigation measures required.	

- Loss of employment - The decommissioning of the facility has the potential to have a negative social impact on the local community as it will create job losses.

Loss of employment	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Possible (2)
Duration	Permanent (4)	Long term (3)
Magnitude	Medium (2)	Medium (2)
Reversibility	N/A	N/A
Irreplaceable loss of resources	Significant loss of resource (3)	Significant loss of resource (3)
Cumulative impact	Medium cumulative effects (3)	
Significance	**Negative medium (30)**	**Negative low (26)**
Can impacts be mitigated?	The following mitigation measures are recommended: • All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning. • **Mr Johan Smit** should establish an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	

Indirect impacts: No indirect impacts are anticipated from the decommissioning phase of the proposed development.

v) METHODOLOGY USED IN DETERMINING AND RANKING THE NATURE, SIGNIFICANCE, CONSEQUENCES, EXTENT, DURATION AND PROBABILITY OF POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS

Method of environmental assessment

The environmental assessment aims to identify the various possible environmental impacts that could results from the proposed activity. Different impacts need to be evaluated in terms of its significance and in doing so highlight the most critical issues to be addressed.

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in the table below.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

i) The proposed method of assessing duration significance

Impact Rating System

Impact assessment must take account of the nature, scale and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the project phases:

- planning
- construction
- operation
- decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact the following criteria is used.

Table: The rating system

NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).

3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/ component, and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component, and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible, and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		

This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.

CUMULATIVE EFFECT

This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.

1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects

SIGNIFICANCE

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula:

(Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	**Impact significance rating**	**Description**
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

vi) THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED.

(The proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;)

(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)

ACTIVITY	PHASE	POTENTIAL NEGATIVE IMPACTS
Site preparation Site Clearance, establishing construction area	Construction Operation Decommissioning	Physical destruction and disturbance of: • Biodiversity (The project area is mostly overlain by the CBA 2 areas as well as ONA) • Air pollution • Disturbing noise • Visual impacts
Earthworks	Construction Operation Decommissioning	Excavations: • Loss of soil resources and land capability • Physical destruction and disturbance of biodiversity (thicket is mostly invasive tree species and area is already disturbed by agricultural activities) • Possible pollution of surface water resources • Possible alteration of natural drainage patterns • Possible contamination of groundwater • Air pollution • Disturbing noise • Visual impacts
Civil works Erection of structures, concrete work, steel work, electrical installation, establishing pipelines (if any)	Construction Operation Decommissioning	• Loss of mineral reserves • Hazardous structures/excavations/surface subsidence • Loss of soil resources and land capability • Possible pollution of surface water resources • Possible contamination of groundwater • Air pollution • Disturbing noise • Visual impacts
Prospecting with bulk sampling	Construction Operation	• Loss of mineral resources • Loss of soil resources and land capability Physical destruction and disturbance of: • Biodiversity (The project area is mostly overlain by the CBA 2 areas as well as ONA)

		• Air pollution • Disturbing noise • Visual impacts • Possible pollution of surface water resources • Possible contamination of groundwater • Dewatering impacts
Waste rock management Storage, stockpile or final disposal	Operation Decommissioning Closure (final landform)	• Loss of soil resources and land capability • Disturbance of biodiversity (The project area is mostly overlain by the CBA 2 areas as well as ONA) • Possible pollution of surface water resources • Possible contamination of groundwater • Air pollution • Disturbing noise • Negative landscape and visual impact
Dirty water management Collection, storage of dirty water for re-use, recycling	Construction Operation Decommissioning	• Possible pollution of surface water resources • Possible contamination of groundwater • Disturbing noise
Stormwater management Stormwater channels and berms, collection of dirty water, storage for re- use	Construction Operation Decommissioning	• Possible alteration of drainage patterns • Possible pollution of surface water resources • Possible contamination of groundwater
Transport systems Use of access points, road transport to and from site for employees and supplies, movement within site boundary (haul roads, conveyors, pipelines), taxi areas.	Construction Operation Decommissioning	• Disturbance of biodiversity • Noise • Traffic impacts • Visual impacts
Storage and maintenance services/ facilities Washing vehicles and machinery, storage and handling non-process materials	Construction Operation Decommissioning	• Possible pollution of surface water resources • Possible contamination of groundwater resulting from hydrocarbon spills and soil erosion • Disturbing noise
Demolition	Operation (as part of	• Hazardous structures (e.g., fuel tanks) • Loss of soil resources and land capability

Dismantling, demolition, removal of equipment	maintenance) Decommissioning	• Disturbance of biodiversity • Air pollution • Disturbing noise • Visual impacts
Non-mineralized waste management Transportation of waste materials to waste facility	Construction Operation Decommissioning Closure (limited)	• Pollution if not managed and stored properly
Rehabilitation Replacing soil, slope stabilization, landscaping, re-vegetation, restoration	Construction Operation Decommissioning Closure	• Disturbance of biodiversity • Alteration of natural drainage patterns • Contamination of groundwater • Air pollution • Visual impacts

ACTIVITY	PHASE	POTENTIAL POSITIVE IMPACTS
Job creation	Construction Operation	• Temporary employment and other economic benefits
Maintenance and aftercare Inspection and maintenance of remaining facilities and rehabilitated areas	Closure	• Re-establishment of biodiversity

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

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

Negative impacts on vegetation, soil and the water resources associated with the prospecting activity have been identified through the BAR & EMPr process. Mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B must be implemented in order to minimise these potential impacts.

Noise

Site activities must take place during the day (06:00 – 18:00) to avoid nighttime noise disturbances and nighttime collisions with fauna.

Visual impact

Dust suppression measures must be implemented.

Soil

- Disturbances to soil should be limited as far as possible.
- Erosion control measures should be implemented if necessary.
- Oils and lubricants must be stored in lined containment structures.

- Drip trays should be used where necessary.
- Waste bins should be provided and waste should be removed and disposed of at a licensed landfill site.
- Rehabilitation should be done concurrently.

Water

- Before any water is abstracted, a geo-hydro study should be conducted in order to determine the specific yield.
- Oils and lubricants must be stored in lined containment structures.
- Drip trays should be used where necessary.
- Erosion control measures should be implemented if necessary.

viii) MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED.

As discussed previously, the geology of the area justifies that the minerals of interest occur on proposed project area of interest and the applicant is therefore keen to conduct the prospecting activities over the applied area.

ix) STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE.

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

The site is preferred due to its possibility of having Diamonds (Alluvial, General & in Kimberlite), Sand (General), Sand (Manufactured) – From Hardrock, Sand (Manufactured) – From Waste Dump, Stone Aggregate (From Waste Dump), and Stone Aggregate: Gravel.

H. FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE ACTIVITY.

i. A description of all environmental issues and risks that are identified during the environmental impact assessment process

Process for the identification of key issues

(The methodology used in [determining] identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;)

The contents and methodology of the scoping report aims to provide, as far as possible, a user-friendly analysis of information to allow for easy interpretation.

- Checklist: The checklist consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts.
- Matrix: The matrix analysis provides a holistic indication of the relationship and interaction between the various activities, development phases and the impact thereof

on the environment. The method aims at providing a first order cause and effect relationship between the environment and the proposed activity. The matrix is designed to indicate the relationship between the different stressors and receptors which leads to specific impacts. The matrix also indicates the specialist studies, which will be submitted as part of the Environmental Impact Report in order to address the potentially most significant impacts.

Checklist analysis

The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table: Environmental checklist

QUESTION	YES	NO	Un-sure	Description
1. Are any of the following located on the site earmarked for the development?				
I. A river, stream, dam or wetland	X			Orange river flows between the spread farm portions. There are also wetlands that have been located within and near the farm portions including the Channelled valley bottom wetland.
II. A conservation or open space		X		
III. An area that is of cultural importance			X	According to the DFFE Screening Report the proposed area falls mostly within low sensitivity with some areas of very high Archaeological and Cultural Heritage (**Appendix 7**).
IV. Site of geological significance			X	According to the DFFE Screening Report the proposed area falls mostly within medium Palaeontology Theme Sensitivity and to a lesser extent within low sensitivity (**Appendix 7**).
V. Areas of outstanding natural beauty			X	
VI. Highly productive agricultural land		X		According to the Land Capability map the proposed area falls within land capability Classes 7 & 8 (**Appendix 5**). The DFFE Screening Report shows the Agriculture Theme Sensitivity is mostly low with areas of medium sensitivity (**Appendix 7**).
VII. Floodplain	X			According to the river ecosystem map, the proposed project area has the perennial river running within 1km between the applied farm portions and through portion 9 of the farm Namakwari 656. The river ecosystem is classified under Class C: Moderately Modified.

VIII. Indigenous Forest			×	According to the land cover map the proposed area is dominated by shrubland, grassland as well as cultivated land (**Appendix 5**).
IX. Grass land	×			According to the land cover map the proposed area is dominated by shrubland, grassland as well as cultivated land. (**Appendix 5**).
X. Bird nesting sites			×	The Important bird Areas map shows no birds in significant species or such areas within the project area.
XI. Red data species			×	
XII. Tourist resort	×			FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.
2. Will the project potentially result in potential?				
I. Removal of people		×		None.
II. Visual Impacts	×			Visual impacts will be managed.
III. Noise pollution	×			The noise impact will be limited to working hours.
IV. Construction of an access road	×			Access will be obtained from national road N10 that passes close to most applied farm portions, as well as the secondary road that extends from the N14.
V. Risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air.		×		None.
VI. Accumulation of large workforce (>50 manual workers) into the site.		×		Employment opportunities will be created during the construction and operational phase of the project.
VII. Utilisation of significant volumes of local raw materials such as water, wood etc.	×			Water will be used during the washing of the gravel and for dust suppression.
VIII. Job creation	×			Employment opportunities will be created during the construction and operational phase of the project.
IX. Traffic generation		×		None.
X. Soil erosion	×			Only areas earmarked for prospecting will be cleared. Prospecting will be phased, and the topsoil stockpiled separately. Rehabilitation will take place.
XI. Installation of additional bulk telecommunication transmission lines or facilities		×		None.
3. Is the proposed project located near the following?				

I. A river, stream, dam or wetland	×			Orang river flows between the spread farm portions. There are also wetlands that have been located within and near the farm portions including the Channelled valley bottom wetland.
II. A conservation or open space area		×		
III. An area that is of cultural importance			×	According to the DFFE Screening Report the proposed area falls mostly within low sensitivity with some areas of very high Archaeological and Cultural Heritage (**Appendix 7**).
IV. A site of geological significance			×	According to the DFFE Screening Report the proposed area falls mostly within medium Palaeontology Theme Sensitivity and to a lesser extent within low sensitivity (**Appendix 7**).
V. An area of outstanding natural beauty		×		
VI. Highly productive agricultural land	×			According to the Land Capability map the surrounding area falls within land capability Classes 7 & 8 (**Appendix 5**).
VII. A tourist resort	×			FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.
VIII. A formal or informal settlement	×			There are houses at the boundaries as well as within the project area. It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions are located near communities, others near the national road N10, and others have farmhouses and farming activities within them.

Matrix analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, and the significance and magnitude of the potential impacts. The matrix also highlights areas of particular concern for more in-depth assessment during the EIA process. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures be applied. This is important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

In order to conceptualise the different impacts, the matrix specify the following:

- **Stressor**: Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.
- **Receptor**: Highlights the recipient and most important components of the environment affected by the stressor.
- **Impacts**: Indicates the net result of the cause-effect between the stressor and receptor.
- **Mitigation**: Impacts need to be mitigated to minimise the effect on the environment.

I. AN ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

LISTED ACTIVITY (The Stressor)	ASPECTS OF THE DEVELOPMENT /ACTIVITY	POTENTIAL IMPACTS			SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION
			Receptors	Impact description	Minor	Major	Duration	Possible Mitigation	
CONSTRUCTION PHASE									
Listing Notice 1, (GNR 327), Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* **Listing Notice 1 (GNR 983), Activity 20:** *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right"* ***Listing Notice 1, GNR 327, Activity 21D (Amendment of Listing Notice 1):*** *Any activity including the operation of that activity which requires an amendment or variation to a right or permit as contemplated in section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.* **Listing Notice 2, (GNR 984), Activity 15:** *"The clearance of an area of 20 hectares or more, of indigenous vegetation".* **Listing Notice 2, (GNR 984), Activity 19:** *"The removal and disposal of minerals*	<u>Site clearing and preparation:</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Loss or fragmentation of indigenous natural vegetation. • Loss of sensitive species. • Loss or fragmentation of habitats.		-	S	Yes	-
			Air	• Air pollution due to the increase of traffic. • Dust from mining/prospecting activities	-		M	Yes	-
			Soil	• Soil degradation, including erosion. • Loss of topsoil. • Disturbance of soils and existing land use (soil compaction).	-	-	S	Yes	-
			Geology	• It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa.	-		S	Yes	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the local sewage plant.	-		S	Yes	-
			Ground water	• Pollution due to construction vehicles.	-		S	Yes	-
			Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands).		-	S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Job creation. • Business opportunities. • Skills development.		+	S	Yes	-
			Visual landscape	• Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility.	-		L	Yes	-
			Traffic volumes	• Increase in construction vehicles.	-		S	Yes	-
			Health & Safety	• Air/dust pollution. • Road safety. • Increased risk of veld fires.		-	S	Yes	-
			Noise levels	• The generation of noise as a result of construction vehicles, the use of machinery such as drills, excavators, dumper trucks and people working on the site.	-		L	Yes	-

contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies." **Listing Notice 3 (GNR 324), Activity 4:** *The development of a road wider than 4 metres with a reserve less than 13,5 metres. **(g)** Northern Cape **(ii)** Outside urban areas; **(ee)** Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority* **Listing Notice 3 (GNR 324), Activity 12:** *The clearance of an area of 300 square metres or more of indigenous vegetation; **(g) Northern Cape (ii)** Within critical biodiversity areas identified in bioregional plans;*			Tourism industry	• FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.	-		M	Yes	-
			Heritage resources	• Removal or destruction of archaeological and/or paleontological sites. • Removal or destruction of buildings, structures, places and equipment of cultural significance. • Removal or destruction of graves, cemeteries and burial grounds.		-	L	Yes	-
OPERATIONAL PHASE									
Listing Notice 1, (GNR 327), Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* **Listing Notice 1 (GNR 983), Activity 20:** *"Any activity including the operation of that*	The key components of the proposed project are described below: • <u>Supporting Infrastructure</u> - A control facility with basic services such as water and electricity will be	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Fragmentation of habitats. • Establishment and spread of declared weeds and alien invader plants (operations).		-	L	Yes	-
			Air quality	• Air pollution due to the mining / prospecting activity and transport of the gravel to the designated areas.	-		S	Yes	-
			Soil	• Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (medium - high significance relative to agricultural potential of the site).	-		L	Yes	-

activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right" ***Listing Notice 1, GNR 327, Activity 21D (Amendment of Listing Notice 1):*** *Any activity including the operation of that activity which requires an amendment or variation to a right or permit as contemplated in section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.* **Listing Notice 2, (GNR 984), Activity 15:** *"The clearance of an area of 20 hectares or more, of indigenous vegetation".* **Listing Notice 2, (GNR 984), Activity 19:** *"The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies."*	constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • <u>Roads</u> – Access will be obtained from existing gravel roads off the R357. • <u>Fencing</u> - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm.		Geology	• Collapsible soil. • Seepage (shallow water table). • Active soil (high soil heave). • Erodible soil. • The presence of undermined ground. • Instability due to soluble rock. • Steep slopes or areas of unstable natural slopes. • Areas subject to seismic activity. • Areas subject to flooding.	-		L	Yes	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increased consumption of water, dust suppression.	-		L	Yes	-
			Ground water	• Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies.	-		L	Yes	-
			Surface water	• Increase in storm water runoff. The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands). • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies.		-	L	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Job creation. Security guards will be required for 24 hours every day of the week. • Skills development.		+	L	Yes	-
			Visual landscape	• The proposed portions are used for livestock grazing and cultivation which will still take place simultaneously with the prospecting activity, however this depends on the location of the activity.	-		L	Yes	-
			Traffic volumes	• Increase in vehicles collecting gravel for distribution.	-		S	Yes	-
			Health & Safety	• Air/dust pollution. • Road safety.	-		S	Yes	-
			Noise levels	• The proposed development will result in noise pollution during the operational phase.	-		M	Yes	-
			Tourism industry	• FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.	-		M	Yes	-

Listing Notice 3 (GNR 324), Activity 4: *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* ***(g)*** *Northern Cape* ***(ii)*** *Outside urban areas;* ***(ee)*** *Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority* **Listing Notice 3 (GNR 324), Activity 12:** *The clearance of an area of 300 square metres or more of indigenous vegetation;* ***(g) Northern Cape (ii)*** *Within critical biodiversity areas identified in bioregional plans;*			Heritage resources	• It is not foreseen that the proposed activity will impact on heritage resources or vice versa.	N/A	N/A	N/A	N/A	-
DECOMMISSIONING PHASE									
-	Mine closure During the mine closure the Mine and its associated infrastructure will be dismantled. Rehabilitation of biophysical environment The biophysical environment will be rehabilitated.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Re-vegetation of exposed soil surfaces to ensure no erosion in these areas.		+	L	Yes	-
			Air quality	• Air pollution due to the increase of traffic of construction vehicles.	-		S	Yes	-
			Soil	• Backfilling of all voids • Placing of topsoil on backfill		+	L	Yes	-
			Geology	• It is not foreseen that the decommissioning phase will impact on the geology of the site or vice versa.	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at the local landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increase in construction vehicles.	-		S	Yes	-
			Ground water	• Pollution due to construction vehicles.	-		S	Yes	-
			Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands).	-		S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Loss of employment.	-		L	Yes	-
			Visual landscape	• Potential visual impact on visual receptors in close proximity to proposed facility.	-		S	Yes	-
			Traffic volumes	• Increase in construction vehicles.	-		S	Yes	-
			Health & Safety	• Air/dust pollution. • Road safety. • Increased crime levels. The presence of mine workers on the site may increase security risks associated with an increase in crime levels as a result of influx of people in the rural area.		-	L	Yes	-

			Noise levels	• The generation of noise as a result of construction vehicles, the use of machinery and people working on the site.	-		S	Yes	-
			Tourism industry	• FM Safaris is on the proposed site as well as the Namakwari Safaris. The prospecting activities may have negative impacts on the tourist facilities on and near the proposed area.	+		S	Yes	-
			Heritage resources	• It is not foreseen that the decommissioning phase will impact on any heritage resources.	N/A	N/A	N/A	N/A	-

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term

J. WHERE APPLICABLE, A SUMMARY OF THE FINDINGS AND IMPACTS MANAGEMENT MEASURES IDENTIFIED IN AN SPECIALIST REPORT COMPLYING WITH APPENDIX 6 OF THESE REGULATIONS AND AN INDICATION AS TO HOW THESE FINDINGS AND RECOMMENDATIONS HAVE BEEN INCLUDED IN THE FINAL REPORT;

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIOS HAVE BEEN INCLUDED.
Phase 1 Cultural Heritage Impact Assessment	<u>Conclusions and Recommendations</u> This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval. The cultural landscape qualities of the region are made up of a pre-colonial element consisting of Stone Age and a much later colonial (farmer) component, which eventually gave rise to an urban component which manifest in a number of small towns and an intensive farming industry. <u>Identified sites</u> During the physical survey, the following sites, features or objects of cultural significance were identified. • 7.1 Change finds Stone Age artefacts:	X	Basic Assessment report

Stone Age artefacts, mostly dating to the Middle Stone Age occur in small numbers in parts of the study area. Even on the pebble plains closer to the river, where source material is readily available, the density of artefacts is less than 1/2m^2, diminishing to 1/10m^2 on the ridges and outcrops to nothing in the sandy regions. The tools are mostly made from banded iron stone (jaspelite), although some quartzite and hardened shale flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and scrapers, were identified.

- 7.3.1: Old farmstead – referred to on the map as Sterkstroom.

Consists of a main house and some outbuildings. All is now in ruins. The main house can be classified as a Karoo style structure, typical of what is found all over the countryside as well is in many towns.

<u>Impact assessment and proposed mitigation measures</u>

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

IDENTIFIED HERITAGE RESOURCE: Chance find archaeological material – 7.1					
Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation	Proposed mitigation (Refer to definitions in Section 12.3)
7.1	Chance find Stone Age tools	Section 35	Low significance Grade 4-C	20 20	(5) No further action required.

IDENTIFIED HERITAGE RESOURCE: Sterkstroom farmstead – 7.3.1					
Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation	Proposed mitigation (Refer to definitions in Section 12.3)
7.3.1	Farmstead	Section 36	Low significance Grade 4-C	20 20	(5) No further action required.

<u>Legal requirements</u>

The legal requirements related to heritage specifically are specified in Section 3 of this report. For this proposed project, the assessment has

	determined that no sites, features or objects of heritage significance occur in the study area. If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits. <u>Reasoned opinion as to whether the proposed activity should be authorised:</u> • From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the conditions proposed below. <u>Conditions for inclusion in the environmental authorisation:</u> • The Palaeontological Sensitivity Map (SAHRIS) indicate that most of the region has a moderate sensitivity of fossil remains to be found and therefore a desktop study is required. Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.		
Palaeontological Desktop Assessment	<u>FINDINGS AND RECOMMENDATIONS</u> The study area is underlain by the Gordonia Formation of the Kalahari Group, Tertiary Calcrete as well as the Zonderhuis and Leerkrans Formations of the Wilgenhoutsdrif Group, Areachap Group of the Namaqua-Natal Province. According to the PalaeoMap of South African Heritage Resources Information System the Palaeontological Sensitivity of the Gordonia Formation of the Kalahari Group and Tertiary calcrete are low while the Palaeontological Sensitivity of the Zonderhuis and Leerkrans Formations are insignificant (Almond and Pether 2008, SAHRIS website). It is therefore considered that the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. Thus, the construction and	X	Basic Assessment report

	operation of the facility may be authorised as the whole extent of the development footprint is not considered sensitive in terms of palaeontological resources. If fossil remains are discovered during any phase of construction, either on the surface or exposed by excavations the ECO/site manager in charge of these developments must be informed immediately. These discoveries ought to be secured (preferably in situ) and the ECO/site manager ought to alert SAHRA so that appropriate mitigation (documented and collection) can be undertaken by a professional palaeontologist. • The specialist would need a collection permit from SAHRA. Fossil material must be curated in an approved collection (museum or university) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.		
Watercourse Delineation and Ecological Impact Assessment Report	<u>Results of the Desktop Assessment:</u> • According to the National Threatened Ecosystem database (2011), the study site does not overlap with any threatened ecosystems, however it is adjacent to the Lower Gariep Alluvial Vegetation Ecosystem, an Endangered classed ecosystem; • According to the Northern Cape Biodiversity Sector Plan (2016), most of the study site is classified as other Natural Areas, with some sections of classed as Critical Biodiversity Area 2, which are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services; • No Important Bird and Biodiversity Areas (IBAs) were identified within the vicinity of the study site (Birdlife 2019); • The study sites overlap with four (4) different vegetation types, namely Bushmanland Arid Grassland (NKb 3), Lower Gariep Broken Veld (NKb 1), Kalahari Karroid Shrubland (NKb 5) and	X	Basic Assessment report

	Gordonia Duneveld (SVkd 1). All are classed as Least Concern (Mucina & Rutherford, 2006/2018); • The unnamed tributary traversing the study site overlaps with Category B, Highest Risk for Mining and therefore has highest biodiversity importance according to the Mining and Biodiversity Guideline (2013); • The study site falls within the Nama Karoo Ecoregion and Quaternary Catchment D73D; and • According to the National Freshwater Ecosystem Priority Areas Database (NFEPA, 2011), the Orange river is classed as a Floodplain Wetland. <u>Results of the Fauna and Flora Species Desktop Analysis and Field Survey:</u> • Witgat (*Boscia albitrunca*) and Camel Thorn Tree (*Vachellia erioloba*), both Protected Tree species of South Africa, was recorded on site. • Several Alien and Invasive Vegetation Species were recorded on site and within the riparian boundaries of the Orange River and drainage lines. • Three species of avifauna potentially occurring on site, is listed and protected under the Threatened and Protected Species list (ToPS, 2013) which is enforceable under the National Environmental Management: Biodiversity Act, 2004, namely Ludwig`s Bustard (*Neotis ludwigii*), Khori Bustard (*Ardeotis kori*)and Martial Eagle (*Polemaetus bellicosus*). • Several mammal species possibly occurring on site are protected under NEMBA. Although not listed in the species list, there is a possibility of the Critically Endangered Riverine Rabbit (*Bunolagus monticularis*) occurring on site. • All Amphibian species are of Least Concern (LC). • No Red Listed or protected reptile species are known to occur on site. <u>Results of the Wetland Assessment:</u>		

Following the results of the site assessment, one Perennial Riparian area (the Orange River), one non-perennial, unnamed tributary and several ephemeral drainage areas were recorded on the study site. The Orange River is classed as a Perennial River, which has continual surface water flow. The identified ephemeral tributary and ephemeral drainage lines receive and retain enough water to support riparian characteristics throughout the year.

The ecological integrity of the Orange River system and the unnamed tributary are inferred as Moderately Modified, where a loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged. The Ephemeral Drainage Lines are classed as Largely Natural with few modifications. The loss of ecological integrity within the riparian zone may be attributed to irrigations practices along the Orange River and the subsequent influx of alien and invasive species. The results are summarised in the table below:

Classification	Scientific Buffer	QHI	VEGRAI	REC
Perennial Orange River	100 m	C	D	D
Ephemeral Unnamed Tributary	100 m	C	C/D	C
Ephemeral Drainage Lines	35 m	B	C/D	C

The proposed prospecting will most likely take place within the watercourses and therefore the buffer zones will possibly not be implemented. Various potential impacts are associated with the proposed prospecting activities and are discussed in the impact assessment scores derived according to the amended EIA Regulations (2017).

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<tr><td>Northern Cape Critical Biodiversity Areas (2016)</td><td>Critical Biodiversity Area Two (CBA2)
Some sections of the study site fall within a CBA2. CBAs are areas that are irreplaceable for meeting biodiversity targets. There are no other options for conserving the ecosystems, species or ecological processes in these areas.</td></tr>
<tr><td>Mining and Biodiversity Guidelines (2013)</td><td>The unnamed tributary traversing the study site overlaps with Category B, Highest Risk for Mining and therefore has highest biodiversity importance.</td></tr>
<tr><td>NEMA Impact Assessment</td><td>Most of the impacts associated with the proposed prospecting range from Medium-Low to High prior to mitigation taking place. With mitigation fully implemented, the significance of most impacts can be reduced to Very Low, Low, Medium-Low or Medium-High.</td></tr>
<tr><td>DWS Risk Assessment</td><td>All aspects of the proposed prospecting activities fall within the Medium risk category.</td></tr>
<tr><td>Mitigation Measures</td><td>Refer to Section 6.4</td></tr>
<tr><td>Does the Specialist support the Application?</td><td>Yes</td></tr>
</table>

It is imperative that an effective management plan is implemented to ensure that all mitigation measures discussed in the report are adhered to. Therefore, the proposed prospecting operations can be considered from an ecological conservation point of view. It is, however, essential that all mitigation measures provided in this report as well as general good practice, are strictly adhered to. During the construction, operational and rehabilitation phases all recommendations made and concerns raised in this document should be taken into consideration. A good closure and rehabilitation plan should be in place to rehabilitate the habitat for faunal and floral species and active alien and invasive vegetation removal should take place in accordance with an Alien Invasive Vegetation Management Plan.
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<td>Baseline Hydrogeological Investigation</td>
<td><u>Conclusion and Recommendations</u>
Based on the findings of this investigation, the following conclusions were made:
• The study area is located on farm portions Zonderhuis 402, Onder Plaats 401 and Namakwari 656, located south east of Upington in the Northern Cape Province;
• Eighteen (18) boreholes (BB-BH1 – BH18) were located on the remaining extent of Boegoebergnedersetting 48 during the
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	hydrocensus conducted on the 4th December 2019. Eight (8) boreholes were located on the farm Namakwari 656, while one borehole was located on Onder Plaats 401 (OP-BH1) and Zonderhuis 402 (ZH-BH1), respectively; • Groundwater levels measured in assessible boreholes ranged between 3.93 and 25.88mbgl.; • Groundwater samples were collected from NK-BH1, OP-BH1 and ZH-BH1 and submitted to an accredited laboratory for inorganic analysis. Nitrate detected in NKBH1 exceeded the SANS standard; • Water are proposed to be abstracted from the Orange River for the use at the mining operations. Based on the laboratory analysis, no major constituents of concern were identified; • In terms of the prescribed classification procedure, the soil sample classify as Type 3 waste, based on the solid concentrations of arsenic and barium; • Based on the groundwater level map as well as on-site observations, no groundwater inflow is expected to occur within the mine excavations. <u>Recommendations</u> The following recommendations are made based on the findings of this investigation: • Based on the nitrate concentration detected in NK-BH1, consumption is not recommended; • Given the low likelihood for the tailings material to impact on the groundwater, it is recommended that motivation is provided for a Type 4 Classification; • Groundwater Monitoring should be undertaken in accordance with SANS and DWS requirements in line with the recommended schedule. Three (3) boreholes are recommended to be monitored; and • An annual compliance report should be compiled and submitted to the authorities for evaluation and comment. The monitoring		

	network should be updated annually, and this report should be submitted annually.		

According to the DEA Screening Report, nine (9) specialist assessments have been identified for inclusion in the assessment report. Please see the table below for the list of these studies and also our response. Please refer to **Appendix 7.**

Specialist study according to DEA Screening tool		Response
Agriculture Impact Assessment		This specialist study is not necessary for this application. The land capability for the proposed area and surrounding area also falls withing Land in Classes 7 and 8. The screening report showed the project area to have an agricultural sensitivity to be dominated by low sensitivity and some parts of medium sensitivity.
Biodiversity study	**Animal Species Assessment** **Aquatic Biodiversity Impact Assessment** **Plant Species Assessment** **Terrestrial Biodiversity Impact Assessment**	**DEA Screening Report findings:** • *Plant Species theme sensitivity:* dominated by low sensitivity with parts of medium sensitivity. • *Aquatic Biodiversity sensitivity:* Very High as the project area has the Orange River passing through the project area and some wetlands are also located within some portions of the project area. • *Terrestrial Biodiversity sensitivity:* Very High on most areas within the project are and some parts in low sensitivity. • *Animal Species sensitivity:* Dominated by medium sensitivity with parts that are of both low and high sensitivities. The area will be rehabilitated. Some of the mitigation measures include: o Any activities that take place within 32 meters of a wetland or watercourse or the 1:100 year flood lines will require authorisation in terms of the relevant regulations of NEMA, however as far as possible infrastructure should be placed outside of buffer lines. o Demarcate the watercourse areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas. o Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. o Areas that are stripped during construction and operation should be re-vegetated with indigenous vegetation.

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Rehabilitation measures that are implemented must be continually monitored for a minimum period of four years to ensure that proper succession has occurred and that there is no erosion occurring.
A Watercourse Delineation and Ecological Impact Assessment Report was conducted for the proposed project to assess the present ecological status of the project area and to determine the impacts, if any, of the proposed prospecting on the receiving environment.
</td></tr>
<tr><td colspan="2">Archaeological and Cultural Heritage Impact Assessment</td><td rowspan="2">The DEA Screening Report the Archaeological and Cultural Heritage Theme Sensitivity is low and the Palaeontology Theme Sensitivity of the project area falls within medium sensitivity, with parts of low sensitivity.

The Archaeological and Cultural Heritage Impact Assessment as well as the Palaeontology Impact Assessment were conducted for this project. All mitigation measures and recommendations have been included in the respective specialist studies and attached to this report as Appendix 10.

If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:
NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;</td></tr>
<tr><td colspan="2">Palaeontology Impact Assessment</td></tr>
</table>

	If fossil remains or trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations the **Chance Find Protocol** must be implemented by the Environmental Control Officer (ECO) in charge of these developments. These discoveries ought to be protected and the ECO must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation can be carry out by a palaeontologist. **Chance Find Procedure** • If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find. • The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. • A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. • Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. • The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sandbags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. • In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.

	• Once Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.
Noise Impact Assessment	We do not see the need for this study as noise is limited to working hours.
Radioactivity Impact Assessment	This study is not necessary since the process of mining Diamonds does not have any radioactive effects.

K. ENVIRONMENTAL IMPACT STATEMENT

i) SUMMARY OF THE KEY FINDINGS

This section provides a summary of the assessment and conclusions drawn from the proposed prospecting area. In doing so, it draws on the information gathered as part of the environmental impact assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed prospecting activity:

- Potential impacts on biodiversity:
  <u>According to the DEA Screening report the sensitivity of the proposed area is as follow:</u>
  - *Plant Species theme sensitivity:* dominated by low sensitivity with parts of medium sensitivity.
  - *Aquatic Biodiversity sensitivity:* Very High as the project area has the Orange River passing through the project area and some wetlands are also located within some portions of the project area.
  - *Terrestrial Biodiversity sensitivity:* Very High on most areas within the project are and some parts in low sensitivity.
  - *Animal Species sensitivity:* Dominated by medium sensitivity with parts that are of both low and high sensitivities.

The project area falls within classes 7 and 8 of the land capability. The proposed prospecting right area is overlain by a number of vegetation units including Gordonia Duneveld (SVkda), Bushmanland Arid Grassland (NKb3), Kalahari Karroid Shrubland (NKb5), Bushmanland Vloere (AZi5), as well as the Lower Gariep Broken Veld (NKb1). The mentioned vegetation types are part of the Kalahari Duneveld Bioregion, Bushmanland Bioregion and the Alluvial Vegetation. There is a river, Orange River, that flows between the applied portions. There are also farming activities that take place along the Orange River located within 1 km of all the applied farm portions, refer to Figure 21 below. There are houses at the boundaries as well as within the project area. It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions are located near communities, others near the national road N10, and others have farmhouses and farming activities within them.

It is expected that some vegetation might be lost but through implementing mitigation measures, no adverse impacts are expected.

The Prospecting Work Programme (PWP) states that 100 pits [3m (length) x 2m (breath) x 4m (depth)] will be dug. The pits will be dug, locked, sampled and backfilled. Plant/bulk sampling technique will be that of a typical South African Alluvial Diamond Mining Operation. The method is a strip-mining process with oversize material and tailings recovered from the plant will be used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the treatment facility using dump trucks.

- Potential impact on Archaeological artifacts and Palaeontological resources:
  According to the DEA Screening Report the Archaeological and Cultural Heritage Theme Sensitivity is low and the Palaeontology Theme Sensitivity of the project area falls within medium sensitivity, with parts of low sensitivity.

  The palaeontological Impact assessment has concluded that the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the paleontological resources of the area. Thus, the construction and operation of the facility may be authorized as the whole extent of the development footprint is not considered sensitive in terms of paleontological resources.
  The Heritage impact assessment for the proposed project also concluded that from a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the conditions proposed below:

  - The Paleontological Sensitivity Map (SAHRIS) indicates that most of the region has a moderate sensitivity of fossil remains to be found and therefore a desktop study is required.
  - Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

- Potential impacts on land use:

According to the map below (Figure 21), the proposed project area is dominated by karoo & fynbos shrubland, natural grassland vegetation shrubs, as well as a portion of the extraction site. The land cover map (Figure 20) also shows that the proposed area is dominated by shrubland, grassland as well as cultivated land. There is a river, Orange river, that flows between the applied portions. There are also farming activities that take place along the Orange river located within 1 km of all the applied farm portions, refer to Figure 21 below. There are houses at the boundaries as well as within the project area. It is important to note that some of the applied farm portions have been spread over the parent farm Boegoebergnedersetting 48. Therefore, some portions are located near communities, others near the national road N10, and others have farmhouses and farming activities within them. Figure 14 shows that the project area is located closer to a floodplain, Channelled Valley Bottom Wetland, and the Orange River that passes through the farm portions. The applied activities will be subject to rehabilitation.

There is an existing application for grapes on a certain Portion of Portion 9 of the Farm Namakwari 656, Registration Division Gordonia, Northern Cape Province. There are also prospecting activities that exist within the applied farm area by the applicant (Johan Smit) for to prospect for Diamonds (Alluvial, Kimberlite and General) on the same project area, hence this application is to amend the existing Environmental Authorisation with DMRE ref: NC12359PR. Therefore, the dominant land use in the area is animal and crop farming as well as water abstraction from the Orange River. Some housing and several access roads are present on the study site, including fenced off areas used for game farming. FM Safaris is also situated on site and specializes in game farming. Old diamond diggings were observed. Some roads and fences were observed traversing the drainage lines on site.

- Potential social impacts: Family structures and social networks may be put at risk by the presence of prospecting employees. While the mere existence of recruiting employees does not in and of itself have a social impact, how employees conduct themselves can have an

effect on the local communities. The disruption of current social networks and family structures has the greatest detrimental effects.

- Potential negative impacts: (noise, dust, soil degradation, storm water, traffic, health and safety) associated with the operation of the facility are expected to be of low - high impact, of medium terms and site specific. These can be mitigated or negated through the implementation of practical and appropriate mitigation measures.

- Positive impacts: Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste dump), Stone aggregate (from waste dump, & gravel), may result in socio-economic benefit to the area.

All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the migratory measures as set out in the Environmental Management Programme (EMPr) attached in Part B.

ii) FINAL SITE MAP

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

Refer to Site layout Map attached in **Appendix 4**.

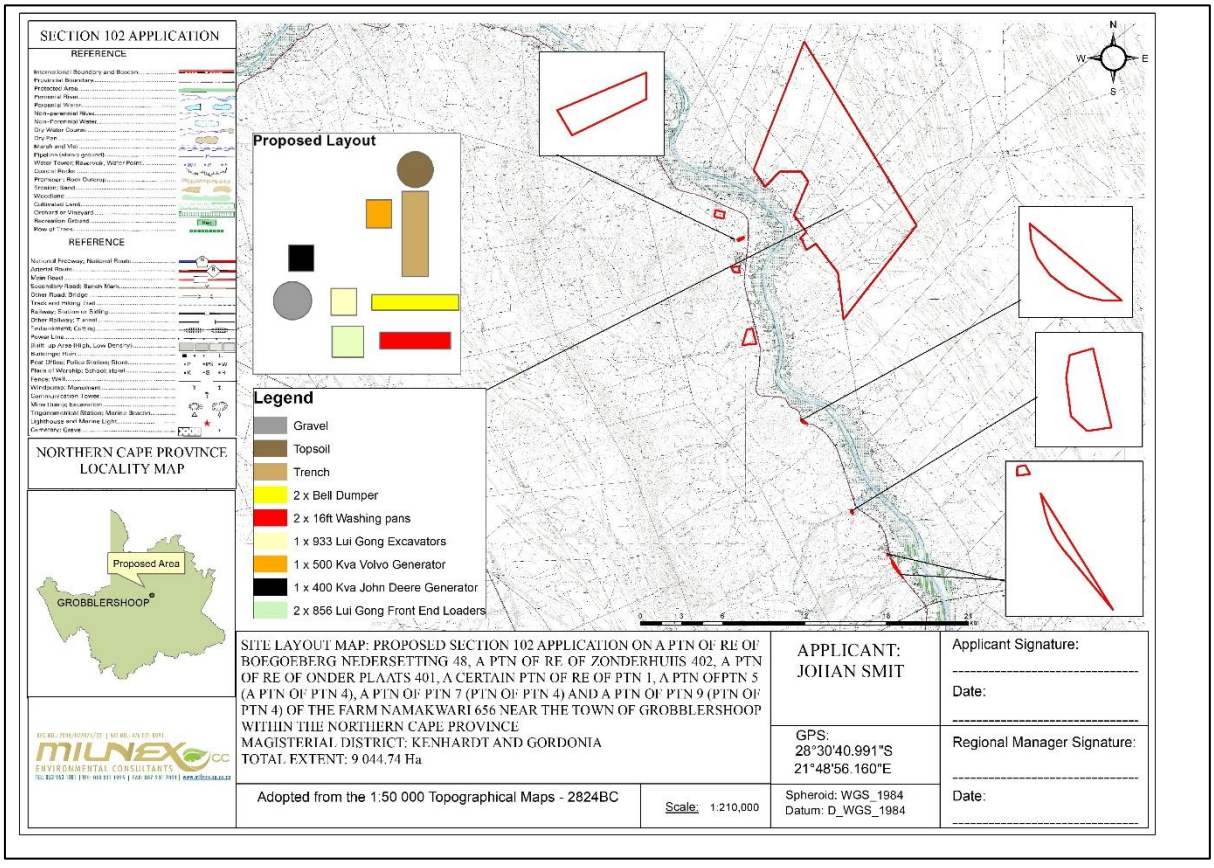

Figure 23: Site Plan

iii) SUMMARY OF THE POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES

There are regional socio-economic benefits due to the Diamond (Alluvial) & Diamond (General) being prospected in the North West province and greater knowledge is gained on the mineralogy of South Africa. All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B. Significant adverse social environmental impacts are anticipated.

L. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

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

Management objectives include:

- Ensure that the prospecting activity does not cause pollution to the environment or harm to persons.
- Minimise production of waste.
- All prospecting activities must be conducted in a manner that minimises noise impact, litter, environmental degradation and health hazards i.e. injuries.
- The mine must be kept neat and tidy during waste handling to prevent unsightliness and accidents.

Expected outcomes include:

- Minimum impacts on the environment as a result of prospecting
- Compliance with legislative requirements.
- Mine is neat and tidy and well managed.

FINAL PROPOSED ALTERNATIVES

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. The proposed area near Groblershoop on a certain portion of the Remaining Extent of the farm Zonderhuis 402, a certain portion of the Remaining Extent of the farm Onder Plaats 401, a certain portion of the Remaining Extent of Portion 1, a certain portion of Portion 6 (portion of portion 4), a certain portion of Portion 7 (portion of portion 4) and certain portion of Portion 9 (portion of portion 4) of the farm Namakwari 656, Registration Division: Gordonia and Kenhardt, Northern Cape Province, is preferred due to the sites underlying Diamonds (Alluvial, General & in Kimberlite) bearing gravel, as well as the potential for Sand (General) – (QY), Sand (Manufactured) - from Hardrock – (QH), Sand (Manufactured) - from Waste Dump – (QWD), Stone Aggregate (from

Waste Dump) – (STW) and Stone Aggregate; Gravel – (ST), therefore there will be no other alternative (i.e. to facilitate the movement of machinery, equipment, infrastructure).

M. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

N. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

The uncertainties in results are mostly related to the availability of information, time available to gather the relevant information as well as the sometimes-subjective nature of the assessment methodology. In terms of addressing the key issues the EAP is satisfied and that there are no major gaps in knowledge and that specialist studies were conducted. Thus, there are specialist reports to provide sufficient information to conduct the significance rating and provide the environmental authority with sufficient information to make an informed decision.

O. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

Reasons why the activity should be authorized or not.

Considering that this is an amendment application to an existing environmental authorisation, and the applicant has already begun prospecting the area for other minerals, there possibility to encounter further mineral reserves has been identified.

The option of not approving the activities will result in a significant loss to valuable diamond deposits and other applied minerals being exploited. And all economic benefits will be lost.

P. CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

The EMPr should be binding on all managers and contractors operating/utilizing the site.

Period for which the Environmental Authorisation is required.

For a minimum of 5 years.

Q. UNDERTAKING

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

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Environmental Impact Assessment report and the Environmental Management Programme report.

I, **Deshney Mapoko Reg. EAP (EAPASA)** herewith confirms

A. the correctness of the information provided in the reports ☒

B. the inclusion of comments and inputs from stakeholders and I&APs ; ☒

C. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and

D. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; ☒

Signature of the environmental assessment practitioner:

Milnex CC

Name of company:

30/06/2023

Date:

R. FINANCIAL PROVISION

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

CALCULATION OF THE QUANTUM

Applicant: **J Smit, farms Boegoeberg, Zonderhuis, Onder plaats & Namakwari, District Kenhard, Gordonia** Ref No.: **NC 30/5/1/1/2/12359 PR**
Evaluators: **Milnex CC** Date: **Jun-23**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	420	18,36	1	1	7711,2
2 (A)	Demolition of steel buildings and structures	m2	0	255,81	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	376,99	1	1	0
3	Rehabilitation of access roads	m2	800	45,78	1	1	36624
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	444,31	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	242,35	1	1	0
5	Demolition of housing and/or administration facilities	m2	24	511,63	1	1	12279,12
6	Opencast rehabilitation including final voids and ramps	ha	0,805	260391,13	0,52	1	108999,727
7	Sealing of shafts adits and inclines	m3	0	137,33	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,2	178800,11	1	1	35760,022
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,2	222692,31	1	1	44538,462
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	646804,02	1	1	0
9	Rehabilitation of subsided areas	ha	0,02	149718,17	1	1	2994,3634
10	General surface rehabilitation	ha	0,3	141639,85	1	1	42491,955
11	River diversions	ha	0	141639,85	1	1	0
12	Fencing	m	50	161,57	1	1	8078,5
13	Water management	ha	0	53855,46	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	1	18849,41	1	1	18849,41
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		318326,7594
1	Preliminary and General		38199,21113		weighting factor 2 1		38199,21113
2	Contingencies			31832,67594			31832,67594
					Subtotal 2		388358,65
					VAT (15%)		58253,80
					Grand Total		**446612**

i) Explain how the aforesaid amount was derived.

The closure cost estimate provided above is aligned with the Guideline Document for the evaluation of quantum of closure related Financial Provision provided by a Mine, by the DMRE (January, 2005). The amount was calculated by Milnex CC.

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by **Mr Johan Smit**, will be submitted to the department on request

Rehabilitation Fund

Mr Johan Smit will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

ii) Motivation for the deviation.

Not applicable

S. OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24 (3) (A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998). THE EIA REPORT MUST INCLUDE THE:

i. **Impact on the socio-economic conditions of any directly affected person.** *(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or 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).*

The following impacts may be regarded as community impacts:

- Increased noise levels
- Potential water and soil pollution impacts.
- Potential loss of fauna and flora.
- Increased vehicle activity.
- Increased dust levels.
- Increase in water consumption and possible depletion of groundwater resources.
- Potential visual impacts.

Indirect socio-economic benefits are expected to be associated with the creation of employment.

ii. **Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act**. *(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or 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).*

According to the DEA Screening Report the proposed area falls within low Archaeological and Cultural Heritage Theme Sensitivity with a small area classified as high and certain areas fall within medium and to high Palaeontology Theme Sensitivity.

Based on the results from the heritage Impact assessment conducted for the proposed project, the cultural landscape qualities of the region are made up of a pre-colonial element consisting of Stone Age and a much later colonial (farmer) component, which eventually gave rise to an urban component which manifest in a number of small towns and an intensive farming industry. The following results and recommendations were deduced from the report:
Identified sites
During the physical survey, the following sites, features or objects of cultural significance were identified.

- Change finds Stone Age artefacts:

Stone Age artefacts, mostly dating to the Middle Stone Age occur in small numbers in parts of the study area. Even on the pebble plains closer to the river, where source material is readily available, the density of artefacts is less than 1/2m2, diminishing to 1/10m2 on the ridges and outcrops to nothing in the sandy regions. The tools are mostly made from banded

iron stone (jaspelite), although some quartzite and hardened shale flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and scrapers, were identified.

- Old farmstead – referred to on the map as Sterkstroom.

Consists of a main house and some outbuildings. All is now in ruins. The main house can be classified as a Karoo style structure, typical of what is found all over the countryside as well is in many towns.

Impact assessment and proposed mitigation measures

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

IDENTIFIED HERITAGE RESOURCE: Chance find archaeological material – 7.1					
Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation	Proposed mitigation (Refer to definitions in Section 12.3)
7.1	Chance find Stone Age tools	Section 35	Low significance Grade 4-C	20 20	(5) No further action required.

IDENTIFIED HERITAGE RESOURCE: Sterkstroom farmstead – 7.3.1					
Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation	Proposed mitigation (Refer to definitions in Section 12.3)
7.3.1	Farmstead	Section 36	Low significance Grade 4-C	20 20	(5) No further action required.

Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 of this report. For this proposed project, the assessment has determined that no sites, features or objects of heritage significance occur in the study area. If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

Reasoned opinion as to whether the proposed activity should be authorized:

- From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the conditions proposed below.

Conditions for inclusion in the environmental authorisation:

- The Paleontological Sensitivity Map (SAHRIS) indicate that most of the region has a moderate sensitivity of fossil remains to be found and therefore a desktop study is required.
- Should archaeologically sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

T. OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT.

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

From a local perspective, a portion of the remaining extent of Boegoeberg Nedersetting 48, A portion of remaining extent of Zonderhuis 402, a portion of the remaining extent of onder plaats 401, a certain portion of the remaining extent of portion 1, a portion of portion 6 (a portion of portion 4), a portion of portion 7 (portion of portion 4) and a portion of portion 9 (portion of portion 4) of the farm Namakwari 656 near the town of Grobblershoop within the Northern Cape Province, is preferred due to the site's underlying geological formation that supports the possibility of more diamond bearing gravel and the availability of the additional minerals to be prospected as well as site access (i.e. to facilitate the movement of machinery, equipment, infrastructure and people). The specific site has been chosen for its mineral resources thus making an alternative site selection null and void.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

A) DETAILS OF THE EAP

i) The EAP who prepared the report

ii) Expertise of the EAP

i) EXPERTISE OF THE EAP

Name of Practitioner	Qualifications	Contact details
Ms. Deshney Mapoko	National Diploma in Environmental Science Reg EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: deshney@milnex-sa.co.za
Ms. Lizanne Esterhuizen	Honours Degree in Environmental Science Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za

Name of Practitioner	Qualifications	Contact details
Mr. Christiaan Baron	Master's Degree in Environmental Management (M.ENV.MAN) Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: christiaan@milnex-sa.co.za
M Andile Grant Nxumalo	Honours Degree in Environmental Science Reg. EAP (EAPASA) Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: andile.grant@milnex-sa.co.za
Ms. Percy Sehaole	Master's degree in environmental science Reg EAP (EAPASA), Pr.Sci.Nat Refer to Appendix 1	Tel No.: (018) 011 1925 Fax No.: (053) 963 2009 e-mail address: percy@milnex-sa.co.za

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

It is hereby confirmed that the requirements to describe the aspects of the activity that are required by the EMP is already included in Part A.

C) COMPOSITE MAP

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

Refer to Locality Map, attached as **Appendix 3.**

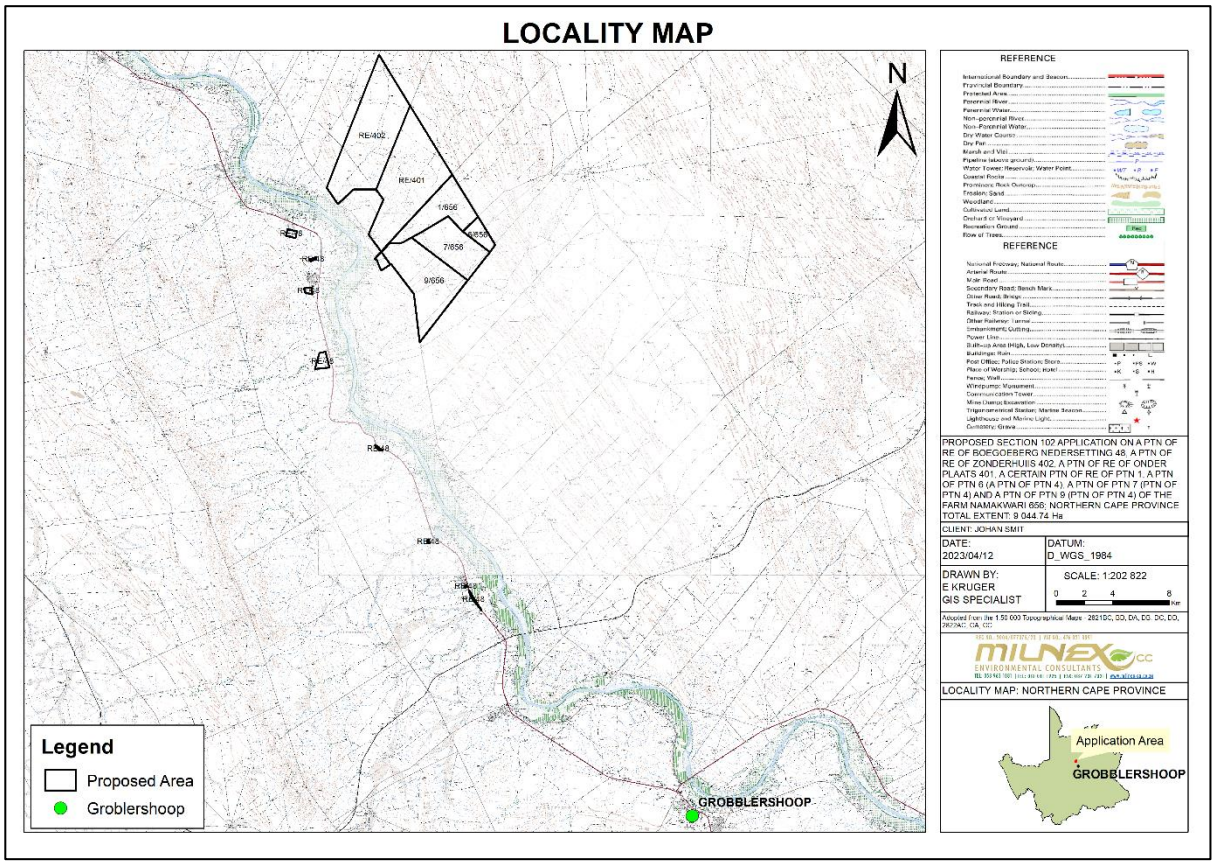

Figure 24: Locality Map

D) DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

i. **Determination of closure objectives.** (*ensure that the closure objectives are informed by the type of environment described in 2.4 herein)*

Closure objectives for the Prospecting Right will aim to ensure that the residual post-closure impacts be minimized and be acceptable to relevant parties. To achieve these closure objectives, the following will be implemented:

- All prospecting related infrastructure, foundations and concrete areas will be decommissioned, removed from the site and appropriately disposed of. Reclaimable structures such as metal, electrical installations or equipment will be sold for re-use or as scrap.

- All disturbed areas within the site not already vegetated will be re-vegetated with appropriate indigenous, ecologically adapted species appropriate to the area and the final land use as soon as possible after operation ceases. Progress of vegetation growth/establishment, stability and drainage/erosion will be monitored and, in the event of adverse trends being identified, corrective measures will be implemented.

- Vegetation monitoring will consider, inter alia, the establishment of perennial ground cover and infestation by alien invasive plant species. The encroachment of indigenous vegetation into the area will be used as an indication of a stable, self-sustaining vegetation cover with little risk of retrogressing to a situation where are and water pollution may occur.

  - Final landforms must be resilient to perturbation and also be self-sustaining to obviate/limit further/ongoing interventions and maintenance by the applicant. The remaining impacts be of an acceptable nature with minimal deterioration over time.
  - The final outcome of the mine site rehabilitation would be productive systems, that will ensure the area will be returned to its natural state as far as possible.
  - Environmental and human quality of life, including health and safety requirements in general, would not be compromised; and
  - Closure is achieved in an efficient and cost-effective manner as possible and with minimum socioeconomic changes.

The above goal is underpinned by more specific objectives listed below.

1. Upfront planning/development

To provide overall guidance and direction to closure planning and/or the implementation of progressive closure measures over the remaining over the prospecting life.

2. Physical stability

To ensure that surface infrastructure and prospecting residue and/or disturbances that are present at processing plant decommissioning will be removed and/or stabilised in a manner that these will not compromise post-closure land use and be sustainable long-term landforms.

- Closure, removal and disposal of all surface infrastructure that has no beneficial post-closure use.
- Shaping and vegetating the remaining earth embankments, trenches, etc. to stabilise slopes and integrate with surrounding topography.

3. Environmental quality

To ensure that local environmental quality is not adversely affected by possible physical effects arising from prospecting operations and the prospecting site after closure. This will be achieved by:

- Avoiding and/or limiting the following during prospecting operations which could result in adverse effects that could not be readily addressed and/or mitigated at mine closure.
  - Dust fall-out areas surrounding the prospecting site.
  - Wash-off and/or mobilisation of chemically contaminated soils and sediments from the prospecting site that could have long term adverse effects on local aquatic health and/or other water uses.
  - Possible shallow groundwater contamination adversely affecting the quality of the local water resource and its beneficial use.
- Limiting the potential for dust generation on the rehabilitated prospecting site that could cause nuisance and/or health effects to surrounding landowners;
- Limiting the possible adverse water quality and quantity effects arising from the rehabilitated prospecting site to ensure that long term beneficial use of local resources is not compromised;
- Conducting soil clean-up/remediation to ensure that the planned land use could be implemented and maintained.

4. Health and safety

To limit the possible health and safety treats due to terrain hazards to humans and animals utilizing the rehabilitated prospecting site after closure by:

- Demonstrating through upfront soil testing that any resultant inorganic and organic pollution present on the site is acceptable.
- Removal of potential contaminants such as hydrocarbons and chemicals off site;
- Shaping of embankments and trenches to safe slopes and reintegrating of these into surrounding topography.
- Ensuring that the environmental quality as reflected above is achieved.

5. Land capability / land use

To ensure that the required land capability to achieve and support the planned land use can be achieved over the prospecting site by:

- Clean-up and reclamation of contaminated soil areas in order not to compromise the above land use planning earmarked for implementation.
- To ensure that the overall rehabilitated prospecting site is free draining
- Transferring prospecting related surface infrastructure to third parties for beneficial use after closure.

6. Aesthetic quality

To ensure that the rehabilitated prospecting site will display, at a minimum, an acceptable aesthetic appearance that would not compromise the planned land use by leaving behind:

- A prospecting area that is properly cleared-up with no fugitive/scattered waste piles
- Rehabilitated prospecting area that is free draining and disturbed areas that are suitably vegetated.
- Rehabilitated prospecting residues that are suitably landscaped, blending with the surrounding environment as far as possible.
- Shaped and rehabilitated terrace and hard stand areas, roughly emulating the local natural surface topography.

7. Landscape viability

To create a landscape that is self-sustaining and over time will evolve/converge to the desired ecosystem structure, function and composition by:

- Conducing surface profiling, with associated material movement optimisation, to obtain a landscape resembling the natural landscapes to support the succession trajectory towards a climax ecological system.
- Establishing woody patches and create “rough and loose” areas for pioneer specie establishment around the respective patches.
- Establishing pioneer species as follows:
- Collected and prepared seeds for broad casting;
- Seedlings grown on on-site nursery;
- Cuttings collected from surrounding veld areas;
- Conducting rehabilitation monitoring and corrective action as required.

8. Biodiversity

To encourage, where appropriate, the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is largely re-instated over time, by:

- Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and
- Establishing viable self-sustaining vegetation communities of local fauna, as far as possible.

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

The Rehabilitation & Closure Plan is attached as **Appendix 9.**

Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

CALCULATION OF THE QUANTUM

Applicant: **J Smit, farms Boegoeberg, Zonderhuis, Onder plaats & Namakwari, District Kenhard, Gordonia** Ref No.: **NC 30/5/1/1/2/12359 PR**
Evaluators: **Milnex CC** Date: **Jun-23**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	420	18,36	1	1	7711,2
2 (A)	Demolition of steel buildings and structures	m2	0	255,81	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	376,99	1	1	0
3	Rehabilitation of access roads	m2	800	45,78	1	1	36624
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	444,31	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	242,35	1	1	0
5	Demolition of housing and/or administration facilities	m2	24	511,63	1	1	12279,12
6	Opencast rehabilitation including final voids and ramps	ha	0,805	260391,13	0,52	1	108999,727
7	Sealing of shafts adits and inclines	m3	0	137,33	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,2	178800,11	1	1	35760,022
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,2	222692,31	1	1	44538,462
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	646804,02	1	1	0
9	Rehabilitation of subsided areas	ha	0,02	149718,17	1	1	2994,3634
10	General surface rehabilitation	ha	0,3	141639,85	1	1	42491,955
11	River diversions	ha	0	141639,85	1	1	0
12	Fencing	m	50	161,57	1	1	8078,5
13	Water management	ha	0	53855,46	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	1	18849,41	1	1	18849,41
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		318326,7594

1	Preliminary and General	38199,21113	weighting factor 2 1	38199,21113
2	Contingencies	31832,67594		31832,67594
			Subtotal 2	388358,65
			VAT (15%)	58253,80
			Grand Total	**446612**

(a) Confirm that the financial provision will be provided as determined.

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by **Mr Johan Smit** will be submitted.

Rehabilitation Fund

Mr Johan Smit will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

E) IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ACTIVITIES **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (Volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity Or. Upon the cessation of mining, bulk sampling or prospecting as the case may be.
Clearance of vegetation	Pitting phase - (construction and operation phase)	**9044.74 Ha** **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x	1. Site clearing must take place in a phased manner, as and when required. 2. Areas which are not to be prospected within two months must not be cleared to reduce erosion risks. 3. The area to be cleared must be clearly demarcated and this footprint strictly maintained.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.

		5m (depth) each. Concurrent backfilling will take place in order to rehabilitate.	4. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site. 5. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent.		
Construction of roads (if any)	Pitting phase - (construction and operation phase)		1. Planning of access routes to the site for construction/prospecting purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a “NO ENTRY for prospecting vehicles" sign. 2. Construction routes and required access roads must be clearly defined. 3. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. 4. Soils compacted by construction/prospecting activities shall be deep ripped to loosen compacted layers and re-graded to even running levels. 5. The contractor must ensure that damage caused by related traffic from a gravel road is repaired	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.

			continuously. The costs associated with the repair must be borne by the contractor. 6. Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport the gravel are fitted with tarpaulins or covers; 7. All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.		
Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste dump), Stone aggregate (from waste dump, & gravel).	Pitting phase - (construction and operation phase)	**9044.74 Ha** **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. Concurrent backfilling will take place in order to rehabilitate.	1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil (If topsoil exists) and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil or any other material, during stripping.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mine

			3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms, trenches or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. 8. The impact on the geology will be permanent. There is no mitigation measure.		

Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste dump), Stone aggregate (from waste dump, & gravel).	Pitting phase - (construction and operation phase)	**9044.74 Ha** **Pits:** 100 pits with dimensions of (3m x 2m x 4m) **Trenches:** 35 trenches with dimensions of 30m (length) x 30m (wide) x 5m (depth) each. Concurrent backfilling will take place in order to rehabilitate.	1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Mine, pans, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting area

			which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.		

IMPACT MANAGEMENT OUTCOMES

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

ACTIVITY (whether listed or not listed). **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**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** • **Remedy through rehabilitation.**	**STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Clearance of vegetation	Loss or fragmentation of habitats	Fauna & flora	(Construction and operation phase)	**Existing vegetation** 1. Vegetation removal must be limited to the prospecting area. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 5. There should be a preconstruction walk-through of the development footprint/project site in order to locate individuals of plant species of conservation concern. A search and	Minimisation of impacts to acceptable limits

				rescue exercise must be done to locate and relocate any protected species to a suitable and similar habitat where these plants can grow without any disturbance; 6. In case Camel Thorn or Shepherd's trees are found permits must be obtained from DAFF to remove these individuals. The contractor must apply for these permits in a phased manner as prospecting proceeds. **Rehabilitation** 7. All damaged areas shall be rehabilitated upon completion of the contract. 8. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 9. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 10. Rehabilitation must take place in a phased approach as soon as possible. 11. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 12. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas.	

				13. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. **Demarcation of prospecting area** 14. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan. 15. The prospecting area must be well demarcated and no construction/prospecting activities must be allowed outside of this demarcated footprint. 16. Vegetation removal must be phased in order to reduce impact of construction/prospecting. 17. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 18. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas. 19. Soils must be kept free of petrochemical solutions that may be kept on site during construction/ prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. **Utilisation of resources** 20. Gathering of firewood, fruit, muti plants, or any other natural material	

				onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO. **Exotic vegetation** 21. Alien vegetation on the site will need to be controlled. 22. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion. 23. The spread of exotic species occurring throughout the site should be controlled. 24. Weed control measures must be applied to eradicate any noxious weeds (category 1a & 1b species) on disturbed areas. **Herbicides** 25. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used. 26. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.	

				Fauna 27. Rehabilitation to be undertaken as soon as possible after the prospecting activities have been completed. 28. No trapping or snaring to fauna on the construction/prospecting site should be allowed. 29. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development. 30. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer. 31. All construction vehicles should adhere to a low speed limit (<30km/h) to avoid collisions with susceptible species such as snakes and tortoises. 32. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.	
Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste dump), Stone aggregate (from waste dump, & gravel).	Loss of topsoil	Soil	(Construction and operation phase).	1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and	Minimisation of impacts to acceptable limits.

				related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil or any other material, during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager.	

				Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time.	
	Erosion	Soil Air Water	(Construction and operation phase)	1. An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 2. Periodical site inspection should be included in environmental performance reporting that inspects the effectiveness of the run-off control system and	Minimisation of impacts to acceptable limits

				specifically records the occurrence of any erosion on site or downstream. 3. Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 4. Monitor the area regularly after larger rainfall events to determine where erosion may be initiated and then mitigate by modifying the soil micro-topography and revegetation or soil erosion control efforts accordingly 5. Wind screening and stormwater control should be undertaken to prevent soil loss from the site. 6. The use of silt fences and sandbags must be implemented in areas that are susceptible to erosion. 7. Other erosion control measures that can be implemented are as follows: o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation o Hydroseeding/hand sowing 8. Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. 9. All erosion control mechanisms need to be regularly maintained. 10. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces.	

				11. Retention of vegetation where possible to avoid soil erosion. 12. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 13. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 14. No impediment to the natural water flow other than approved erosion control works is permitted. 15. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. 16. Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion.	
	Air Pollution	Air	(Construction and operation phase)	**Dust control** 1. Wheel washing and damping down of un-surfaced and un-vegetated areas. 2. Retention of vegetation where possible will reduce dust travel. 3. Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.	Minimisation of impacts to acceptable limits

				4. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 5. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 6. A speed limit of 30km/h must not be exceeded on site. 7. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 8. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. **Odour control** 9. Regular servicing of vehicles in order to limit gaseous emissions. 10. Regular servicing of onsite toilets to avoid potential odours. **Rehabilitation** 11. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. **Fire prevention** 12. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that	

				are safe and cannot cause runaway fires. 13. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.	
	Noise		(Construction and operation phase)	1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours.	Minimisation of impacts to acceptable limits

				8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.	
	Impact on potential cultural, heritage artefacts and fossils.	Heritage and Palaeontology	(Construction and operation phase)	1. Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA. 2. Local museums as well as the South African Heritage Resource Agency	Minimisation of impacts to acceptable limits

				(SAHRA) should be informed if any artefacts/ fossils are uncovered in the affected area. 3. The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical, archaeological, or palaeontological finds to the ECO so that appropriate action can be taken. 4. Known sites should be clearly marked in order that they can be avoided. The work force should also be informed that fenced-off areas are no-go areas. 5. The ECO must also survey for heritage and palaeontological artefacts during groundbreaking and digging or drilling. He/she should familiarise themselves with formations and its fossils or a palaeontologist should be appointed during the digging and excavation phase of the development. 6. All digging, excavating, or blasting activities must be stopped if heritage and/or palaeontological artefacts are uncovered and a specialist should be called in to determine proper management, mitigation, excavation and/or collecting measures. 7. Any discovered artefacts or fossils shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained, and the site has been mapped and noted. Permits shall be obtained from SAHRA should the proposed site	

				affect any world heritage/palaeontology sites or if any heritage/palaeontology sites are to be destroyed or altered. 8. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1). 9. If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies: • NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA	

				Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; If fossil remains or trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations the **Chance Find Protocol** must be implemented by the Environmental Control Officer (ECO) in charge of these developments. These discoveries ought to be protected and the ECO must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax:	

				+27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation can be carry out by a paleontologist. **Chance Find Procedure** • If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find. • The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. • A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3)	

				description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. • Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. • The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. • In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.	

				• Once Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.	
Waste management		Pollution	(Construction and operation phase)	**Litter management** 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. 2. The Contractor shall supply waste collection bins where such is not available, and all solid waste collected shall be disposed of at registered/licensed landfill. 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly.	Minimisation of impacts to acceptable limits

				7. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 10. Under no circumstances may solid waste be burnt on site. 11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours. **Hazardous waste** 12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant. 13. Contaminants to be stored safely to avoid spillage. 14. Machinery must be properly maintained to keep oil leaks in check. 15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall immediately be cleaned up and all affected areas rehabilitated.	

				Sanitation 16. The Contractor shall install mobile chemical toilets on the site. 17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. 18. Toilets shall be serviced regularly, and the ECO shall inspect toilets regularly. 19. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer. 20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility. 21. The construction of "Long Drop" toilets is forbidden, but rather toilets connected to the sewage treatment plant. 22. Potable water must be provided for all construction staff. **Remedial actions** 23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 24. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.	

				25. The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil. 26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material. 27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. 28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use. 29. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment, and stored in adequate containers until appropriate disposal.	
Water Use and Quality	Water pollution	Water	(Construction and operation phase)	**Water Use** 1. Develop a sustainable water supply management plan to minimise the impact to natural systems by managing water use, avoiding depletion of aquifers and minimising impacts to water users. 2. Water must be reused, recycled or treated where possible.	

				Water Quality 3. The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines. 4. Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone. 5. Efficient oil and grease traps or sumps should be installed and maintained at refuelling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. **Stormwater** 6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants. 7. Silt fences should be used to prevent any soil entering the stormwater drains. 8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 9. Promote a water saving mind set with construction/ prospecting workers in order to Contractor ensure less water wastage.	

				10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution. 11. The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase. 12. Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers. 13. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed. 14. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas. **Groundwater resource protection** 15. Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined and be equipped with sufficient wells to enable monitoring of water levels and quality.	

				Sanitation 16. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers). 17. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution. **Concrete mixing** 18. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth. **Public areas** 19. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis. 20. The Contractor should take steps to ensure that littering by construction/ prospecting workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines. 21. No washing or servicing of vehicles on site.	

F) IMPACT MANAGEMENT ACTIONS

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

ACTIVITY Whether listed or not listed. **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**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** **Remedy through rehabilitation.**	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or prospecting as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Clearance of vegetation	Loss or fragmentation of habitats	**Existing vegetation** 1. Vegetation removal must be limited to the prospecting site. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood.	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and

		4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 5. There should be a preconstruction walk-through of the development footprint/project site in order to locate individuals of plant species of conservation concern. A search and rescue exercise must be done to locate and relocate any protected species to a suitable and similar habitat where these plants can grow without any disturbance; 6. In case Camel Thorn or Shepherd's trees are found permits must be obtained from DAFF to remove these individuals. The contractor must apply for these permits in a phased manner as prospecting proceeds. **Rehabilitation** 7. All damaged areas shall be rehabilitated upon completion of the contract. 8. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 9. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 10. Rehabilitation must take place in a phased approach as soon as possible. 11. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding.		Duty of Care as prescribed by NEMA.

		12. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 13. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. **Demarcation of prospecting area** 14. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan. 15. The prospecting area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint. 16. Vegetation removal must be phased in order to reduce impact of construction prospecting. 17. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 18. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas. 19. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. **Utilisation of resources** 20. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.		

		Exotic vegetation 21. Alien vegetation on the site will need to be controlled. 22. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion. 23. The spread of exotic species occurring throughout the site should be controlled. 24. Weed control measures must be applied to eradicate any noxious weeds (category 1a &1b species) on disturbed areas. **Herbicides** 25. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used. 26. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation. **Fauna** 27. Rehabilitation to be undertaken as soon as possible after prospecting has been completed. 28. No trapping or snaring to fauna on the construction/v prospecting site should be allowed.		

		29. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development. 30. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer. 31. All construction vehicles should adhere to a low speed limit (<30km/h) to avoid collisions with susceptible species such as snakes and tortoises. 32. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.		
Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste dump), Stone aggregate (from waste dump, & gravel).	Loss of topsoil	1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction/prospecting and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil or any other material, during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area.	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil.		

		• Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time.		
	Erosion	1. An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 2. Periodical site inspection should be included in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence of any erosion on site or downstream. 3. Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 4. Monitor the area regularly after larger rainfall events to determine where erosion may be initiated and then mitigate by modifying the soil micro-topography and revegetation or soil erosion control efforts accordingly 5. Wind screening and stormwater control should be undertaken to prevent soil loss from the site. 6. The use of silt fences and sandbags must be implemented in areas that are susceptible to erosion. 7. Other erosion control measures that can be implemented are as follows: o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		○ Hydroseeding/hand sowing 8. Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. 9. All erosion control mechanisms need to be regularly maintained. 10. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 11. Retention of vegetation where possible to avoid soil erosion. 12. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 13. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 14. No impediment to the natural water flow other than approved erosion control works is permitted. 15. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossings. 16. Stockpiles not used in three (3) months after stripping must be seeded/backfilled to prevent dust and erosion.		
	Air Pollution	**Dust control** 1. Wheel washing and damping down of un-surfaced and un-vegetated areas.	Duration of operation	The implementation of the recommended mitigation measures will result in the

		2. Retention of vegetation where possible will reduce dust travel. 3. Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. 4. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 5. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 6. A speed limit of 30km/h must not be exceeded on site. 7. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 8. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. **Odour control** 9. Regular servicing of vehicles in order to limit gaseous emissions. 10. Regular servicing of onsite toilets to avoid potential odours. **Rehabilitation** 11. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. **Fire prevention** 12. No open fires shall be allowed on site under any circumstance. All cooking shall be done in		minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		demarcated areas that are safe and cannot cause runaway fires. 13. The Contractor shall always have operational fire-fighting equipment available on site. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.		
	Noise	1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Pans, power plants, crushers, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order.	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.		
	Impact on potential cultural, heritage artefacts and fossils.	1. Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA. 2. Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any artefacts/ fossils are uncovered in the affected area. 3. The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical, archaeological or palaeontological finds to the ECO so that appropriate action can be taken. 4. Known sites should be clearly marked in order that they can be avoided. The workforce should also be informed that fenced-off areas are no-go areas.	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		5. The ECO must also survey for heritage and palaeontological artefacts during groundbreaking and digging or drilling. He/she should familiarise themselves with formations and its fossils or a palaeontologist should be appointed during the digging and excavation phase of the development. 6. All digging, excavating, drilling or blasting activities must be stopped if heritage and/or palaeontological artefacts are uncovered and a specialist should be called in to determine proper management, mitigation, excavation and/or collecting measures. 7. Any discovered artefacts or fossils shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from SAHRA should the proposed site affect any world heritage/palaeontology sites or if any heritage/palaeontology sites are to be destroyed or altered. 8. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1). 9. If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:		

		• NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; If fossil remains or trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations the **Chance Find Protocol** must be implemented by the		

		Environmental Control Officer (ECO) in charge of these developments. These discoveries ought to be protected and the ECO must report to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation can be carry out by a paleontologist. **Chance Find Procedure** • If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find. • The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. • A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3)		

		description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. • Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. • The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. • In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO (site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site. • Once Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.		
Waste Management		**Litter management** 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction/prospecting site.	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards,

		2. The Contractor shall supply waste collection bins where such is not available, and all solid waste collected shall be disposed of at registered/licensed landfill. 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction prospecting site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly. 7. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8. Where a registered waste site is not available close to the construction/prospecting site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 10. Under no circumstances may solid waste be burnt on site.		thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours. **Hazardous waste** 12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant. 13. Contaminants to be stored safely to avoid spillage. 14. Machinery must be properly maintained to keep oil leaks in check. 15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction/prospecting and any spills shall immediately be cleaned up and all affected areas rehabilitated. **Sanitation** 16. The Contractor shall install mobile chemical toilets on the site. 17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. 18. Toilets shall be serviced regularly and the ECO shall inspect toilets regularly. 19. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer.		

		20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility. 21. The construction of "Long Drop" toilets is forbidden, but rather toilets connected to the sewage treatment plant. 22. Potable water must be provided for all construction staff. **Remedial actions** 23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 24. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site. 25. The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil. 26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material. 27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. 28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use. 29. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to		

		the environment, and stored in adequate containers until appropriate disposal.		
Water Use and Quality	Water pollution	**Water Use** 1. Develop a sustainable water supply management plan to minimise the impact to natural systems by managing water use, avoiding depletion of aquifers and minimising impacts to water users. 2. Water must be reused, recycled or treated where possible. **Water Quality** 3. The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines. 4. Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone. 5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. **Stormwater** 6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants. 7. Silt fences should be used to prevent any soil entering the stormwater drains.		

		8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 9. Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage. 10. New stormwater construction must be developed strictly according to specifications from engineers in order to ensure efficiency. 11. Hazardous substances must be stored at least 20m from any water bodies on site to avoid pollution. 12. The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase. 13. Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers. 14. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed. 15. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas. **Groundwater resource protection** 16. Process solution storage ponds and other impoundments designed to hold non fresh water or un-treated process effluents should be lined		

		and be equipped with sufficient wells to enable monitoring of water levels and quality. **Sanitation** 17. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers). 18. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution. **Concrete mixing** 19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth. **Public areas** 20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis. 21. The Contractor should take steps to ensure that littering by construction workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines. 22. No washing or servicing of vehicles on site.		

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

G) MONITORING OF IMPACT MANAGEMENT ACTIONS

H) MONITORING AND REPORTING FREQUENCY

I) RESPONSIBLE PERSONS

J) TIME PERIOD FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

K) MECHANISM FOR MONITORING COMPLIANCE

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Clearance of vegetation	Loss or fragmentation of habitats	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Prospecting with bulk sampling for Diamonds (Alluvial, General & In Kimberlite), Sand (General, Manufactured from Hardrock, Waste	Loss of topsoil Erosion Air Pollution Noise	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an

dump), Stone aggregate (from waste dump, & gravel).	Impact on potential cultural, heritage artefacts and fossils			annual basis. Reports should be made available to the competent authority if required.
Waste management	Pollution	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Water Use and Quality	Water pollution	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.

L) CATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT REPORT.

External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the Competent Authority if required.

M) ENVIRONMENTAL AWARENESS PLAN

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

Mr Johan Smit will implement an Environmental Awareness Plan which will include various mechanisms for informing employees of environmental risks resulting from their work, including:

- Induction training for full –time staff and contractors;
- In-house training sessions to be held with relevant employees.
- On the job training regarding environmental issues
- Training and skills development

The above measures will be implemented through an Environmental Communication Strategy to be implemented.

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

Mr Johan Smit will implement an incident reporting and reporting procedure in order to identify risks timeously and implement actions to avoid or minimise environmental impacts.

N) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

(Among others, confirm that the financial provision will be reviewed annually).

No specific information requirements have been detailed by the Competent Authority.

-END OF THE REPORT-