

SISHEN IRON ORE COMPANY (PTY) LTD

PROPOSED CONSTRUCTION OF A GEOLOGICAL CAMP ON THE FARM DEMANENG 546 NEAR KATHU, NORTHERN CAPE PROVINCE

Draft Basic Assessment Report (BAR) for
public and authority review

July 2021

Revision 00

DENC REF: NC/BA/11/JTG/GAM/KAT1/2021

BASIC ASSESSMENT REPORT



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Department:
Environment & Nature Conservation
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

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(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of 07 April 2017. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority

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3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
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If YES, please complete the form entitled “Details of specialist and declaration of interest” for the specialist appointed and attach in Appendix I.

1. ACTIVITY DESCRIPTION

a) Describe the project associated with the listed activities applied for

Sishen Iron Ore Company (Pty) Ltd (“SIOC”) proposes to construct a regional geological camp on the Remaining Extent (RE) of the Farm Demaneng 546. The proposed geological camp and associated infrastructure will be located on the Farm Demaneng 546 in the Northern Cape Province (refer to Figure 1 and Appendix A). The nearest residential centre to the facility is the town of Kathu which is located approximately 15km to the north of the site in the Gamagara Local Municipality. An application for a Water Use Licence for the abstraction of groundwater in terms of section 21 (a) of the National Water Act, 1998 (“NWA”) has also been submitted to the Department of Water and Sanitation (“DWS”). The application has been provided with the reference number “WU20708”. Proof of submission is provided in Appendix J.

The geological camp will serve as the regional administration centre for prospecting activities undertaken by SIOC in the Northern Cape. The intention is to centralise all the SIOC geological activities supporting Sishen and Kolomela Mines, but also all prospecting projects within the Northern Cape. The farm Demaneng 546 was primarily selected based on the following:

- The property is currently owned by SIOC;
- The site is centrally located within relatively close proximity to all SIOC prospecting and mining based

activities; and

- The disturbed nature of the selected area has been largely affected by historic anthropogenic activities.

The site will consist of administrative offices, sheds for the storage, sampling and processing of geological core material, a workshop, wash bay and parking areas. **It should however be noted that no physical prospecting activities is planned on the farm Demaneng 546.**

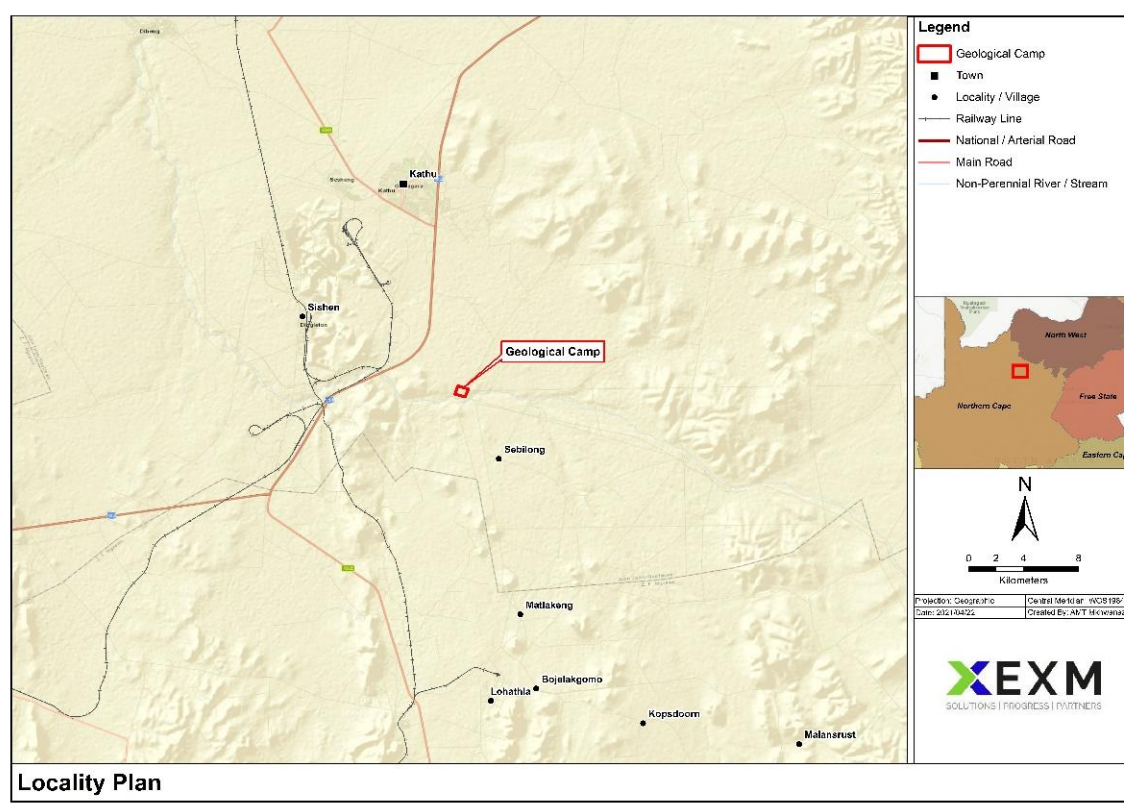


Figure 1: Regional Locality of the proposed Geological Camp.

The geological camp including the associated infrastructure will require the clearance of indigenous vegetation of not more than **19.5 hectares** and will entail the development of the following structures/infrastructure.

- Geological offices that will serve as the administration centre for prospecting activities undertaken by SIOC in the Northern Cape.
- Sheds for the storage, sampling, and processing of geological core material;
- Workshop and parking areas;
- Water and sewage reticulation infrastructure and storage, including drilling of boreholes onsite for water supply. All ablutions is planned to be served by greywater and conservancy tanks.
- Electrical infrastructure, including installation of an off-grid solar power system/storage;
- Wireless communication tower for radio, Wi-Fi and cell phone connectivity;
- Hazardous Substances and Waste storage areas;
- Access road; and
- Perimeter fence.

A conceptual facility illustration plan for the proposed facility is provided in Figure 2 (Also refer to Appendix C).

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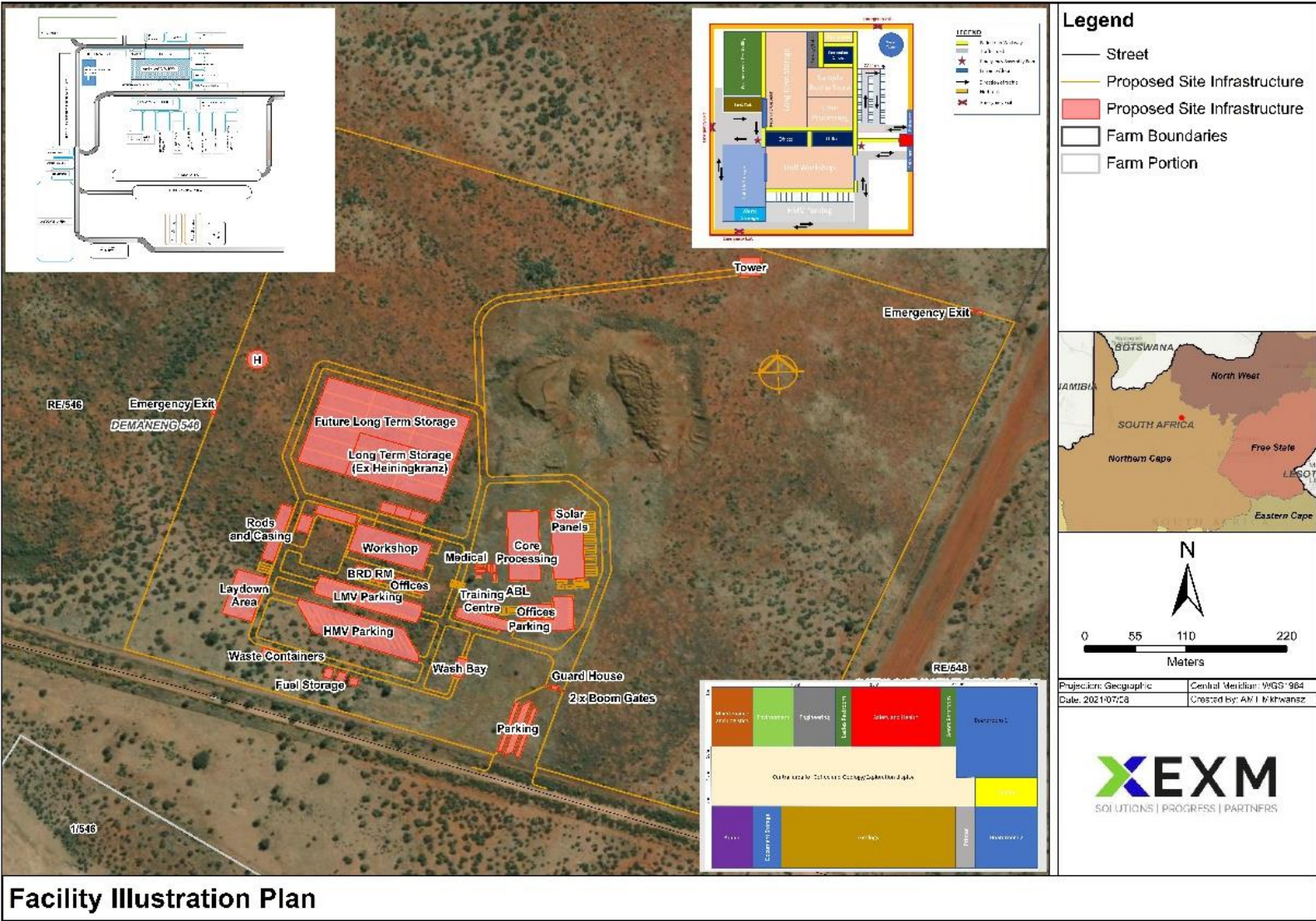


Figure 2: Proposed Facility Illustration

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 327, 325 and 324	Description of project activity
<p>EIA Regulations: Listing Notice 1 of 2014 (GNR 983 of 2014) as amended by GN R. 327 & GN R. 706 (Listing Notice 1) Activity 27: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –</p> <ul style="list-style-type: none"> i. the undertaking of a linear activity; or ii. maintenance purposes undertaken in accordance with a maintenance management plan. 	<p>The clearance of an area greater than 1 ha and less than 20 ha of indigenous vegetation is required for the construction of the proposed facility.</p>
<p>EIA Regulations: Listing Notice 1 of 2014 (GNR 983 of 2014) as amended by GN R. 327 & GN R. 706 (Listing Notice 1) Activity 28: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</p> <ul style="list-style-type: none"> i. (will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or ii. will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; 	<p>The proposed facility will cover 19.5 hectare of land previously used for agriculture. Agriculture is defined as any cultivation or raising of crops, feeding, breeding, keeping or raising of livestock.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives 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.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>Farm Demaneng 546 Remaining Extent: The proposed site is situated within the John Taolo Gaetsewe District, Gamagara Local Municipality of the Northern Cape of South Africa. The Applicant SIOC is proposes to develop a regional geological camp on the Remainder Extent of the farm Demaneng 546, in order to streamline and consolidate prospecting operation in the Northern Cape. The total extent of the property is approximately 1972 hectares ("ha"), however only 19.5 ha is earmarked for the proposed development and is located approximately 15 km south of the town centre of Kathu. Access to the site will be obtained from the N14 national road.</p> <p>Alternative 1 (preferred alternative) was selected as the preferred alternative based on the following:</p> <ul style="list-style-type: none"> • The farm Demaneng is situated close to the existing Afrimat Demaneng mining activities and limited sensitive receptors (communities) are located within close proximity; • Existing road infrastructure, used mainly by mining activities, can be used to gain convenient access to the geological camp; • The proposed facility will also be constructed on a large area which has already been disturbed by historic anthropogenic activities. Additionally, the proposed development will be located outside of the 1:100 year flood-line including the riparian zone associated with the delineated watercourses. This includes the non-perennial Gamagara River (refer to Figure 3 below and Appendix A); and • The property is currently owned by SIOC which provides significant benefits in terms of capital input and timely surface right acquisition. 	<p>27°49'40.51"S</p>	<p>23° 5'10.18"E</p>

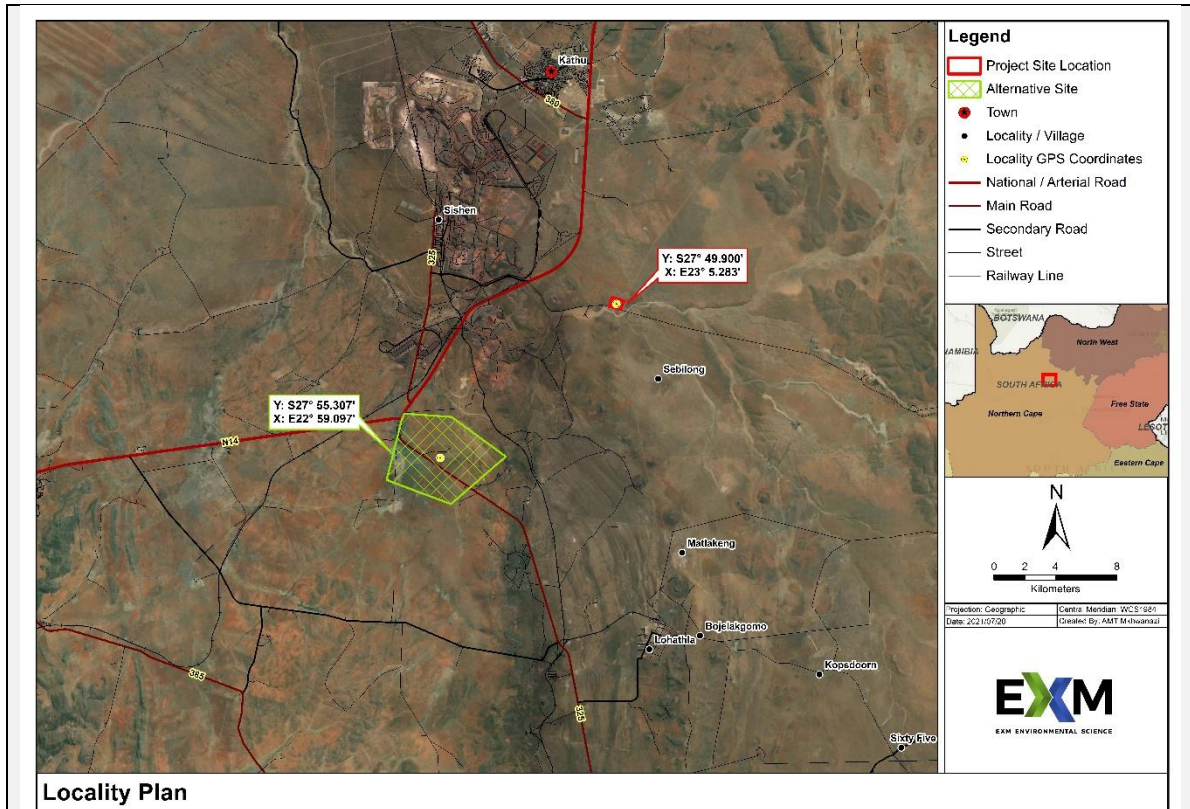


Figure 3: Project site location (Alternative 1 (preferred)) and Alternative 2

Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>Farm Jenkins 562 (Mooihoek): The farm Jenkins 562 was subdivided into smaller farms including the farm Mooihoek and was considered as a possible site alternative for the proposed facility (refer to figure 4). The location of the farm would be appropriate as it was located between Postmasburg and Kathu.</p> <p>Alternative 2 (not preferred) would entail the clearance of approximately 25 ha indigenous vegetation. None of the footprint area would consist of previously disturbed areas and therefore it is anticipated that this alternative would result in significant biodiversity impacts, compared to the proposed alternative. This alternative requires a full EIA and Scoping process as clearance would exceed 20 ha and trigger Activity 15 of Listing Notice (GNR 325).</p>	<p>27°54'41.37"S</p>	<p>22°59'28.91"E</p>

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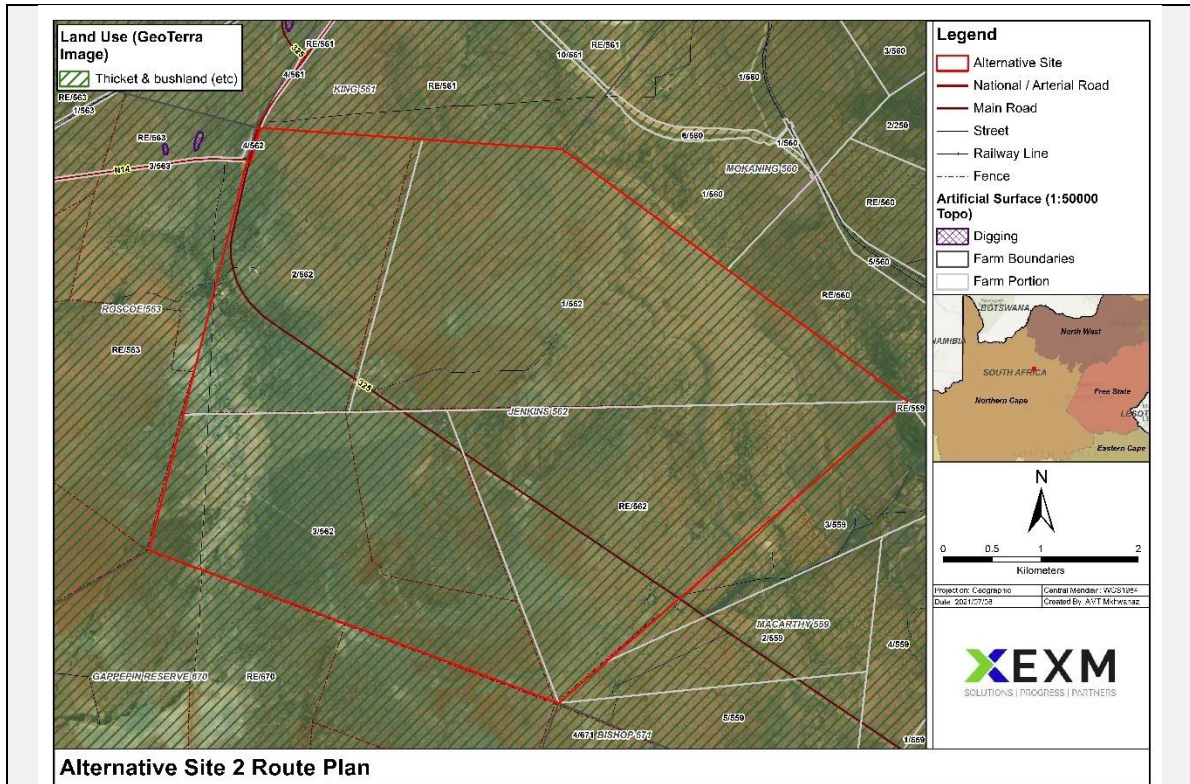


Figure 4: Site Alternative 2
Alternative 3

Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A

In the case of linear activities:

Not applicable as no linear listed activities are being applied for.

Alternative:

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Latitude (S):

Longitude (E):

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>Alternative 1 (preferred alternative) is approximately 19.5 ha in extent and has been optimised to ensure that a large portion of the site is located within areas previously disturbed by anthropogenic activities. This will ensure that the required clearance of natural indigenous vegetation is limited. Additionally, the proposed layout alternative is situated outside of the 1:100-year flood-line including the riparian zone associated with the delineated watercourses. This includes the non-perennial Gamagara River (refer to Figure 5 below and Appendix A).</p> <p>Layout Alternative 1 (preferred) is the most feasible as it will not require a substantial amount of vegetation clearance and earthworks due to the fact the development footprint falls within an area that has been previous disturbed and has been located outside any delineated watercourse features.</p>	<p>27°49'40.51"S</p>	<p>23° 5'10.18"E</p>
<p>Alternative 2</p>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>Alternative 2 (not preferred) would entail the clearance of approximately 25 ha indigenous vegetation. None of the footprint area would consist of previously disturbed areas and therefore it is anticipated that this alternative would result in larger biodiversity impact, compared to the preferred site alternative 1. This alternative would requires a full EIA and</p>	<p>27°49'40.51"S</p>	<p>23° 5'10.18"E</p>

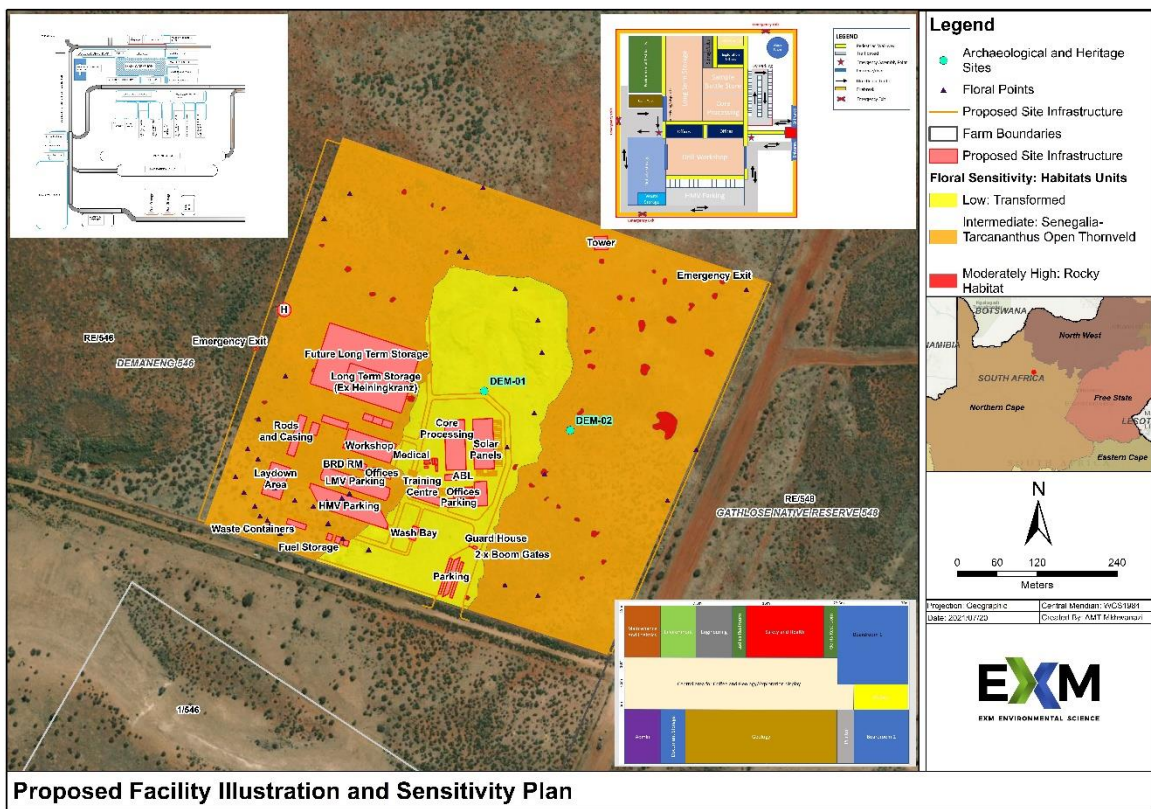


Figure 5: Preferred Layout Alternative

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Scoping process as clearance would exceed 20 ha and trigger Activity 15 of Listing Notice (GNR 325).

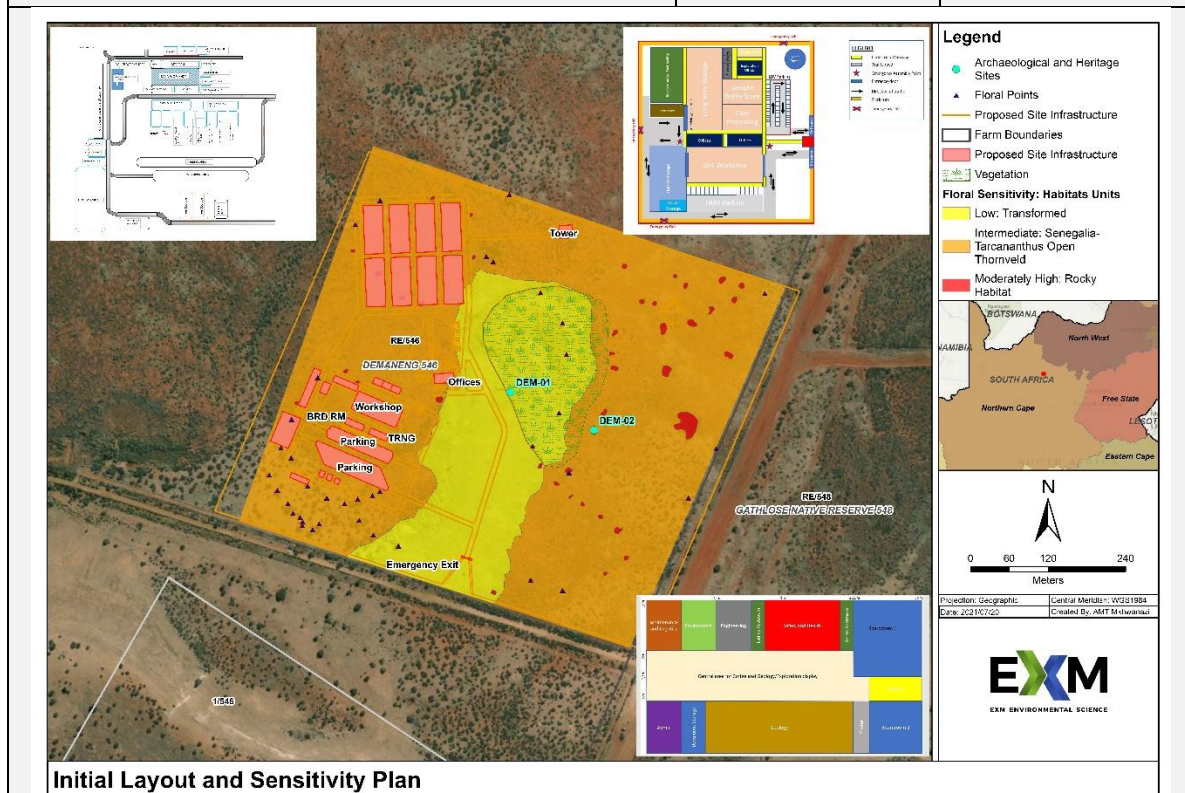


Figure 6: Alternative 2 Layout (Not Preferred Alternative)

Alternative 3

Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A

c) Technology alternatives

LANDSCAPING:
Alternative 1 (preferred alternative)
<p><u>Greywater</u></p> <p>Landscaping with waterwise vegetation (i.e. succulents) is planned for the site. SIOC is also planning to harvest rainwater from the roofs of the buildings on site that will be used for these purposes. Black and grey water will also be separated on site. The greywater will be stored in two greywater storage tanks for reuse and will then be re-used for landscaping.</p>
Alternative 2
<p><u>Boreholes</u></p> <p>SIOC considered using water abstracted from the boreholes on site for landscaping purposes. By re-using water SIOC do not have to withdraw or consume as much raw water from the boreholes on site. By using the greywater for landscaping, SIOC will preserve more of the existing water supply and therefore place less pressure on water resources. This may ensure that sufficient water is available for drinking water and other critical or primary uses at the Geological camp.</p>
ENERGY:
Alternative 1 (preferred alternative)
<p><u>Solar Power</u></p>

Solar energy has been chosen as the preferred alternative to provide electricity to the facility. Not only is this a sustainable source of energy generation, but also will reduce the carbon footprint of the proposed project. The sun is an abundant energy source in the Northern Cape. Solar panels are reliable, easy to operate and maintain. They are also a long-lasting, green energy source with no noise pollution. The electrical energy can be stored in batteries which provides power even on overcast days and at night time. The utilisation of solar energy is also in line with SIOC's energy strategy to reduce dependency on energy generated fossil fuel and reduce the company's carbon footprint.

Alternative 2

Eskom Power

The use of the Eskom electrical grid is a viable alternative; however powerlines would need to be constructed to ensure the proposed development obtain access to the grid. Eskom power is not reliable due to frequent power failures as a result of load shedding and lack of maintenance of electrical infrastructure. Electrical energy from the grid also has indirect air quality impacts due to the burning of coal. Although compared to the proposed alternative grid access is available in proximity to the proposed development, this is not a preferred alternative due to the unreliability thereof (compared to solar energy).

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)

Access Road to the Farm Demaneng – Gravel Road:

A gravel road adjacent to the site will be used as the to gain access to the Farm Demaneng. SIOC regularly scrapes the access road of 2,9 km to the Farm Demaneng 546. However, maintenance on the road is required due to the current poor condition which holds safety concerns. A long-term contract for the maintenance of the road will be issued.

Alternative 2

Access Road to the Farm Demaneng – Tar Road:

SIOC considered tarring the access road to the Farm Demaneng. It was however decided that it will be too expensive to tar the road. The Traffic Impact Assessment undertaken for the project also concluded that this would not be required considering current and future traffic volumes.

e) No-go alternative

The no-go option refers to the alternative of the proposed development not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment, and the status quo of the area would remain. The project has the potential to improve the current state of the property which is characterised by numerous historic excavations and disturbances. Should the activity not be approved, the concerned property will remain in its poor state. The current situation may further degrade if the project is not implemented. The proposed development is essential to SIOC and is required to address the current fragmentation of geological activities at SIOC's operations in the Northern Cape. The facility will provide a centralised and streamlined area to facilitate prospecting projects and provide a consolidated area to process, analysis and store geological material from Sishen and Kolomela Mines, including geological projects throughout the Northern Cape. The facility is therefore essential from a strategic perspective. Refer to Appendix F for a detailed description of the positive and negative impacts that the project will have.

Indirect employment opportunities will be created, and goods and services will be purchased during the construction phase, including the upkeep and the maintenance of the facility. The operational phase will not only secure current jobs, but also create additional operational job opportunities, including landscaping, maintenance, cleaning etc. The proposed Geological Camp will thus have a positive socio-economic impact. These benefits will be negated if the project is not implemented.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1¹ (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the activity:

≤ 19.5 ha
≤ 25 ha
N/A

or, for linear activities: **Not Applicable**

Alternative:

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Length of the activity:

m
m
m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the site/servitude:

≤ 19.5 ha
≤ 25 ha
N/A

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES ✓	NO
5 m	

Describe the type of access road planned:

Access to the proposed exploration camp is from the N14 along the D333 for a distance of 6,1 km. The D333 is a gravel road and the first halve is used as a mining haul road. The road is being maintained by the mining entity by means of dust suppressant and a contracted maintenance team. This road is also used as a secondary access to the SA Army Combat Training Facility and to a local community inside the military training facility. Access to the proposed Geological Camp will be gained directly from the D333 located adjacent to property. Only a single access area will be created to gain access from the D333 gravel road to the proposed facility.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to

this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓	NO	Please explain
The proposed geological camp will be constructed on land previously used for agriculture.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓	NO	Please explain
The Goals and Objectives of the Provincial Spatial Development Framework relates to sustainability and sustainable development are premised on the National Directives put forward in the National Framework on Sustainable Development (DEA, 2008) and the National Strategy for sustainable development and Action Plan 2011-2014 (NSSD) (DEA, 2011). The Northern Cape PSDF functions as an innovative strategy that will apply sustainability principles to all spheres of land use management throughout the Northern Cape and which is to facilitate practical results, as it relates to the eradication of poverty and inequality and the protection of the integrity of the environment. In short, the PSDF is to serve as a mechanism towards enhancing the future of the Northern Cape and its people. The proposed development will enhance current and future social and economic development.			
(b) Urban edge / Edge of Built environment for the area	YES	NO ✓	Please explain
The proposed development will not be located within the urban edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES ✓	NO	Please explain
The IDP and SDF related initiatives are by default required to be integrated into the Local Municipality planning tools and given their national significance are seen to override/ form part of the local planning. The John Taolo Gaetsewe District Spatial Development Framework (SDF) has a mid to higher level strategic spatial framework that provides the municipality sphere with objectives as set out in the national and provincial spheres regarding sustainable development, natural resources management, regional economic investment, job creation and eradication of poverty. There is a drive from national and provincial Governments to stimulate development and grow the economy of South Africa with a strong focus on job creation in all sectors. The mining sector have been identified as drivers of economic growth and job creation and are considered important in the Northern Cape provincial and local economy. As the proposed development directly support the future of mining activities related to SIOC, the approval of the proposed project will create temporary employment opportunities and improve the livelihoods of the local community. However, the project will also enable SIOC to effectively ensure current and future potential mining prospects are identified and quantified and may lead to new mining developments for the Northern Cape.			

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(d) Approved Structure Plan of the Municipality	YES✓	NO	Please explain
N/A. The proposed development will have minimal impacts on municipal structures as the property is currently vacant and is situated approximately 15 km away from the town of Kathu. The proposed development will also not require any municipal services.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES✓	NO	Please explain
<p>The general aim of an Environmental Management Framework is to improve the integration of biodiversity into land use planning and decision making through a combination of activities such as engaging in institutional co-ordination mechanism, providing accurate, relevant information and reference materials, providing appropriate training and targeted awareness raising; and guiding future land use and development within the municipality.</p> <p>According to the biodiversity assessment conducted to support this application, the property is not considered to be very ecologically sensitive. According to Mucina and Rutherford (2018 database), the entire study area and all assessment areas fall within the Kuruman Thornveld (i.e., the reference state). The National Threatened Ecosystem Dataset (2011) indicates the study area is situated within an ecosystem that is considered Least Threatened, which is currently not protected (National Biodiversity Assessment, 2018). The study area includes a small section of an Ecological Support Area (ESA) in the south which is associated with the Gamagara River and associated wetlands (2016 Northern Cape Critical Biodiversity Areas, NCDENC 2016). However no wetlands will be impacted.</p>			
(f) Any other Plans (e.g. Guide Plan)	YES	NO✓	Please explain
N/A			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES✓	NO	Please explain
<p>The proposed project is considered to be consistent with and in support of the broad national policy framework for the development of mining in South Africa. At the regional level, it is deemed consistent with the Northern Cape PSDF and the SDF of the John Taolo Gaetsewe. The priorities of the Gamagara Local Municipality's IDP and the John Taolo Gaetsewe District Municipality's SDF are mainly focused around the reduction of unemployment and reducing poverty, as well as establishing affordable accommodation in towns experiencing rapid expansion by investing in key sectors and developing and upgrading basic service delivery and infrastructure. One of the ways of achieving this, according to the SDF, is to discourage urban sprawl, and to promote more compact and efficient cities. In order to achieve this, development must be channelled into specific nodes and corridors (John Taolo Gaetsewe District Municipality, 2016). One of the Key Focus Areas for economic growth is the Gamagara Development Corridor within which the project is located. The proposed Geological Camp will improve the quality of life of the existing community. The project will result in direct and indirect employment opportunities, but also has a larger strategic purpose for identifying future mining development in the Northern Cape</p>			

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<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	YES ✓	NO	Please explain
<p>The proposed development is of utmost importance and is required to centralise and streamline prospecting operations in the area. The proposed Geological Camp Project will improve the quality of life of the surrounding community and create temporary employment opportunities. The mining industry is one of the main contributors to economic growth in the Northern Cape province. This development will improve the current, and to a larger scale, the future livelihoods of the workforce in the area. Therefore this development will bring about positive socio-economic impacts.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES	NO ✓	Please explain
<p>The necessary services are not available at the time of the application. There is currently no infrastructure on site. However, SIOC plans to construct all the necessary services with adequate capacity during the construction phase. Therefore the project will not require additional services from the municipality.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES	NO ✓	Please explain
<p>There will be no implication on the infrastructure planning of the municipality. All funds will be made available by the SIOC.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES	NO ✓	Please explain
<p>Although the establishment of the facility is not directly a project of national concern or importance, it will enable possible future mining development. by providing a centralised facility for efficient management of geological projects, material, and data within the Northern Cape.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES ✓	NO	Please explain
<p>Location factors do favour the use of the land for the construction of the geological camp as it is approximately 14,5 km south-east of Kathu and close to mining activities including Afrimat; Assmang-owned Khumani Mine and Sishen Mine. The site is also strategically located to enable a centralised facility to manage all SIOC prospecting operations in the Northern Cape.</p>			

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9. Is the development the best practicable environmental option for this land/site?	YES ✓	NO	Please explain
<p>Taking into account the environmental considerations, the project can be considered as the best practicable environmental option as there will be no significant impact on the environment. The site was primarily selected because a large portion of the area has previously been transformed by historic activities. A large portion of the proposed development will be located within the disturbed areas and thus limiting environmental impacts further.</p>			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓	NO	Please explain
<p>There are minimal negative environmental impacts associated with this development as supported by the specialist studies. The proposed development will be located outside of the delineated watercourses, including the riparian zones and wetlands. This includes the non-perennial Gamagara River to the south of the project (refer to Appendix A). According to the Biodiversity Assessment (STS, 2020), the property is not considered to be ecologically sensitive and no significant impacts are anticipated. Additionally, the benefits of the proposed development will outweigh the negative impacts. The benefits of the construction of the geological camp includes:</p> <ul style="list-style-type: none"> • Job creation; and • The project will promote mining in the area and will provide an integral function for future mining development. 			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO ✓	Please explain
<p>The property is located directly adjacent to the Afrimat Demaneng Mine and the Lohatla SA Army Combat Training Centre. The area is therefore already categorised by numerous existing activities of similar nature and the approval of the development application will not set a new precedent for similar activities for the Gamagara local municipality.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO ✓	Please explain
<p>No person's rights are expected to be negatively affected by the proposed development. The activity is expected to have a general positive impact on the surrounding industries and residents.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO ✓	Please explain
<p>The proposed development will not be located within or in close proximity to the urban edge.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	YES	NO ✓	Please explain
<p>The proposed development will not directly contribute to the 17 SIP's, but the local community will benefit through an increase in future social development stemming from the proposed development.</p>			

15. What will the benefits be to society in general and to the local communities?	Please explain
<p>The proposed Geological Camp will have positive direct and indirect impacts on the community, such as job creation as a result of potential future mining projects. Direct temporary employment opportunities will be added to the market during the construction phase of the development. Indirect employment opportunities during the operational phase might be created through upkeep and the maintenance of the facilities. The current workforce that will be required to operate the facility will also be secured. The proposed development is therefore expected to have a positive socio-economic impact. SIOC also intends to maintain a section of the existing district road to site that is also used by the Gosies Community.</p>	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
<p>The benefits of the proposed development will outweigh the negative impacts. The benefits of the construction and operation of the geological camp includes:</p> <ul style="list-style-type: none"> • Employment opportunities during the construction phase of the development; and • The project will promote mining in the area and integral to future mining development. 	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The National Development Plan aims to eliminate poverty and reduce inequality by 2030. The project does not directly fit into the NDP. The project will support mining in the areas by identifying and quantifying new mineral resources which may lead to mining projects in the future. Forty (40) new skilled employment opportunities will be created and 40% of this value will accrue to previously disadvantaged individuals during the construction phase and approximately fifteen (15) new opportunities during the operational phase</p>	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
<p>Section 23 of NEMA determines that the application of appropriate environmental management tools must ensure the integrated environmental management of activities. The principles of environmental management must be integrated into all decisions which may have a significant effect on the environment. Procedures for the investigation, assessment and communication of the potential impact of activities must be effective.</p> <p>The Impact Assessment process conforms to the principles of Integrated Environmental Management (IEM). The process attempts to identify all potential impacts as well as identify practical means by which the developer can implement the necessary mitigation measures to manage these impacts. The EIA process is structured in a way to identify environmental risks, lessen community conflict by actively promoting public participation, propose the means to minimise adverse environmental affects and inform all relevant government decision makers. The impact assessment will ensure that all environmental assessments are integrated into all aspects of the proposed project's life cycle, construction/operation and decommissioning. The EIA process identified all possible impacts. These impacts were evaluated to determine the actual impact on the environment. The triple bottom approach was taken into account whereby the socio, economic and environmental impacts were assessed. This also ensured that Section 2(3) of NEMA was adhered to.</p>	

Section 2(4) of NEMA was further taken into consideration to ensure that ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied. The development will be constructed in such a way as to ensure that pollution and degradation is avoided by the implementation of the EMPr. It is not foreseen that National Cultural heritage will be disturbed by the proposed development. Such areas has been identified and will be mitigated to acceptable levels. Waste will be minimized by the implementation measure identified as part of the project EMPr. Cultural impacts were assessed in an application submitted to the South African Heritage Resources Agency.

The alternatives were also assessed as required by Section 23 (2) (b). The effects of activities on the environment will be kept to the minimum. The required public participation process is undertaken as part of the applications. The process was conducted in terms of the NEMA EIA regulations (GNR. 326) and the Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals (GNR 267 of 2017) promulgated under the NWA..

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

It is SIOC's intention to align the the with the NEMA principles. SIOC is mindful of the principles, broad liability and implications associated with NEMA and will eliminate or mitigate any potential impacts. SIOC will also be mindful of the principles, broad liability and implications of causing damage to the environment. Also refer to section 18 above.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
EIA Regulations: Listing Notice 1 of 2014 (GNR 326 of 2017)	In terms of NEMA Environmental Authorisation for Listed activities 27 and 28 triggered in listing Notice 1 has been applied for. Thus, project requires Environmental Authorisation.	Northern Cape Department of Environment & Nature Conservation (DENC)	2017
National Heritage Resources Act (Act 25 Of 1999)	In Terms of Section 38 the Project Requires Record of Decision from the South African Heritage Resource Agency (SAHRA)	South African Heritage Resource Agency (SAHRA)	1999
National Water Act 36 of 1998 (NWA)	The proposed development will entail a water use as defined in terms of Section 21 of the National Water Act (Act 36 of 1998) (NWA). The development of the geological camp will trigger a section 21(a) water use for the groundwater abstraction from boreholes on site.	Northern Cape Department of Water and Sanitation	1998
National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)	Section 57 of NEMBA restricts certain activities involving threatened and protected species (as listed in Regulation GN. 151	Northern Cape Department of Environment & Nature Conservation	2004

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Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	and 152, February 2007) without a permit. Restricted activities applicable to the project are limited to the removal of Threatened or Protected Species (TOPS) plants during the clearance of vegetation. Vegetation clearance will take place for the construction of the facility and therefore a permit will be required.		
Northern Cape Nature Conservation Act 9 of 2009 (NCNCA)	In terms of Section 50 of NCNA a permit is required for the removal of TOPS.	Northern Cape Department of Environment & Nature Conservation	2009
National Forest Act 1998 (NFA)	Tree species, Vachellia erioloba, which is listed as Protected in Section 15 (1) of the NFA was observed within the study area. All relevant permits pertaining to these species are to be acquired prior to onsite activities.	Department of Environment, Forestry and Fisheries	1998
Conservation of Agricultural Resources Act 43 of 1983 (CARA)	Removal of the alien and weed species encountered in the area must be undertaken in accordance with CARA and GNR1048 in GG 9238 of 25 May 1984. Removal of species should take place throughout the construction and operation, phases.	Northern Cape Department of Environment & Nature Conservation	1983

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES √	NO
Unknown m ³	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

Construction waste will be disposed of in skips on site. All construction solid waste will be removed from the site with loading vehicles. SIOC's will appoint a waste contractor that needs to ensure that all waste is disposed off at licenced disposal sites.

Where will the construction solid waste be disposed of (describe)?

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Solid waste originating from construction activities will be consolidated on site and removed as often as possible to the nearest licenced landfill site (Kathu/Kuruman).

Will the activity produce solid waste during its operational phase?

YES √	NO
60 m ³	

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

Waste shall be disposed of in an environmentally safe manner and shall be disposed of in accordance with the National Environmental Management Waste Act (59 of 2008) and other relevant legislation.

General waste (i.e. domestic waste, plastics, paper, rubber and etc.), hazardous waste (i.e. electronic waste) and sanitary waste will be produced during the operational phase. The waste will be separated at source through the implementation of marked and colour coded skips and bins. Non-recyclable general waste will either be collected by an external contractor for safe disposal or taken to the nearest registered landfill site for further sorting. All recyclable general waste will be separated onsite and removed by a licenced recycling company (such as Interwaste) to an off-site premise for sorting, chipping, baling, and recycling (plastics, paper, glass, etc.).

The following waste types will be recycled where possible:

- Packaging materials (corrugated cartons) and Paper;
- Used batteries;
- Electrical components (old monitors and CRT, keyboards, laptops, modems, telephone boards, hard drives, compact disks, mobile phones, fax machines, printers, CPUs, etc.);
- Wooden pallets; and
- Plastic.

Waste generated from all bathrooms shall be placed in SHE bins and will be collected and disposed of by a hygiene external service provider.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Waste shall be disposed according to type and amount of waste at the nearest registered landfill sites in Kathu and/or Kuruman. The option is also available to dispose of these wastes at the Sishen Mine licenced landfill site.

Wastes that can be received at the landfill site includes:

- Garden waste;
- Garden and park wastes;
- Food waste;
- Building and demolition waste; and
- Any waste classified as non-hazardous waste in terms of the regulations

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

The waste will be disposed of at a suitable, authorised waste disposal facilities in Kathu and/or Kuruman.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES √	NO
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If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO <input checked="" type="checkbox"/>
-----	--

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO <input checked="" type="checkbox"/>
-----	--

If YES, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO <input checked="" type="checkbox"/>
-----	--

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES <input checked="" type="checkbox"/>	NO
---	----

If YES, provide the particulars of the facility:

Facility name:	Kathu Waste Water Treatment Works		
Contact person:	Mr Itumeleng Clement		
Postal address:	PO Box 1001, Kathu,		
Postal code:	8446.		
Telephone:	053 723 6000	Cell:	N/A
E-mail:	info@gamagara.gov.za	Fax:	053 723 2021

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Black and grey water will be separated which will reduce the overall sewage load on site. By separating grey water from sewage, the overall amount of wastewater that will be pumped out of the black water conservancy tanks and disposed of at the offsite sewage treatment plant will be reduced.

The greywater will be stored in storage tanks for reuse on site and the blackwater (sewage) will be stored in two conservancy tanks. These blackwater septic tanks will be emptied on a bi-weekly bases and disposed of at the Kathu Waste Water Treatment Works. The greywater will be re-used for landscaping purposes.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?

YES	NO <input checked="" type="checkbox"/>
-----	--

If YES, is it controlled by any legislation of any sphere of government?

YES	NO <input checked="" type="checkbox"/>
-----	--

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Dust emissions during the construction and operational phases will primarily be generated from vehicles movement on access roads.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	NO <input checked="" type="checkbox"/>
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES <input checked="" type="checkbox"/>	NO
YES	NO <input checked="" type="checkbox"/>

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

Noise will be generated from construction vehicles. This will however be mainly confined to the construction phase and during business hours only. Very minimal noise will be generated during the operational phase of the project. Noise at Demaneng will be localised to core cutting, vehicle movements and workshop tools and equipment.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater <input checked="" type="checkbox"/>	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

730 m³

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES <input checked="" type="checkbox"/>	NO
---	----

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

An application for a Water Use Licence for the abstraction of groundwater in terms of section 21 (a) of the National Water Act, 1998 (“NWA”) has been submitted to the Department of Water and Sanitation (“DWS”). The application has been provided with the reference number “WU20708”. Proof of submission is provided in Appendix J.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

An off grid solar energy system will be installed to supply power to the proposed geological camp. This will also ensure the proposed project is energy efficient by producing electricity on site. Solar energy is clean and renewable. With solar power SIOC will contribute to a healthy and sustainable environment; reduce the company’s carbon footprint and have the satisfaction of being socially and environmentally responsible. It should however be noted that the use Eskom electricity grid will also be obtained to supplement electrical needs if required in future.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Solar energy will be used to provide electricity to the facility. These panels will as far practical be installed on the roofs of the infrastructure. The sun is an abundant energy source and solar panels are reliable, easy to operate and maintain. They are also a long-lasting, green energy source with no noise pollution. The electrical energy stored in the batteries alongside solar panels can be used to provide power even on cloudy days or after the sun goes down.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? YES NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape
District Municipality	John Taolo Gaetsewe District Municipality,
Local Municipality	Gamagara Local Municipality
Ward Number(s)	Ward 7
Farm name and number	Farm Demaneng 546
Portion number	Remaining Extent
SG Code	C04100000000054600000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture and open space.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
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1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat ✓	1:50 → 1:20	1:20 → 1:15	1:15 → 1:10	1:10 → 1:7,5	1:7,5 → 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat ✓	1:50 → 1:20	1:20 → 1:15	1:15 → 1:10	1:10 → 1:7,5	1:7,5 → 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 → 1:20	1:20 → 1:15	1:15 → 1:10	1:10 → 1:7,5	1:7,5 → 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✓	YES	NO ✓	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✓	YES	NO ✓	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES	NO ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO ✓	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO ✓	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO ✓	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO ✓	YES	NO
An area sensitive to erosion	YES ✓	NO	YES ✓	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition^E	Natural veld with scattered aliens^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO ✓	UNSURE
Non-Perennial River	YES ✓	NO	UNSURE
Permanent Wetland	YES	NO ✓	UNSURE
Seasonal Wetland	YES	NO ✓	UNSURE
Artificial Wetland	YES	NO ✓	UNSURE
Estuarine / Lagoonal wetland	YES	NO ✓	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

During the field assessment, it was confirmed that no features meeting the definition of either a wetland or riparian habitat occur within the study area (SAS, 2021). A single watercourse, namely the Ga-Mogara River, was identified 250 m south of the study area. This was delineated in fulfilment of Government Notice (GN) 509 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) using a combination of desktop methods (such as digital satellite imagery, 5 m contours and topographic maps) and field verification. The Ga-Mogara River is a highly episodic system, flowing only when sufficient rainfall has been received. The river most recently flowed in January 2021; prior to that, as far as could be ascertained from available literature (Shaw et al, 1992) and anecdotal evidence, it last flowed in February 1988. According to the PES 1999 Classification and the NFEPA Database the Ga-Mogara River is considered largely natural (Class B) and an upstream management river. No wetlands or other features which could meet the definition of a watercourse from an ecological perspective were identified within the study area.

It should also be noted that the proposed geological camp is located outside of the applicable Zones of Regulation associated with the Ga-Mogara River in terms of both the National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment (EIA) Regulations (2014), as amended, and the National Water Act, 1998 (Act No. 36 of 1998). Therefore, from a watercourse enviro-legal standpoint, no constraints are perceived.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland ✓
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, Koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound ✓	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit ✓	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO ✓
Core area of a protected area?	YES	NO ✓
Buffer area of a protected area?	YES	NO ✓
Planned expansion area of an existing protected area?	YES	NO ✓
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✓
Buffer area of the SKA?	YES	NO ✓

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

YES ✓	NO
Uncertain	

An Archaeological and heritage assessment was undertaken as part of the EIA. The fieldwork component of the study was focussed on assessing all the footprint areas currently proposed. The aim of this fieldwork was to identify tangible remains of archaeological, historical and heritage significance. During the survey a substantial scatter of Middle Stone Age (MSA) lithic artefacts were identified across the entire study area. This scatter is spread out evenly across the entire study area. Only two sites (DEM-01 and DEM-02) were recorded. However, the highest density of lithics identified in an area which appears to have been previously disturbed, was identified as site DEM-01. The surface scatter surrounding this disturbed area is recorded as site DEM-02. These sites is provided in Figure 7 below.

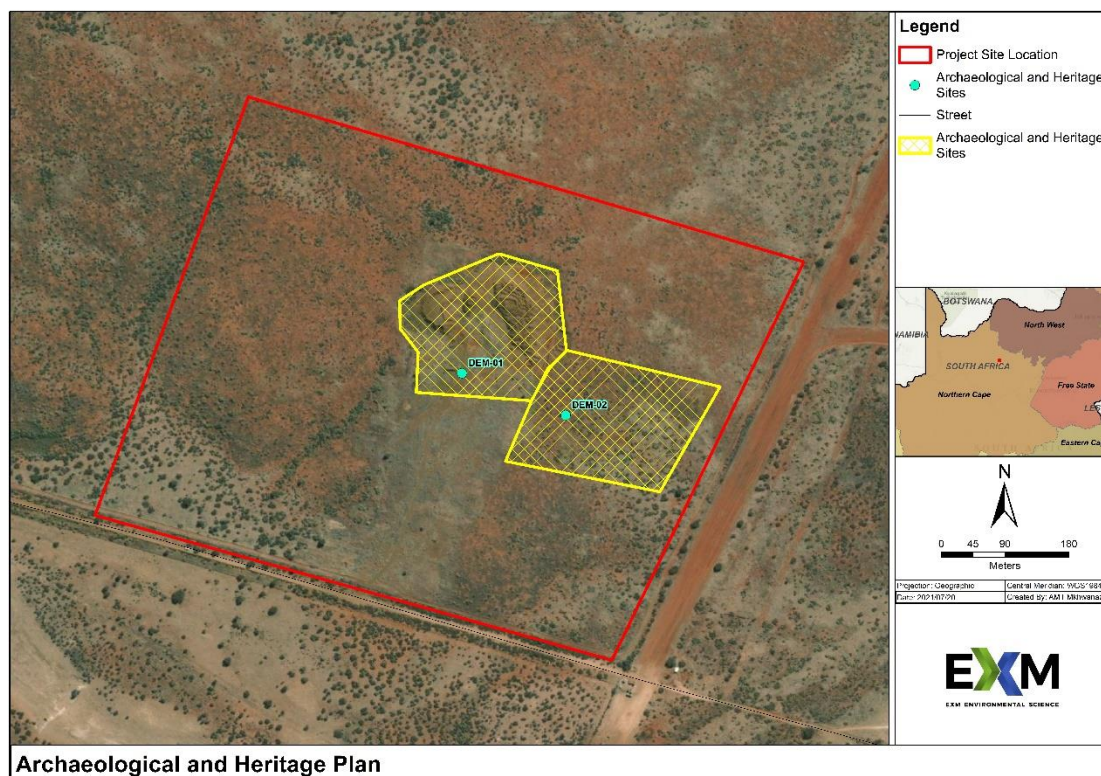


Figure 7: Heritage Sites identified during the Fieldwork

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

PGS Heritage (Pty) Ltd (PGS) was appointed by EXM Advisory Services (Pty) Ltd (EXM) to undertake a Heritage Impact Assessment (HIA) for a proposed exploration camp on the farm Demaneng 546, near Kathu, in the Gamagara Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape Province (Refer to Appendix D6). An archival and historical desktop study was undertaken to provide a historic framework for the project area and surrounding landscape. This was augmented by a study of available historical and archival maps. The desktop study revealed that the surroundings of the study area is characterised by a long and significant history. The assessment of the available historical maps did not reveal the presence of any heritage features. The fieldwork component of the study was focussed on assessing all the footprint areas currently proposed. The aim of this fieldwork was to identify tangible remains of archaeological, historical and heritage significance. The fieldwork was undertaken by way of intensive walkthroughs of the proposed development footprint areas. This was undertaken on foot by two archaeologists from PGS (Ruan van der Merwe and Wynand van Zyl) on 15 April 2021. Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs showing the routes followed by the two archaeologists.

During the survey a substantial scatter of MSA lithic artefacts were identified across the entire study area. This scatter is spread out evenly across the entire study area. Only two sites (DEM-01 and DEM-02) were recorded (refer to Figure 7). However, it should be noted that for the purposes of this report, the highest density of lithics identified in an area which appears to have been previously disturbed, was identified as site DEM-01. The surface scatter surrounding this disturbed area is recorded as site DEM-02. Several GPS points were taken at different locations/findspots on site with a significant surface scatter density of tools.

Banzai Environmental was appointed to conduct the Palaeontological Desktop Assessment (PDA) to assess the proposed exploration camp on the farm Demaneng 546 (Refer to Appendix D6). To comply with the National Heritage Resources Act (No 25 of 1999, section 38) (NHRA), this PDA is necessary to confirm if fossil material could potentially be present in the planned mining area and to evaluate the impact of the proposed development on the Paleontological Heritage. The proposed development near Kathu in the Northern Cape is underlain by Quaternary aged sediments of the Kalahari Group as well as the underlying Campbell Rand Subgroup (Ghaap Group, Transvaal Supergroup).

The general low palaeontological sensitivity of the bedrocks and superficial sediments in the proposed development footprint, indicates that the proposed development will have an overall LOW impact significance in terms of palaeontological heritage. It is therefore considered that the development is will not lead to detrimental impacts on the palaeontological resources of the area.

The specialist concluded that the unmitigated impact of the proposed development is expected to result in negative impacts of Moderate significance in terms of the identified heritage fabric of the study area. With mitigation successfully completed, the impact of the proposed development on the identified heritage sites will result in negative impacts of Low significance. As a result, on the condition that the recommendations are adhered to, no archaeological, heritage and/or palaeontological related reasons can be given for the development not to continue.

Will any building or structure older than 60 years be affected in any way?

YES	NO ✓
YES	NO ✓

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The Northern Cape Province is geographically the largest province in South Africa, covering an area of 372 889 km², which constitutes approximately 30% of the country's total area. Despite having the largest land mass, the province is the least populated of all nine provinces. The province is bordered by Namibia and Botswana in the north; while domestically, it is bordered by North-West Province borders in the north-east, the Free State Province in the east, the Eastern Cape Province in the south-east, and the Western Cape Province to the south and south-west. The Northern Cape consists of five districts, namely Frances Baard, Pixley ka Seme, Namakwa, ZF Mgcawu (previously known as Siyanda) and John Taolo Gaetsewe.

The John Taolo Gaetsewe DM (JTGDM), which lies in the north-east of the province, is geographically the second smallest of the five district municipalities in the province, covering a surface area 27 293 km² (6% of the province). It is bordered by the Siyanda District in the east, Botswana in the north, Francis Baard District to the south, and the North-West Province in the west. The JTGDM accounts for about 16% of the provincial population.

The Gamagara LM covers a surface area of 2 619 km², which is approximately 10% of the district's total surface area. It is located in the north-eastern sector of the Northern Cape, bordered by Ga-Segonyana LM in the east, Joe Morolong LM in the north, while Tsantsabane LM forms its south and west borders. Kathu serves as the LM's administrative centre, and it is primarily an iron ore and manganese mining area. The municipality has four major urban settlements - Kathu, Olifantshoek, Dibeng and Mapoteng/Sesheng. Dingleton was previously the fifth major settlement, but with the expansion of Sishen Mine, residents have had to be relocated, a process that began in 2014.

The region is dominated by mining activities to such an extent that the mines themselves - and the giant iron ore trucks at the mines - are considered a tourist attraction and a local landmark. Other major landmarks are the Kalahari Golf Estate close to Kathu, the Kathu Forest (declared a protected Woodland and registered as a national heritage site in 1995); the Gamagara River that runs through the region; the portion of Langeberg running through Olifantshoek; and the dam at the southern entrance of Olifantshoek with the potential of developing into a major tourism attraction.

An estimated, 18.5% of the District's population of 224 797 individuals reside in the Gamagara LM. Of these individuals 72%, or 29 969 people, constitute the Working Age Population (WAP); i.e. people between 15 and 64 years of age. However, only about two thirds (65.8%) of this group of people represent the Economically Active Population (EAP), while the rest are either not economically active (32%) or discouraged job seekers (3%). However, the municipality's labour force participation (LFP) or EAP rate is about 10 percentage points higher than that of the country and province, and close to 20 percentage points higher than that of the JTG DM, which has a labour force participation rate of 45.9%. Regarding the settlements within the local municipality, it is interesting to note that towns closer to the mine have a better EAP than those further away. Dibeng and Olifantshoek both record EAP rates of about 55%, while Kathu's and Sishen's EAP rates reach 76% and 67.2%, respectively.

The unemployment rate in the municipality was 17.7% as recorded during 2011 Census. This is significantly lower than the national average of 29.7%, the provincial average of 27.4%, and the district average of 30% recorded for the same year. Among the towns or main places, the lowest unemployment rates were observed in Kathu (unemployment rate of 10.9%) and Gamagara NU (only 8.6%), which is characterised by farming activities and where the majority of residents are employed at farms or at the mine. The worst unemployment situation was observed in Dibeng and Olifantshoek, where the unemployment rates were 26.4% and 26%, respectively, but these are still lower than the national average. Table 1 provides the labour force composition.

The formal sector provides for the majority of employment opportunities (63.9%) in the municipality, and this is higher than in the province (55.3%) and district (54.5%). However, as suggested by information presented in Figure 8, the informal sector also plays an important role in job creation in the municipality (7.7%), but still to a lesser extent than in the province (10.2%).

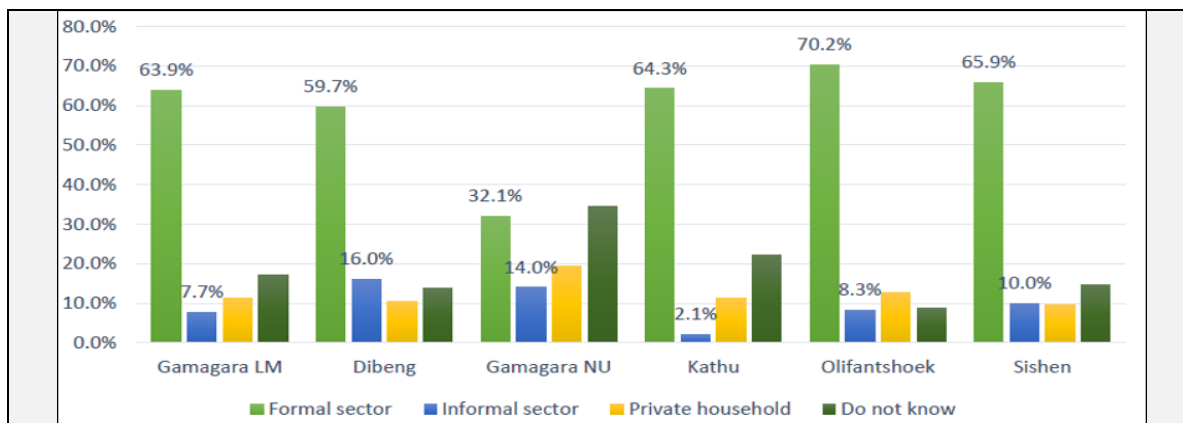


Figure 8: Employment Status

Furthermore, it is worth noting that the formal economic base in the towns of Kathu, Sishen and Olifantshoek is more prominent and absorbs a bigger percentage of the local labour force than that of Dibeng and the rural community of Gamagara NU. Private households in the municipality also create a notable number of employment opportunities, although they primarily provide unskilled and semi-skilled jobs and hire people as gardeners, housekeepers or child minders. Within the Gamagara LM, 13.3% of employment opportunities in both the formal and informal sectors stem from the primary sector, with 38% of these opportunities provided by the mining industry. However, 40.3% of all employment opportunities within the LM are as a result of the community and personal services, making the industry the single biggest employment creator within the Gamagara LM, followed by trade (18%) and agriculture (8.3%). Refer to Table 1 for reference.

Table 1: Employment by Economic Sectors in Gamagara LM economic sector

Indicator	Gamagara LM	Dibeng	Gamagara NU	Kathu	Olifantshoek	Sishen
Working age	29937	5007	779	8803	6459	8888
Labour Force	19686	2801	706	6691	3514	5974
Employed	16209	2061	645	5963	2599	4942
Unemployed	3477	740	61	728	915	1032
Discouraged job seekers	875	276	4	71	276	248
Unemployment Rate	17.7%	26.4%	8.6%	10.9%	26.0%	17.3%
LFP Rate	65.8%	55.9%	90.5%	76.0%	54.4%	67.2%

Economic profile of local municipality:

The structure of the economy and the composition of its employment provide valuable insight into the dependency of an area on specific sectors and its sensitivity to fluctuations of global and regional markets. Knowledge of the structure and the size of each sector are also important for the economic impact results' interpretation, as it allows for the assessment of the extent to which the proposed activity would change the economy, its structure, and trends of specific sectors.

1) Size and contribution of the local economy

The economy of the JTG District Municipality is based on mining (68% of provincial Gross Value Added (GVA)), followed by community, social and personal services at 12%. Agriculture and manufacturing, which are strong growth sectors and job creators, play a very insignificant role in the local economy of the district, at 1% and 1.4% respectively (JTG District Municipality 2011: 68). The strong reliance on mining makes the district's economy undiversified and vulnerable. The towns of Kathu and Kuruman grew rapidly due to new mining activities, while many of the villages in Joe Morolong have no economic base to build from and also very little expectation of any new developments or investments. Most services and transport are tied to the mining sector.

Retail activities increased significantly as a result of this increase in mining activities in the area in the past three years in Kathu and essentially fed off population size and available disposable income. Retail and financial services will grow further in Kuruman and Kathu as the population and job opportunities grow but will remain locally orientated for a long time to come as Kimberley and Upington are too strong to be challenged in the near future as regional service centres.

The number of households involved in agriculture contracted between 2001 and 2011. A total of 48% of all households in Joe Morolong depend on agriculture – often subsistence farming for an income. The percentages of households involved in agriculture for Ga-Segonyana and Gamagara are 22.3% and 11.11% respectively and tend to include commercial farms.

Cattle and game farming are the mainstay of the agricultural sector. Diversification of the local economy will be focused on agriculture, agro-processing, tourism and manufacturing. Kuruman has a strong base in government services, reflected in the fact that Ga-Segonyana Local Municipality generates 60.6% of JTG District Municipality's GVA for community, social and personal services GVA. In contrast, Kathu's local economy is totally dominated by the mining sector: 71.4% of GVA in the district comes from mines in Gamagara Local Municipality.

In the JTG district area, some ~416 beneficiaries have benefited from land reform schemes covering almost 28,000 ha. In many cases, the economic potential of land is inadequate as a source for economic livelihoods and this will have to be addressed in any future consideration of infrastructure investment and development. As a result, the development priorities should be maximisation of LED opportunities, promoting integration and linkages with the surrounding economy and providing appropriate levels of service.

The mining sector is the largest contributor to the Northern Cape's GDP and accounts for approximately 50% of the GDP of the JTG district area. Sishen Mine is the largest private sector employer in the Northern Cape and around 80% of Sishen mine's permanent employees are local; in other words they are recruited from the host or labour-sending municipalities in the JTG district. Some of these employees are from far-off areas in the rural Joe Morolong Local Municipality and have to relocate to Kathu, Sesheng or Mapoteng when taking up positions at the mine. Local employment from the district does not always mean that employees work close to home.

In addition to direct employment, regional mines offers indirect employment to employees working for suppliers or sub-contractors whose employment is attributable to business generated by mines. Induced employment means mining-related salaries (from direct and indirect employees) are being spent in the local economy and that leads to growth of local businesses and the employment of more people. Sishen mine specifically plays an important role in the economy, both in terms of local job creation and in the procurement of goods and services. In addition, Sishen mine regards its sustainable development efforts, with their strong focus on skills upliftment and enterprise development as playing a crucial role in addressing the issues of local unemployment and poverty alleviation.

In 2015, the economy of the Gamagara LM was valued at R4 385 million (current prices) and contributed 33.7% to the District's economy as well as 5.9% to the economy of the Northern Cape. A third of the local economy's GDP is generated by the mining sector, and specifically activities of the Kumba Iron Ore at its Sishen Mine. In 2016, the mine produced 28.4 million tonnes of iron ore; this was a decrease from 31.4 million tonnes in the previous year. Of the iron ore produced, 2.7 million tonnes were supplied to ArcelorMittal SA while the rest was exported. During the same year, South Africa exported approximately 58 million tons of iron-ore, meaning that SIOM alone contributed about 43% towards the volume of exported iron ore. It is estimated that the total iron-ore export value for South Africa amounted to R37.8 billion in the same year, which in turn accounted for about 13% of the total value of exported minerals and 3.6% of the country's total export value. Considering the above, total export revenue from the Sishen in 2016 can thus be estimated at R28 billion, which equates to 2.7% of national exports, and clearly illustrates the macroeconomic significance of the SIOC operations.

High dependence on iron ore mining activities in the municipality targeting international commodity markets resulted in the local economy being highly susceptible to economic dynamics globally. This is largely due to the dependency of the local economy on the global demand for iron ore and to some degree, on the stability of the industry internally (i.e. from a labour issue perspective).

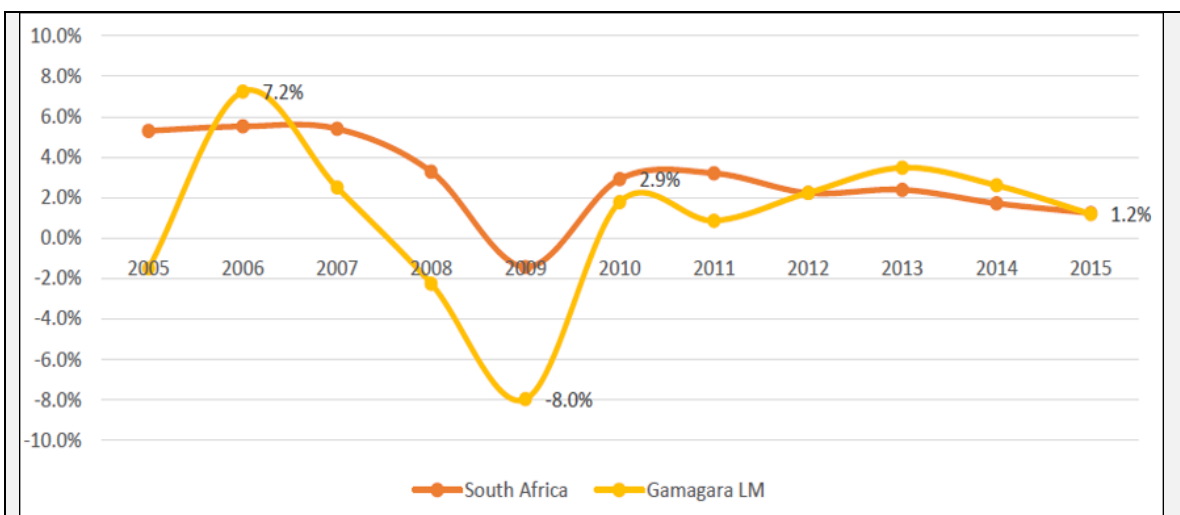


Figure 9: GDP Growth Rates for Gamagara LM and South Africa

The SIOM is clearly the main economic driver of the local municipality's. According to Kumba Iron Ore, SIOM has sufficient reserves to sustain operations until 2040. This means that the mine will continue supporting the local economy for that period; however, considering the sensitivity of the mine's performance towards the indigenous (i.e. labour issues) and exogenous (i.e. global demand for commodities) factors, the future growth of the local municipality will most likely be reflective of the historical trends with years characterised by high growth and years characterised by declining production. The proposed geological camp will serve to identify future mining potential to sustain SIOC operation post 2040.

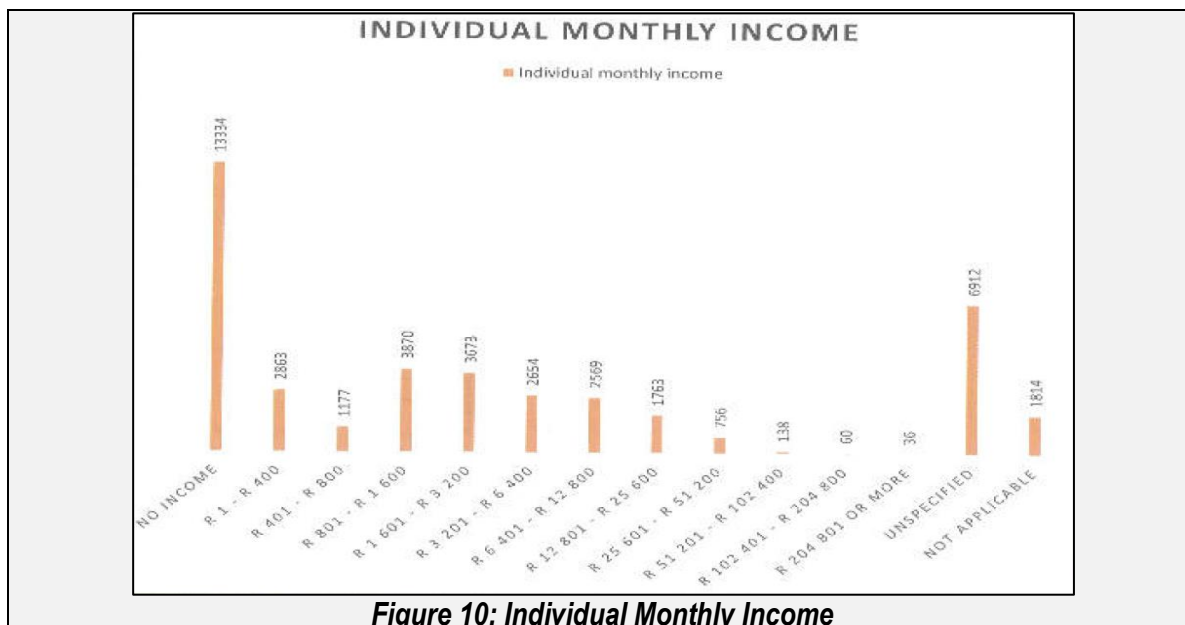
2) Structure of the economy and dynamics

As mentioned previously, the local economy is largely dependent on the mining sector, which contributed 32.9% or R1 433 million towards the Gamagara LM economy in 2015. The rest of the municipal economy comprises largely of the tertiary sector, aimed at servicing the local population and businesses, including Sishen Mine. Contributions from the retail trade (17.1%), personal services (13.6%) and transport (11.6%) industries carry the most weight in this sector. Retail activity has increased significantly over the past decade, as it is reliant on the population size and available disposable income. Agriculture's contribution to the local GDP was limited to 2.0% in 2015, and it is expected that it will not change significantly in the future. The regions climate as well water scarcity limits the type of agricultural activities that can be carried out in the area. The municipality's manufacturing sector is very weak (3.1% of the local economy), and while the contribution of the manufacturing sector to the local economy has been declining over the years, that of the construction sector has been growing.

High dependency on mining activities leaves the economy of Gamagara and its communities vulnerable to the volatile factors discussed above. While local government acknowledges the importance of the mining industry in the local economy, it also promotes diversification of local economic activities in order to reduce the risks and reliance and performance of the mining industry.

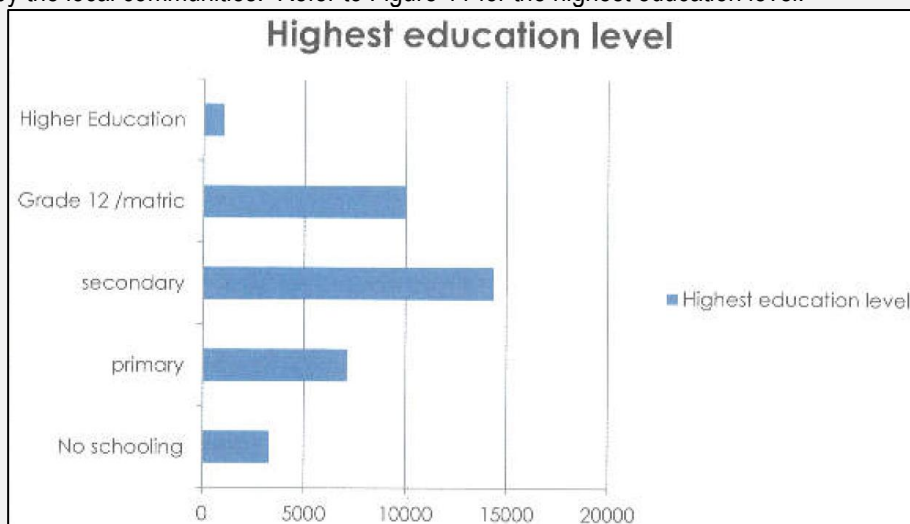
The majority of the people in the Gamagara municipal area have no monthly income, so the developmental initiatives should try and improve these people's lives. It is recorded that 32% of the population are not receiving any form of income considering the unemployment rate. It could be deduced that majority are constituted amongst the youth. It is further revealed that at least 64% of the population are earning less than R6 400.00 per month. The rate of inequality is very high as 36% of the population earn more than the rest. The economy of the Gamagara Local Municipality is reliant on the mining, agricultural, tourism and commercial sector in and around Kathu. Refer to Figure 10 for the Individual Monthly Income.

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Level of education:

From the figure below it is clear that there is a high number of people who has a secondary school education, followed by those who have matric. The number of those with no schooling has increased from the 2007 survey to 2011. The implication of the level of education indicate the type of job opportunities that can be accessed by the local communities. Refer to Figure 11 for the highest education level.



b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?
 What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?
 Is the activity a public amenity?

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

~R 60 mil	
R 0 – future value due to identification of minable resources	
YES	NO ✓
YES	NO ✓
Forty (40)	

What is the expected value of the employment opportunities during the development and construction phase?	~R 4.8 mil: construction planned to be completed over 8 months
What percentage of this will accrue to previously disadvantaged individuals?	~40%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Fifteen (15)
What is the expected current value of the employment opportunities during the first 10 years?	~R 60 mil
What percentage of this will accrue to previously disadvantaged individuals?	~80%

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	<p>The information below has been extracted from the biodiversity assessment as part of the environmental authorisation process for the development of an exploration office for the Anglo American Kumba Iron Ore Company, on the farm Demaneng, Kathu, Northern Cape prepared by Scientific Terrestrial Services, 2021, a copy which is provided in Appendix D1-3.</p> <p>According to the Northern Cape Critical Biodiversity Areas (2016) database, the study area is not located within a CBA.</p>

			<p>However, the southern portion of the study area is located within an Ecological Support Area (ESA). The ESA encompasses approximately 29 % (i.e., 11.52 ha) of the study area. ESAs are supporting zones or areas which must be safeguarded as they are needed to prevent degradation of surrounding CBAs and formal Protected Areas (Refer to Figure 12). The Terrestrial Sensitivity for the study has a very high sensitivity. The high sensitivity regions are a result of ESA. The CBA reason map indicated that the area is associated with rivers (e.g., the Gamagara River in the south), wetland systems, Conservation areas, the Kuruman Thornveld, and Kuruman Mountain Bushveld. The remaining sections within the northern portion of the study area are located within areas designated as “Other Natural Areas”. The Biodiversity Assessment undertaken as part of the proposed project is also provided in Appendix D1-3.</p>
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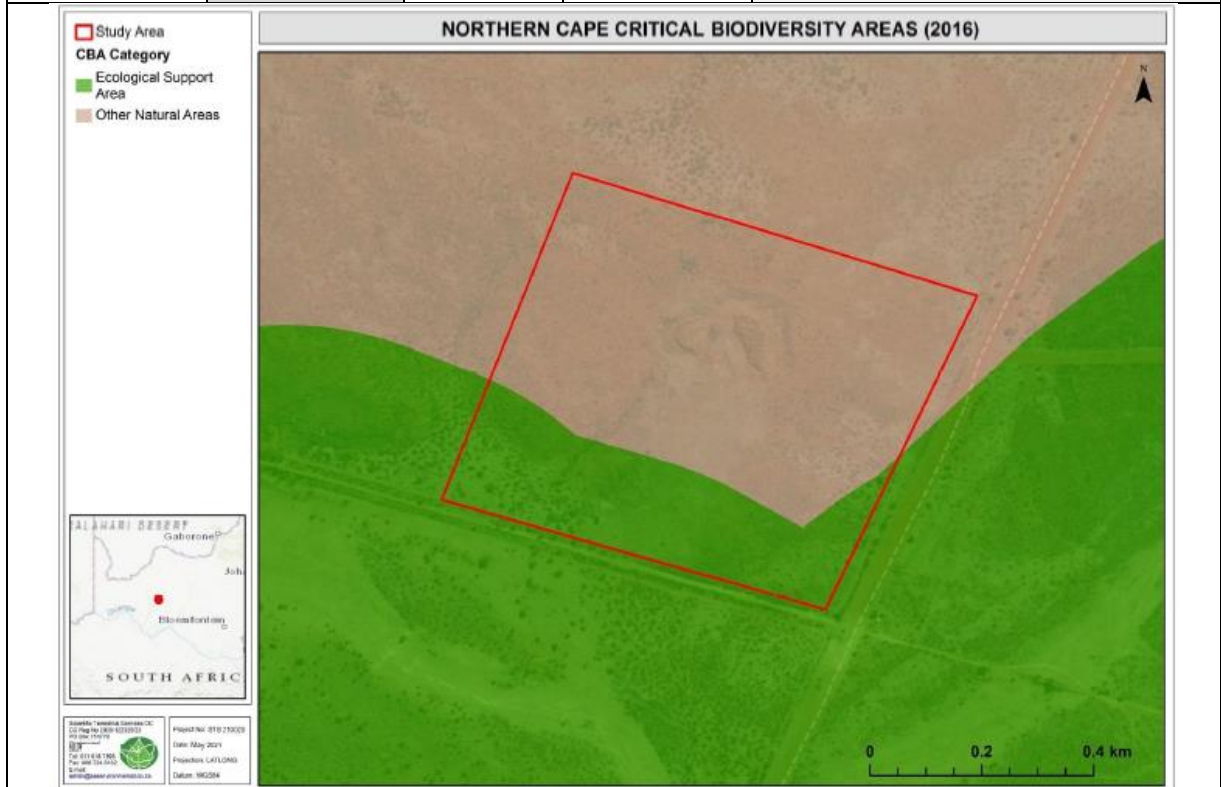


Figure 12: Important biodiversity features relating to the study area according to the Northern Cape CBA Map (2016).

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
<p>Natural</p>	<p>0.8%</p>	<p><u>Rocky Habitat Unit</u> The habitat consisted of scattered, flat rocky habitat throughout the study area. Tall trees were largely lacking within the habitat unit. A selection of graminoids, herb, and low shrubs dominated this habitat unit. This habitat unit has not been invaded by AIP and has not been subjected to vast amounts of grazing and encroachment and is thus in an overall good ecological condition. Consequently, the overall species composition, structure and ecological function of the habitat unit is intact. The habitat unit thus shares an affinity with the reference vegetation type (STS, 2021).</p> <p><u>Vegetation structure:</u> The vegetation structure of the Rocky Habitat Unit can be described as scattered rocky areas that supported a moderate species richness, and unique species not recorded elsewhere in the study area. Alien and Invasive Plant (“AIP”) species were largely absent throughout the habitat unit.</p> <p>The Rocky Habitat patches scattered within the southern section of the study area are located within ESAs. Additionally, the site is also located within the Griqualand West Centre (GWC) of plant endemism. Furthermore, given the rocky nature, as thus unique habitat that is associated thereof, the presence of unique habitat, suitable for potentially support GWC endemics is potentially available. No threatened floral Species of Conservation Concern (“SCC”) were recorded on site during the April 2021 field assessment. No protected tree species as per NFA or TOPS listed species were observed within the habitat unit.</p> <p>This habitat unit comprised the smallest extent within the study area, approximately 0.34 ha, and was better represented within the eastern section of the study area</p>
<p>Near Natural (includes areas with low to moderate level of alien invasive plants)</p>	<p>75.7%</p>	<p><u>Senegalia-Tarconanthus Open Thornveld Habitat Unit</u> This habitat unit is associated with a well-developed, open tree and shrub layer which is interspaced by open veld. AIPs were scarcely recorded throughout this Habitat Unit. The overall habitat is intact and in good ecological condition. However, it should be noted that in some sections, particularly within the north and northwest sections of the study area, bush encroachment is evident, although it is currently not prolific (STS, 2021).</p> <p>Much of this habitat unit comprised of red sandy soils, although deep sandy soils (that were historically associated with the Gamagara River and thus alluvial in nature) are concentrated within the southwestern section of the study area. The high density of NFA tree species within the southwest of the study area is potentially to these deep sandy soils.</p> <p><u>Vegetation structure:</u> Open thornveld, with an almost continuous grass layer.</p>

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		<p>The southern section of this habitat unit is located within an ESA. ESAs are supporting zones or areas which must be safeguarded as they are needed to prevent degradation of surrounding CBAs and formal Protected Areas. Additionally, is also located within the Griqualand West Centre (GWC) of plant endemism. This semi-arid region is broadly described as Savanna, forming part of the Eastern Kalahari Bushveld Bioregion. Studies investigating the endemism of the centre report at least 23 plant species that have restricted distributions (Frisby et al. 2019). As such, the presence of unique habitat, suitable for potentially support GWC endemics is potentially available.</p> <p>Additionally, protected tree species as per the National Forest Act, 1998 (Act No. 84 of 1998) (NFA), were observed within the Habitat Unit. Suitable habitat for the following NFA protected species is available within the habitat unit:</p> <ul style="list-style-type: none"> - <i>Vachellia erioloba</i> - <i>Vachellia haematoxylon</i>; and - <i>Boscia albitrunca</i>. <p>Permits from the DENC and authorisation from the Department of Forestry, Fisheries, and the Environment (DFFE) should be obtained to remove, cut, or destroy any of the above-mentioned protected and/or threatened species before any vegetation clearing may take place.</p> <p>This is the largest habitat within the study area, comprising an area of approximately 30.29 ha;</p>
<p>Transformed (includes cultivation, dams, urban, plantation, roads, etc)</p>	<p>23.5%</p>	<p><u>Transformed Habitat Unit</u></p> <p>This habitat unit is currently transformed in nature (due to historic excavation and dumping activities or has experienced historic modification without rehabilitation to the reference state). Overall, the species diversity associated with this Habitat Unit was low. This habitat unit has experienced a shift, in terms of species composition, structure and function, from the reference vegetation type and is thus not considered to be representative thereof.</p> <p><u>Vegetation structure:</u> The vegetation structure can be defined as transformed habitat in which no specific vegetation structure was evident. Floral diversity was moderately low within this habitat unit. AIPs were most prolific within this habitat unit, although a low diversity of AIPs was recorded.</p> <p>No threatened floral SCC were recorded on site during the April 2021 field assessment. Additionally, protected tree species as per the NFA, were observed within the subunit. Suitable habitat for the following NFA protected species is / is potentially available within the habitat unit: <i>Vachellia erioloba</i>. No TOPS listed species were observed within the habitat unit.</p> <p>This is the second-largest habitat within the study area, comprising approximately 9.5 ha.</p>

BASIC ASSESSMENT REPORT

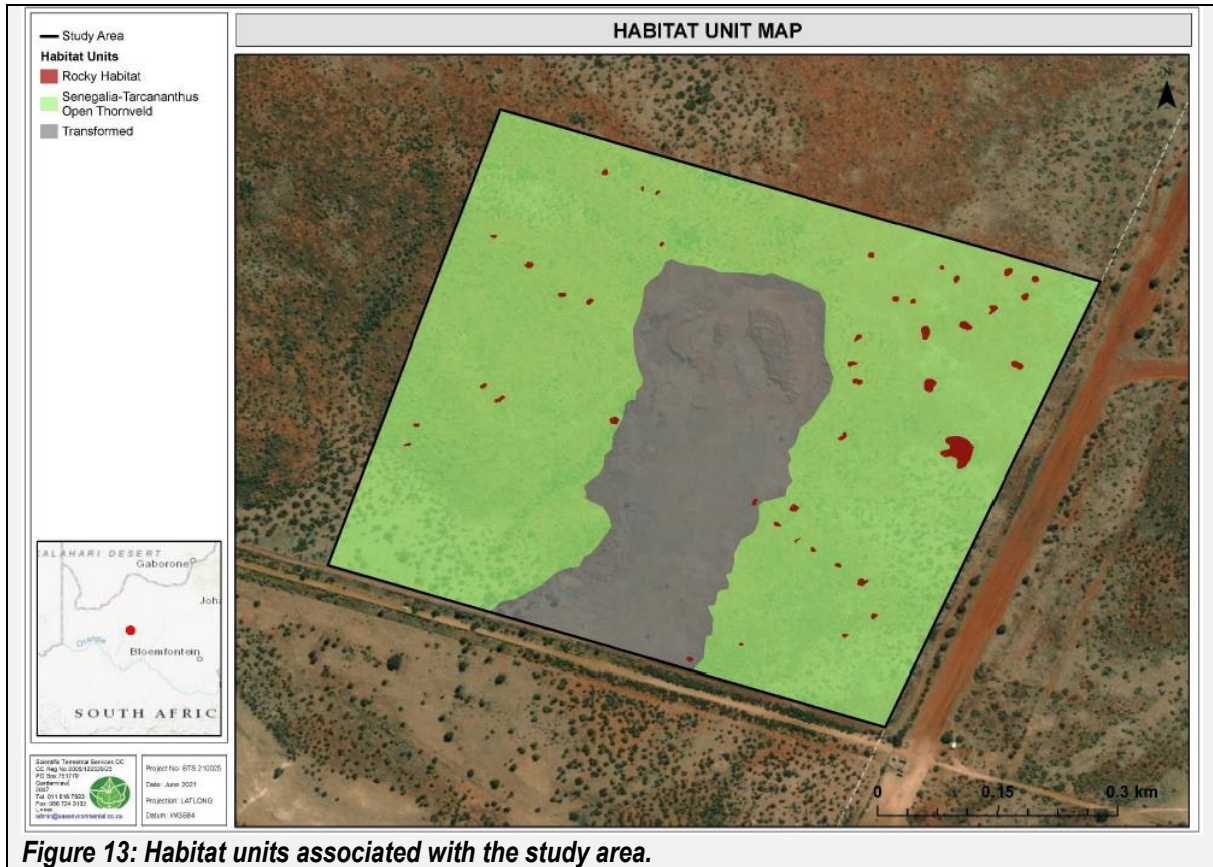


Figure 13: Habitat units associated with the study area.

- c) Complete the table to indicate:
- (i) the type of vegetation, including its ecosystem status, present on the site; and
 - (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened							

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Floral/Vegetation Types

The information below has been extracted from the biodiversity assessment as part of the environmental authorisation process for the development of an exploration office for the Anglo American Kumba Iron Ore Company, on the farm Demaneng, Kathu, Northern Cape prepared by Scientific Terrestrial Services, 2021, a copy which is provided in Appendix D1-3.

The study area is located within the Kuruman Thornveld vegetation type (Mucina and Rutherford, 2006), which was used as the reference state in the assessment. The Kuruman Thornveld is considered to be of Least Concern (Mucina & Rutherford 2006) and is described as having flat rocky plains and some sloping hills with a very well-developed, closed shrub layer and well-developed open tree stratum consisting of *Vachellia erioloba* (STS, 2021).

Based on the results of the field investigation of April 2021 (refer to section 9 above), three broad floral habitat units were identified on the site.

1. Senegalia-Tarconanthus Open Thornveld

1.1. Habitat Overview

The Senegalia-Tarconanthus Open Thornveld is associated with a well-developed, open tree and shrub layer which is interspaced by open veld. Alien and Invasive Plant (AIPs) were scarcely recorded throughout this Habitat Unit. The overall habitat is intact and in good ecological condition. However, it should be noted that in some sections, particularly within the north and northwest sections of the study area, bush encroachment is evident, although it is currently not prolific. The main encroacher species is *S. mellifera* subsp. *Detinens*. Despite the grazing pressures and encroachment experienced within the study area, the study area does share an affinity (in terms of species composition and structure) with the reference vegetation type, i.e., the Kuruman Thornveld. Much of this habitat unit comprised of red sandy soils, although deep sandy soils (that were historically associated with the Gamagara River and thus alluvial in nature) are concentrated within the southwestern section of the study area. The high density of NFA tree species within the southwest of the study area is potentially to these deep sandy soils.

1.2. Vegetation Structure

Open thornveld, with an almost continuous grass layer

1.3. Compositional characteristics of the Habitat Unit

- The open thornveld habitat is largely dominated by *Senegalia mellifera* subsp. *Detinens* and *Tarconanthus camphoratus*.
- The graminoid layer was continuous and well represented, in terms of cover and diversity. Common grass species observed within the unit included *Aristida congesta* subsp. *Congesta*, *Aristida meridionalis*, *Eragrostis echinochloidea*, *Eragrostis trichophora*, *Melinis repens* and *Chloris virgata*;
- Representative shrub, forb and herb species included *Geigeria ornativa*, *Dicoma schinzii*, *Gisekia africana*, *Harpagophytum procumbens* subsp. *Procumbens* and *Kyphocarpa angustifolia*;
- The tree layer was well represented with dominant species comprising *Vachellia erioloba*, *Senegalia mellifera* subsp. *Detinens*, *Tarconanthus camphoratus*, *Diospyros lycoides* subsp. *Lycoides* and *Ziziphus mucronata*; and
- AIPs were scarcely recorded within this habitat unit.

1.4. Species of Conservation Concern

No threatened floral SCC were recorded on site during the April 2021 field assessment. In terms of Section 56 of the National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004) (NEMBA), threatened species are Red Data Listed (RDL) species falling into the Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected (P) categories of ecological status. The National Web-based Environmental Screening Tool indicated that the study area is in an area of Low Sensitivity from a Plant Species Theme perspective. As such, no SCC are expected to be associated with this habitat unit

as per the screening tool. This sensitivity score was supported for this habitat as no available habitat for RDL species was recorded. Additionally, protected tree species as per the National Forest Act, 1998 (Act No. 84 of 1998) (NFA), were observed within the Habitat Unit. Suitable habitat for the following NFA protected species is available within the habitat unit:

- *Vachellia erioloba*;
- *Vachellia haematoxylon*; and
- *Boscia albitrunca*.

1.5. Key Considerations

This habitat unit is considered important from a floral ecological importance and resource management perspective. The key consideration includes the following:

- This habitat unit is in an overall good ecological condition. Although encroachment is evident within the habitat unit, these factors are infrequent and not prolific and, as such, have not led to a shift in species composition, overall structure, and ecological function of the habitat. Given that AIPs within this habitat unit are very low and that factors such as herbivory and encroachment are not prolific and have not resulted in the significant shift of species composition, the habitat unit is considered to share an affinity with the reference vegetation type.
- This habitat unit provides suitable habitat to sustain viable populations of several floral SCC as per the NCNCA and NFA. If the proposed layout is authorised, it will be necessary to conduct a thorough walkdown of the footprint areas and all protected and threatened floral species encountered marked for relocation to suitable habitat outside the direct footprint (as far as is feasible). The protected species walkdown must be conducted during the flowering season of the species to ensure adequate detection and identification of the species – November to June will be ideal for this area. Good record-keeping will be necessary to record this process and to document all successes and failures associated with the relocation.
- The southern section of this habitat unit is located within an ESA. ESAs are supporting zones or areas which must be safeguarded as they are needed to prevent degradation of surrounding CBAs and formal Protected Areas. As the vegetation within the *Senegalia-Tarconanthus* Open Thornveld vegetation is considered to share an affinity with the reference vegetation type and that several SCC are present within the habitat unit, the classification of the southern sections of the study area as an ESA can be confirmed. Within ESAs, development should be planned, and activities undertaken in a way that minimises impact on ecological processes, e.g., limiting fragmentation of habitat especially as ESAs within the Northern Cape serve as climate change resilient areas and are important for landscape structural elements (Oosthuysen & Holness 2016).
- In terms of the National Web-based Environmental Screening Tool outcome, the entire study area was deemed to have a “low sensitivity”. This sensitivity score was supported for this habitat as no available habitat for RDL species was recorded. Furthermore, given the location of this habitat unit within ESA areas the “very high sensitivity” assigned to the Terrestrial Biodiversity Theme by the screening tool can be confirmed.
- Currently, this habitat unit does not support many AIP species. However, if the proposed infrastructure development is authorised, construction activities within parts of this habitat unit that are not included within the development footprint as well as the surrounding natural areas will be at increased risk of being invaded by AIPs. It is recommended that an AIP species management plan be developed to manage AIP proliferation within the unit and the surrounding natural areas. It is vital that care is taken to limit edge effect impacts on the surrounding natural areas.

2. Transformed Habitat Unit

2.1. Habitat Overview

This habitat unit is transformed in nature. It has been subjected to recent excavation and dumping activities and has further experienced historic modification without rehabilitation to the reference state. Overall, the species diversity associated with this Habitat Unit was low. This habitat unit has experienced a shift, in terms of species composition, structure and function, from the reference vegetation type and is thus not considered to be representative thereof.

2.2. Vegetation Structure

The vegetation structure can be defined as transformed habitat in which no specific vegetation structure was evident. Floral diversity was moderately low within this habitat unit. AIPs were most prolific within this habitat unit, although a low diversity of AIPs was recorded.

2.3. Compositional characteristics of the subunit:

- Graminoids were dominant, although species richness was low, within the habitat unit. Common grass species observed on site included *M. repens*, *Cynodon dactylon* and *A. congesta subsp. congesta*;
- Representative shrub, forb and herb species *Solanum incanum*, *Tribulus zeyheri subsp. zeyheri* and *Gomphocarpus fruticosus*;
- The tree layer was largely absent although individuals of *S. mellifera subsp. detinens* were occasionally recorded within the subunit; and
- AIPs were most prominent within the habitat subunit, and included the following species: *Tagetes minuta*, *Alternanthera pungens*, *Datura ferox* and *Pennisetum setaceum*.

2.4. Species of Conservation Concern

- No threatened floral SCC were recorded on site. The National Web-based Environmental Screening Tool indicated that the study area is in an area of low Sensitivity from a Plant Species Theme perspective. As such, no SCC are expected to be associated with this habitat unit as per the screening tool. This sensitivity score was supported for this habitat as no available habitat for RDL species was recorded.
- No protected tree species as per the NFA, were observed within the subunit. Suitable habitat for the following NFA protected species is / is potentially available within the habitat unit: *Vachellia erioloba*.
- No TOPS listed species were observed within the habitat unit.

2.5. Key Considerations

This habitat unit is not considered to be important from a floral ecological and resource management perspective. The key consideration includes the following:

- Due to its transformed nature, and associated shift in compositional characteristics of this habitat unit from its original state, the habitat unit is not considered represent the reference vegetation type, namely the Kuruman Thornveld. Despite the habitat unit not being representative of the reference vegetation type, this unit provides suitable habitat to sustain viable populations of some floral SCC, particularly the NCNCA protected species, *G. fruticosus*, and a NFA protected species, *V. erioloba*. No suitable habitat was available for RDL species
- If the proposed development is authorised, it will be necessary to conduct a thorough walkdown of the footprint areas and all protected and floral species marked for possible relocation (where feasible). It should be noted that *V. erioloba* cannot be relocated. Permits from the DENC and authorisation from the DFFE should be obtained to remove, cut, or destroy any of the above-mentioned protected and/or threatened species before any vegetation clearing may take place.
- In terms of the National Web-based Environmental Screening Tool outcome, these areas align with the low sensitivity assigned to the Plant Species Theme as the habitat does not support extensive floral diversity and is not deemed important for the conservation of protected species. In terms of the Very High Sensitivity assigned to the Terrestrial Biodiversity Theme, this habitat unit does not align with the screening tool outcome as having a “very high sensitivity”. The southern sections of this Habitat Unit were identified as being located within an ESA, however, the available habitat within the Transformed Habitat is no longer considered to be representative of an ESA.
- Due to the area already being exposed to disturbances and edge effect impacts from current and historic modification (e.g., excavation), this habitat unit is susceptible to AIP proliferation. Care must be taken to limit edge effect impacts on the surrounding natural areas. Furthermore, it is recommended that an AIP species management plan be developed to manage AIP proliferation within the subunit, and further the Transformed Habitat Unit as a whole.

- Given the lower diversity, and overall transformed nature of this Habitat Unit, layout designs within this unit should be optimised.

3. Rocky Habitat Unit

3.1. Habitat Overview

The habitat consisted of scattered, flat rocky habitat throughout the study area. Tall trees were largely lacking within the habitat unit. A selection of graminoids, herb, and low shrubs dominated this habitat unit.

3.2. Vegetation Structure

The vegetation structure of the Rocky Habitat Unit can be described as scattered rocky areas that supported a moderate species richness, and unique species not recorded elsewhere in the study area. AIP species were largely absent throughout the habitat unit.

3.3. Compositional characteristics of the subunit:

- The graminoid layer was interspersed and scattered, in terms of cover. Common grass species observed on site included *A. congesta subsp. congesta*, *Schmidia pappophoroides*, *M. repens* and *Cymbopogon caesius*;
- Representative shrub, forb and herb species included *G. ornativa*, *K. angustifolia*, *Blepharis furcata*, *Felicia filifolia*, *D. lycoides supsp. Lycoides*, *Justicia divaricata* *Cadaba aphylla* and *Gazania krebsiana*;
- Tree species were not dominant, although occasional individuals of *S. mellifera subsp. detinens* were recorded; and
- AIPs were scarcely recorded within this habitat unit.

3.4. Species of Conservation Concern

- No threatened floral SCC were recorded on site. The National Web-based Environmental Screening Tool indicated that the study area is in an area of Low Sensitivity from a Plant Species Theme perspective. As such, no SCC are expected to be associated with this habitat unit as per the screening tool.
- No protected tree species as per NFA or TOPS listed species were observed within the habitat unit.

3.5. Key Considerations

This habitat unit is considered important from a floral ecological importance and resource management perspective. The key consideration includes the following:

- This habitat unit has not been invaded by AIP and has not been subjected to vast amounts of grazing and encroachment and is thus in an overall good ecological condition. Consequently, the overall species composition, structure and ecological function of the habitat unit is intact. The habitat unit thus shares an affinity with the reference vegetation type.
- This habitat unit provides suitable habitat to sustain viable populations of several floral SCC as per the NCNCA. Where infrastructure realignment is not possible, all protected and floral species should be marked for relocation to suitable habitat outside the direct footprint (as far as is feasible). The protected species walkdown must be conducted during the flowering season of the species to ensure adequate detection and identification of the species. Good record-keeping will be necessary to record this process and to document all successes and failures associated with the relocation.
- The rocky habitat in the southern section of the study area is located within an ESA. ESAs are supporting zones or areas which must be safeguarded as they are needed to prevent degradation of surrounding CBAs and formal Protected Areas. As the vegetation within the Rocky Habitat is considered to share an affinity with the reference vegetation type and that several SCC are present within the habitat unit, the classification of the habitat unit within the southern sections of the study area as an ESA can be confirmed. Within ESAs, development should be planned, and activities undertaken, in a way that minimises impact on ecological processes, e.g., limiting fragmentation of habitat especially as ESAs within the Northern Cape serve as climate change resilient areas and are important for landscape structural elements (Oosthuysen & Holness 2016).

- In terms of the National Web-based Environmental Screening Tool outcome, the entire study area was deemed to have a “low sensitivity”. No RDL species or available habitat for RDL species was recorded on site, thus confirming the sensitivity provided by the Screening Tool. Furthermore, given the location of this habitat unit within ESA areas the “very high sensitivity” assigned to the Terrestrial Biodiversity Theme by the screening tool can be confirmed.
- Currently, this habitat unit does not support AIP species. However, if the proposed infrastructure development is authorised construction activities within parts of this habitat unit as well as in the surrounding Habitat Units and the surrounding natural areas will be at increased risk of being invaded by AIPs. It is recommended that an AIP species management plan be developed to manage AIP proliferation within the unit and the surrounding natural areas. It is vital that care is taken to limit edge effects on the surrounding natural areas.

AQUATIC ECOSYSTEM

The information below has been extracted from the freshwater ecosystem verification, delineation, and high-level ecological status determination for the proposed Kumba Iron Ore Demaneng exploration camp near Kathu, Northern Cape Province prepared by Scientific Aquatic Services, 2021, a copy which is provided in Appendix D4.

No features meeting the definition of either a wetland or riparian habitat occur within the study area. A single watercourse, namely the Ga-Mogara River, was identified 250 m south of the study area. The reach of the Ga-Mogara River situated within the investigation area was partially delineated in the field and the delineation subsequently refined with the use of historical imagery, current digital satellite imagery, topographical maps and 5 m contours. The watercourse delineation as presented in this report is thus regarded as a best estimate of the boundary of the applicable reach of the Ga-Mogara River based on the site conditions present at the time of assessment (refer to Figure 14).

As an episodic system, the Ga-Mogara River does not possess a well-defined riparian zone; however, the floral species composition and structure is sufficiently distinct from the surrounding upland areas to discern where the riparian zone boundaries are. (Van Rooyen, 2001).

The Ga-Mogara River is a highly episodic system, flowing only when sufficient rainfall has been received. The river most recently flowed in January 2021; prior to that, as far as could be ascertained from available literature (Shaw et al, 1992) and anecdotal evidence, it last flowed in February 1988. The Ga-Mogara River is characterised as an Inland System, falling within the Eastern Kalahari Bushveld Group 3 Wetland Vegetation (WetVeg) type, classified as Least Threatened by SANBI (2012) and Mbona et al, 2015. At Levels 3 (Landscape Unit) and 4 (HGM Type) of the Classification System, the river was classified as per the summary in Table 2 below.

Table 2: Characterisation at Levels 3 and 4 of the Classification System (Ollis et al., 2013) of the wetlands associated with the study area and investigation area

Freshwater ecosystem	Level 3: Landscape Unit	Level 4: HGM Type
Ga-Mogara River	Valley floor: The base of a valley, situated between two distinct valley side-slopes.	River: A linear landform with clearly discernible bed and banks, which permanently or periodically carries a concentrated flow of water. A river is taken to include both the active channel and the riparian zone as a unit.

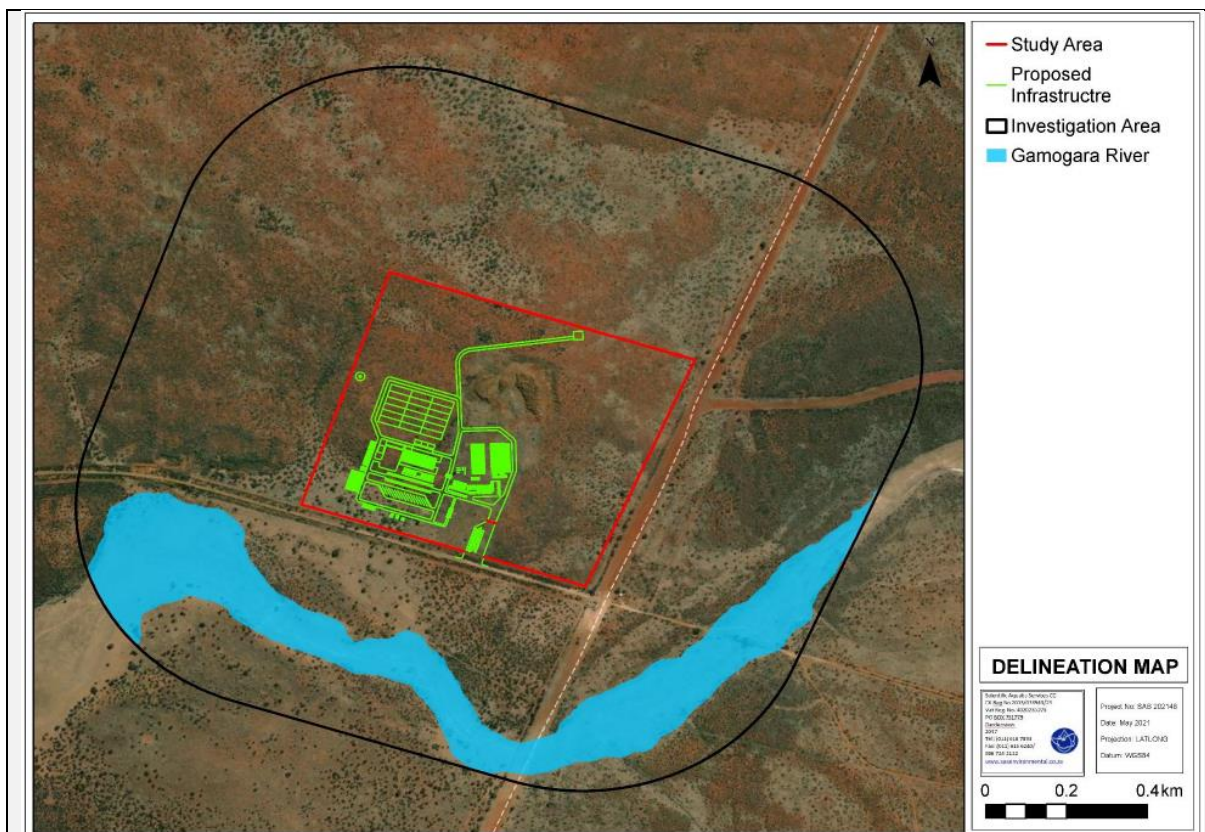


Figure 14: The delineated extent of the Ga-Mogara River and associated riparian zone associated with the study and investigation areas.

The study area is situated between 215 m and 400 m north and upgradient of the Ga-Mogara River, and is characterised by gently sloping, undulating topography. At the time of the assessment, the region had experienced above-average rainfall in the summer season, and as such, the vegetation cover throughout the majority of the study area as well as the immediate surrounds was relatively dense with good basal cover.

The exception to this is a disturbed area in the central portion of the study area and the wide gravel road which borders the southern edge of the study area. The relevant Zones of Regulation (ZoR) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and GN 509 of the National Water Act, 1998 (Act No. 36 of 1998), are illustrated in Figure 15 below.

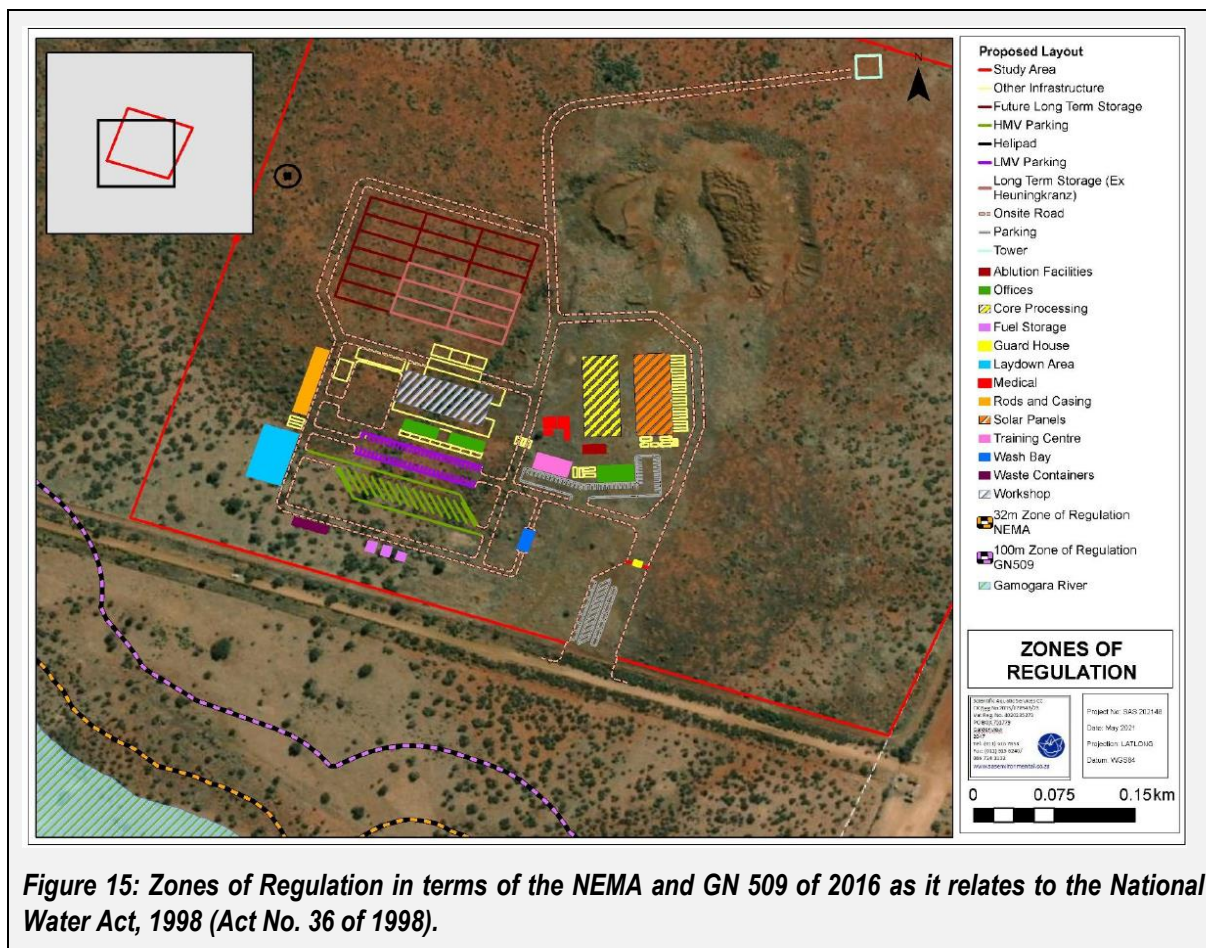


Figure 15: Zones of Regulation in terms of the NEMA and GN 509 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998).

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Kathu Gazette; Noordkaap Bulletin.	
Date published	Kathu Gazette: 29/05/2021 Noordkaap Bulletin: 27/05/2021	
Site notice position	Latitude	Longitude
	27°50'2.53"S	23° 5'13.56"E
Date placed	03/06/2021	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

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Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p><u>Ditukus Projects (Pty) Ltd</u> Ditukus holds a Prospecting Right over the Remaining Extent and Portion 1 of the Farm Demaneng 546. Ditukus and SIOC entered into a Surface Use and Compensation Agreement in November 2018.</p> <p>Ditukus is concerned that:</p> <ol style="list-style-type: none"> 1. the proposed activities of SIOC could interfere with the invasive prospecting activities of Ditukus; and 2. the proposed activities could have a legal liability (environmental / safety) on Ditukus' activities. 	<p>Acknowledged receipt of email dated.</p> <p>Confirmed that we will register Ditukus as a I&AP and will provide them with a copy of the Application for Environmental Authorisation, a copy of the Basic Assessment Report as well as any other relevant documentation pertaining to the proposed project, as requested.</p>
<p><u>Department of Agriculture, Environmental Affairs, Rural Development and Land Reform</u> The developer must take care of the following: Utilisation and protection of vleis, marshes, water sponges and water courses.</p> <p>7. (1) ".....no land user shall utilize the vegetation in a vleis, marsh, water sponge or within the flood area of water courses or within 10 metres horizontally outside such a flood area in a manner that causes or may cause the deterioration of or damage to the natural agriculture resources."</p> <p>3(b) " cultivate any land on his farm unit within the flood area of a water course or within 10 metres horizontally outside the flood area of a water course"</p> <p>Take also care of the following: who is the current landowner, will it be subdivision of land or a lease contract between the developer and the landowner? Rezoning will also be applicable because the land use will change from the current agricultural status.</p> <p>The Department of Agriculture, Environmental Affairs, Rural Development and Land Reform foresees no problems in the developments as long as the developer adheres to the articles of Act 43 of 1983.</p>	<p>Acknowledged receipt of email dated. The land is currently owned by SIOC. SIOC is also planning to submit a rezoning application.</p>
<p><u>Gosies Community</u> The Gosies Community requested a meeting with the Chief and the members of the committee of the Gosies Community to explain the project to them. They requested that the road to the Gosies community be scraped as well. A meeting is scheduled for the 23rd of July 2021.</p>	<p>Acknowledged receipt of meeting dated. The meeting is planned to be scheduled during the review of the BAR. The minutes of the meeting will be taken and attached to the final BAR.</p>

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	Fax No	e-mail	Postal address
NORTHERN CAPE: DEPARTMENT OF WATER & SANITATION	ABE	ABRAHAMS	053 836 7600	086 650 9646	AbrahamsA@dws.gov.za	PRIVATE BAG X6101, KIMBERLEY, 8301
VAAL RIVER PROTO - CAM	PHILANI	MSIMANGO	053 836 7649	086 650 9646	MsimangoP@dws.gov.za	PRIVATE BAG X6101, KIMBERLEY, 8301
NORTHERN CAPE: DEPARTMENT OF AGRICULTURE, FORESTRY & FISHERIES	JACOLINE	MANS	054 338 5909	054 334 0030	JacolineMa@daff.gov.za	PRIVATE BAG X5912, UPINGTON, 8800
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	NTSUNDENI	RHAVUGHO NI	053 807 1700		ntsundeni.ravhugoni@dmr.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8300
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	MALATJIE				livhuwani.malatjie@dmr.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8301
DEPARTMENT OF ENVIRONMENT AND NATURE CONSERVATION	DINEO	MOLEKO	053 807 7300	053 807 7328/67	dmoleko@ncpg.gov.za	
NORTHERN CAPE: DEPARTMENT OF LAND REFORM AND RURAL DEVELOPMENT	W.	MOTHIBI	053 838 9100	053 831 4685/3635		
NORTHERN CAPE: DEPARTMENT OF ECONOMIC DEVELOPMENT AND TOURISM	DARIUS	BABUSENG	053 839 4000	053 831 3668	dedat@ncpg.gov.za	
DEPARTMENT OF ROADS AND PUBLIC WORKS	KOLEKILE	NOGWILE	053 839 2100	053 839 2291	drpw-Info@ncpg.gov.za	
DEPARTMENT OF SOCIAL DEVELOPMENT	ELIZABETH	BOTES	053 874 9100	053 871 1062		
SOUTH AFRICAN HERITAGE RESOURCES COUNCIL	SAHRIS		021 462 4502	021 462 4509	info@sahra.org.za	
SOUTH AFRICAN HERITAGE RESOURCES AGENCY	REDELSTORFF	RAGAN	021 202 8651	(0)21 202 4509	rredelstorff@sahra.org.za	PO Box 4637, Cape Town 2000
DEPARTMENT OF DEFENCE	SM	DLAMINI	0123556365		siphiwe.dlamini@dod.mil.za	

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Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	Fax No	e-mail	Postal address
LOHATLA	VELNE	LAKAY	053 321 2259	0865890414	lohatla@sa-armyfoundation.co.za	
SANBI	CRAIG	ALLENBY			C.Allenby@sanbi.org.za	
NORTHERN CAPE DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND NATURE CONSERVATION	SYLVIA	LUCAS	053 832 1026	054 832 1022	slucas@ncpg.gov.za	
DEPARTMENT OF TOURISM AND ENVIRONMENTAL CONSERVATION	SIBONELO	MBANJWA			smbanjwa@half.ncape.gov.za	
DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT	NJ	TOERINE	054 337 8000	054 337 8001	ntoerien1@gmail.com	P O Box 52, Upington, 8800
DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT	CHRISTO	SMIT	054 337 8000	054 337 8001	jabu.smit@gmail.com	P O Box 52, Upington, 8800
GAMAGARA LOCAL MUNICIPALITY	PROTEA	LESERWANE	082 940 1876	053 723 2021	protea@gamagara.co.za	PO BOX 1001, KATHU, 8446
GAMAGARA LOCAL MUNICIPALITY	EDWIN	HANTISE	0761199642	053 723 2021	hantisee@gamagara.co.za	PO BOX 1001, KATHU, 8446
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	CLLR. SOPHIA	MOSIKATSI	082 777 1145	053 712 2502	mosikatsis@taologatsewe.gov.za	PO BOX 1480, KURUMAN, 8460
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	DISANG	MOLAOLE		053 712 2502	molaoled@taologatsewe.gov.za	PO BOX 1480, KURUMAN, 8460
JOE MOROLONG LOCAL MUNICIPALITY	DINEO	LEUTLWETSE	0796561938	053 773 9350	dineoleu1@gmail.com	PRIVATE BAG X117, MOTHIBISTAD, 8474
JOE MOROLONG LOCAL MUNICIPALITY	TEBOGO	THLOAELE	0823313477	053 773 9350	mm@joemorolong.gov.za	PRIVATE BAG X117, MOTHIBISTAD, 8474
GA SEGONYANA LOCAL MUNICIPALITY	CLLR. NEO	MASEGALA	0537129300	053 712 3581	ngmasegela@icloud.com	PRIVATE BAG X 1522, KURUMAN, 8460
GA SEGONYANA LOCAL MUNICIPALITY	MARTIN	TSATSIMPE	0827273823	053 712 3581	mtsatsimpe@gmail.com	PRIVATE BAG X 1522, KURUMAN, 8460
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	BOTTSHOKO	SEGOJE	063 779 9828		segojeb@taologatsewe.gov.za	
GAMAGARA WARD 6	WILLEM	AUCAMP	083 305 8892		willie@aucampstud.com	
GAMAGARA WARD 1	HENRIETTE	DU PLESSIS	0718028415		henrietteduplessis95@gmail.com	
GAMAGARA WARD 2	ABEL	BOOYSEN	0769431058		abooyesen45@gmail.com	

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Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	Fax No	e-mail	Postal address
GAMAGARA WARD 3	MONICA	OPERN	0783433375		orpenmonica@gmail.com ; 2orpen.monica@gmail.com	
GAMAGARA WARD 4	BP	LEKGADI			lekgadibp90@gmail.com	
GAMAGARA WARD 5	N	MAGAGANE	0645450206		magaganen@gamagara.co.za	
GAMAGARA WARD 6	CHARLOTT	JOSEPH	0799447362		cvjoseph312@gmail.com	
GAMAGARA WARD 7	HENNIE	FOURIE	0723807214		hennie@ncts.co.za	
GAMAGARA LOCAL MUNICIPALITY	D	SEETILE			seetiled@gamagara.co.za	

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report

1.1. PLANNING AND DESIGN PHASE

No significant impacts are anticipated for the planning and design phase of the proposed Geological Camp. The planning, infrastructure placement and design, leading to the loss of potential sensitive floral species and/or habitat for such species, as well as unnecessary edge effect impacts on areas outside of the proposed development footprint is considered the main planning related impact. The proposed preferred alternative layout has been mitigated to ensure the placement of the proposed facility is optimised within the transformed habitat unit (refer to Figure 16). Limited to no impacts are anticipated for the planning and design phase.

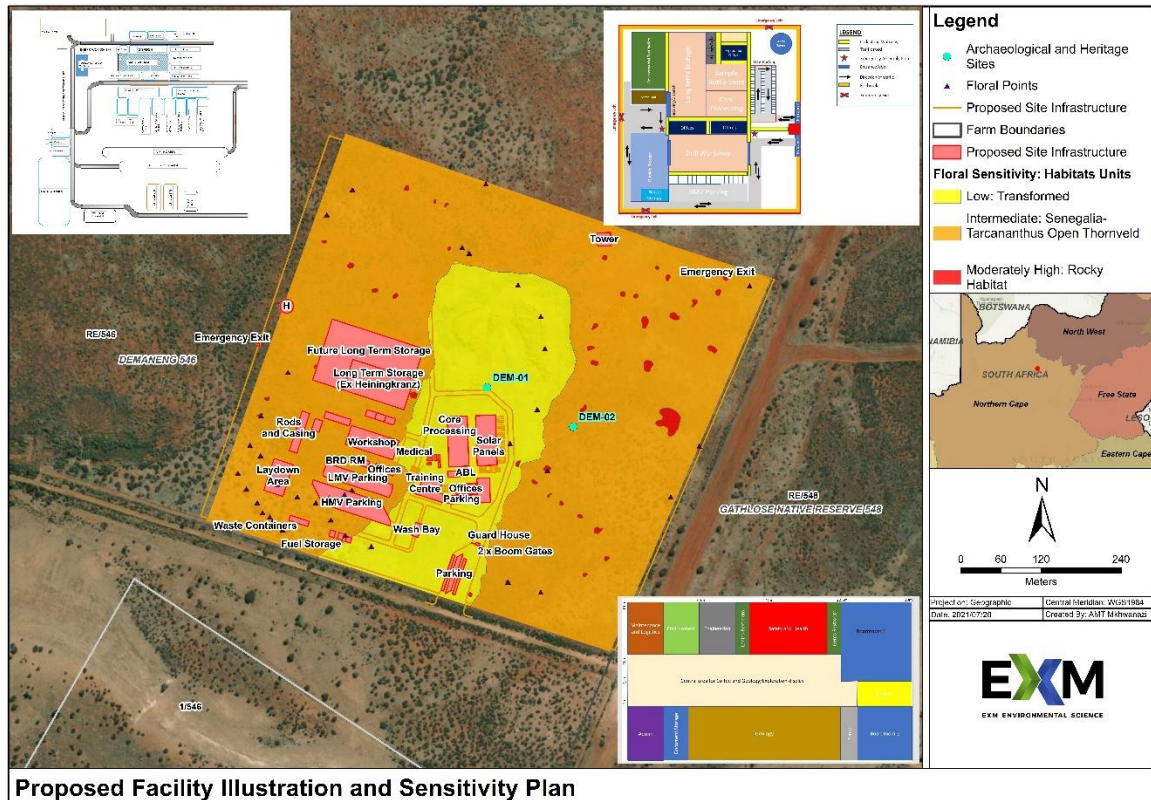


Figure 16: The study area as it relates to the sensitivity assigned to the various habitat units overlain with the proposed development layout.

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1.2. CONSTRUCTION PHASE

The table below summarises the anticipated impacts associated with the construction phase of the proposed project. Please also refer to Appendix F for the impact rating tables developed for the proposed project which contains the proposed mitigation measures, including the impact assessment methodology used.

Please note that all mitigation measures identified for the construction phase that may eliminate or reduce the potential impacts are listed within Appendix F and have been integrated into the associated EMPr (Appendix G).

1.1.1 DIRECT CONSTRUCTION IMPACTS				
Appendix F: Impact rating table 1 - section reference	Impact	Impact Source/Description	Impact Significance (No Mitigation)	Impact Significance (Mitigation)
PHYSICAL NATURAL ENVIRONMENT				
1,1,1,1	Climate change and Greenhouse Gas Emissions	Construction activities will entail the movement of heavy motor vehicles and the use of generators which consume fuel, produce greenhouse gas emissions and ultimately indirectly contribute to climate change.	Low	Low
1,1,1,2	Air Quality	Dust will be generated due to topsoil stripping and vegetation clearance, earthworks, and the movement of construction vehicles and machinery during the construction of the new infrastructure.	Low	Low
1,1,1,3	Surface and groundwater quality	Potential spillage of fuel, oil and other potentially hazardous chemicals and substances during the construction period could result in negative impacts on surface and ground water quality. Oil leaks associated with poorly managed vehicles could impact negatively on ground water quality (where no surface water is located in close proximity to the site). Temporary concrete batching plants can also impact negatively on groundwater. Spillages from temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental impacts on water resources.	Moderate	Low
1,1,1,4	Surface and groundwater quantity	also planning to abstract groundwater for water requirements. This can result in lowering of groundwater levels.	Moderate	Low
1,1,1,5	Sedimentation of watercourses	Runoff from soil stockpiles and exposed surface could result in sedimentation of nearby water courses.	Low	Low
1,1,1,6	Alteration of local relief	Levelling of areas to construct proposed infrastructure	Low	Low
1,1,1,7	Noise	Operation of the construction vehicles and noisy equipment/machinery for material handling and transport will generate noise. This is likely to result in a minor increase in the ambient noise levels in the area. There are no sensitive receptors located within close proximity to the proposed site.	Low	Low
1,1,1,8	Visual	Impact on local scenic quality and an alternation to the areas sense of place. An expected increase in visibility and visual exposure to the proposed project. Dust will also have an impact on visual asthenics. The impact of light during the night will cause visual intrusion in the area. This will cause a loss of sense of place for sensitive receptors	Low	Negligible

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Biological Natural Environment				
1,1,1,9	Loss of floral habitat, diversity, and the possible loss of floral SCC.	<p>The Senegalia-Tarchonanthus Open Thornveld will receive the greatest impact in terms of size of the habitat unit lost; however, the floral communities associated with this habitat unit is well represented in the study area and in the region and a significant loss of floral communities is not anticipated.</p> <p>The Rocky Habitat Unit provides unique habitat for several floral species. The proposed layouts will result in the direct impact to a limited number of rocky areas (the highest density of rocky areas is in the northeast and the proposed development is mostly concentrated within the southwest of the study area where fewer rocky habitat areas are located).</p> <p>Very Low insignificant impacts are anticipated for the Transformed Habitat Unit due to the transformed nature of this habitat. Overall, this habitat supported a low diversity of floral species. Given that the floral communities within this habitat unit have shifted significantly away from the reference vegetation type a significant loss of floral communities is not anticipated.</p> <p>It will, however, be important to manage edge effect impacts to ensure the adjacent habitat units are not negatively impacted</p>	Moderate	Low
1,1,1,10	Loss of Floral SCC individuals.	The study area is associated with several protected floral species including three provincially protected species (in terms of the NCNCA) including <i>Babiana bainesii</i> , <i>Gomphocarpus fruticosus</i> , and <i>Oxalis lawsonii</i> , and two nationally protected tree species (in terms of the NFA) including <i>Vachellia erioloba</i> and <i>Vachellia haematoxylon</i> .	Moderate	Low
1,1,1,11	Local loss of floral SCC abundance and diversity.	The proposed development will not impact on CBAs or threatened ecosystems. The development will, however, impact on ESAs (particularly within the southern section of the study area).	Moderate	Low
1,1,1,12	Increased invasion by exotic plant species following vegetation disturbance	Various exotic/invasive plants were observed on site. Soil and indigenous vegetation disturbances, leading to proliferation of alien vegetation; where such aliens would compete for space and available resources.	Moderate	Low
1,1,1,13	Removal of alien and invasive species by SIOC	The proposed project will also have a positive impact on the property by removal of alien vegetation.	Low (+)	Moderate (+)
1,1,1,14	Impact on Faunal Habitat and Diversity, including loss of SCC	<p>Loss of important faunal habitat (<i>Senegalia-Tarconanthus Open Thornveld</i> and <i>Rocky Habitat</i> directly impacted) and the potential loss of faunal SCC.</p> <p>Loss of faunal habitat, diversity and potential SCC within the direct footprint of the proposed development. Loss of surrounding faunal diversity SCC.</p>	Moderate	Low
1,1,1,15	Construction of proposed exploration camp upgradient of Ga-Mogara River, but further than 100 m from the delineated riparian zone.	Removal of vegetation and associated disturbances of soil upgradient of the watercourse	Moderate	Low
1,1,1,16	Potential indiscriminate waste disposal and/or spillage from construction vehicles.	Potential disposal of construction-related wastes (such as rubble, hazardous chemicals and litter) can result in the following:- Altered flow regime as a result of solid waste within the freshwater environment; and- Altered water quality due to chemical waste disposal.	Moderate	Low

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1,1,1,17	Soils and land capability	The removal of natural vegetation and topsoil might lead to the erosion of the cleared area. Storm water runoff is likely during heavy rainfall episodes. Soil compaction resulting from movement of heavy machinery along access roads and project footprint area. Soil contamination from spillage of hazardous substances used during construction.	Moderate	Negligible
TRAFFIC				
1,1,1,18	Roads, Traffic and Infrastructure	A traffic impact assessment was prepared as part of the environmental authorisation process for the proposed project. The study concluded that the construction activities could potentially impact on the daily movement and living patterns of the surrounding community. This is expected to be very limited.	Moderate	Low
SOCIAL AND ECONOMIC ENVIRONMENT				
1,1,1,19	Socio-Economics	Local procurement and enterprise development due to construction activities at project	Moderate (+)	Moderate (+)
1,1,1,20		Local employment of persons involved directly or indirectly in construction	Moderate (+)	Moderate (+)
1,1,1,21		Added value to the economy due to construction expenditure relating to the project	Moderate (+)	High (+)
1,1,1,22		Dust, noise and water abstraction impacting the farming community's quality of life and livelihoods	Moderate	Low
1,1,1,23		Strained relationships with selected stakeholders due to unmet expectations of economic benefits from the development	Moderate	Low
1,1,1,24		Increased traffic & consequences on road networks.	Moderate	Low
CULTURAL AND HERITAGE RESOURCES				
1,1,1,25	Cultural and Heritage Resources	During the heritage archaeological survey a substantial scatter of MSA lithic artefacts were identified across the entire study area.	Moderate	Low
1,1,1,26	Palaeontology	The general low palaeontological sensitivity of the bedrocks and superficial sediments in the proposed development footprint, indicates that the proposed development will have an overall LOW impact significance in terms of palaeontological heritage.	Low	Negligible
1.1.2. INDIRECT CONSTRUCTION IMPACTS				
Appendix F: Impact rating table 1 - section reference	Impact	Impact Source/Description	Impact Significance (No Mitigation)	Impact Significance (Mitigation)
PHYSICAL NATURAL ENVIRONMENT				
1.1.2.1	Dust generation	On the roads the dust can affect visibility and traffic safety. When dispersed, the dust could be a nuisance for nearby receptors and can settle on plants thereby negatively impacting their vigour and palatability and reducing the grazing capacity in the area.	Moderate	Low
BIOLOGICAL NATURAL ENVIRONMENT				
1.1.2.2	Alien and invasive Plants	The disturbance of the soil surface and the importing of materials and soil could provide opportunity for alien and invasive plant species to establish and proliferate.	Moderate	Low
SOCIAL AND ECONOMIC ENVIRONMENT				
1.1.2.3	Socio-Economics	Local procurement and enterprise development due to construction activities at project	Moderate (+)	Moderate (+)
1.1.2.4		Local employment knock on effect of persons involved indirectly in construction. Local spent in communities.	Moderate (+)	Moderate (+)

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1.1.2.5		Added value to the economy due to operational expenditure relating to the project	Moderate (+)	High (+)
1.1.2.6		Dust, noise and water abstraction impacting the farming community's quality of life and livelihoods	Moderate	Low
1.1.2.7		Increased traffic & consequences on road networks.	Moderate	Low
TRAFFIC				
1.1.2.8	Roads, Traffic and Infrastructure	The proposed construction activities (traffic and delivery of equipment and materials) will result in a slight increase in movement of heavy motor vehicles and construction vehicles which will increase traffic and place additional pressure on the road infrastructure. Construction staff will be housed in existing facilities in Kathu, therefore no temporary accommodation on the site will occur except in existing facilities. The construction activities of the proposed development could potentially impact on the daily movement and living patterns of the surrounding community. This is expected to be very limited.	Low	Negligible
1.1.3. CUMULATIVE CONSTRUCTION IMPACTS				
Appendix F: Impact rating table 1 - section reference	Aspect	Existing Impacts	Incremental (Additional) Impacts	Cumulative Impacts
PHYSICAL NATURAL ENVIRONMENT				
1.1.3.1	Climate change and Greenhouse Gas Emissions	Low Negative (Long term)	Low Negative (Short term)	Low Negative (Long term)
1.1.3.2	Soils and land capability	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
1.1.3.3	Watercourses	Low Negative (Long term)	Low Negative (Short term)	Low Negative (Long term)
1.1.3.4	Air Quality	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
1.1.3.5	Noise/Vibrations	Moderate Negative (Short term)	Low Negative (Short term)	Moderate Negative (Short term)
BIOLOGICAL NATURAL ENVIRONMENT				
1.1.3.6	Biodiversity - Floral	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
1.1.3.7	Biodiversity - Faunal	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
1.1.3.8	Alien and Invasive Plants	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
SOCIAL AND ECONOMIC ENVIRONMENT				
1.1.3.8	Aesthetics	Low Negative (Long term)	Negligible	Low Negative (Long term)
1.1.3.9	Roads, Traffic and Infrastructure	Low Negative (Long term)	Negligible	Low Negative (Long term)
1.1.3.10	Visual Impact	Low Negative (Long term)	Negligible	Low Negative (Long term)

BASIC ASSESSMENT REPORT

1.3. OPERATIONAL PHASE

The table below summarises the anticipated impacts associated with the **operational phase** of the proposed facility. Limited to no impacts are anticipated for the planning and design phase. Please also refer to Appendix F for the impact rating tables developed for the proposed project which contains the proposed mitigation measures, including the impact assessment methodology used.

Please note that all mitigation measures identified for the construction phase that may eliminate or reduce the potential impacts are listed within Appendix F and have been integrated into the associated EMPr (Appendix G).

1.2.1. DIRECT OPERATIONAL IMPACTS				
Appendix F: Impact rating table 1 - section reference	Impact	Impact Source/Description	Impact Significance (No Mitigation)	Impact Significance (Mitigation)
PHYSICAL ENVIRONMENT				
1,2,1,1	Climate change and Greenhouse Gas Emissions	Operational activities will entail the movement of heavy motor vehicles and the use of equipment which consume fuel, produce greenhouse gas emissions and ultimately contribute to climate change.	Low	Low
1,2,1,2	Air Quality	Dust will be generated due to movement of vehicles and machinery during the operational phase.	Low	Low
1,2,1,3	Land Use	Improved economic land use of property	Low (+)	Low (+)
1,2,1,4	Surface and groundwater quality	Potential spillage of fuel, oil and other potentially hazardous chemicals and substances during the operational period could result in negative impacts on surface and ground water quality. Spillages from temporary sanitary arrangements (i.e. portable toilets) can also result in detrimental impacts on water resources. .	Moderate	Low
1,2,1,5	Surface and groundwater quantity	The proposed geological camp is also planning to abstract groundwater for water requirements. This can result in lowering of groundwater levels.	Moderate	Low
1,2,1,6	Sedimentation of watercourses	Runoff from soil stockpiles and exposed surface could result in sedimentation of nearby water courses.	Low	Low
1,2,1,7	Noise	Operation of vehicles and noisy equipment/machinery for material handling and transport will generate noise. This is likely to result in a minor increase in the ambient noise levels in the area. There are no sensitive receptors located within close proximity to the proposed site.	Low	Low
1,2,1,8	Visual	This will primary involve affecting the local scenic quality and an alternation to the areas sense of place. An expected increase in visibility and visual exposure to the proposed project. Dust will also have a particular impact on visual asthenics. The impact of light during the night will cause visual intrusion into the area. This will cause a loss of sense of place for various sensitive receptors	Low	Negligible
BIOLOGICAL ENVIRONMENT				
1,2,1,9	Pedestrian and vehicle traffic will disturb vegetation, create tracks and pathways on the site.	Regular maintenance and monitoring at the site will require workers and vehicles to access the area. This would result in vehicle and pedestrian tracks to be created on site.	Low	Low
1,2,1,10	Loss of floral habitat, diversity	No new footprints will be created during the operational phase, however the edge effect on surrounding habit units might be affected.	Moderate	Low

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1,2,1,12	Increased invasion by exotic plant species following vegetation disturbance	Various exotic/invasive plants were observed on site. Soil and indigenous vegetation disturbances, leading to proliferation of alien vegetation; where such aliens would compete for space and available resources;	Moderate	Low
1,2,1,13	Removal of alien and invasive species by SIOC	The proposed project will also have a positive impact on the property by removal of alien vegetation.	Low (+)	Moderate (+)
1,2,1,14	Impact on Faunal Habitat and Diversity, including loss of SCC	No new footprints will be created during the operational phase, however the edge effect on surrounding habit units might be affected	Moderate	Low
1,2,1,13	Operation of the proposed exploration camp upgradient of Ga-Mogara River, but further than 100 m from the delineated riparian zone.	Increased vehicular traffic upgradient of and within 250 m of the river and increased impermeable surfaces within 250 m of the river has the following impacts: <ul style="list-style-type: none"> • Disturbances of soil leading to increased alien vegetation proliferation, which may spread to the river; • Increased risk of litter generation, which may be transported to the river in stormwater runoff or by wind, leading to pollution of the river; • Increased presence of hydrocarbons in the immediate catchment; and • Increased volume of stormwater runoff leading to altered drainage patterns and potentially to the formation of preferential flow paths and/or concentrated flows. 	Moderate	Low
TRAFFIC				
1,2,1,14	Roads, Traffic and Infrastructure	The proposed operational activities will result in a slight increase in movement of heavy motor vehicles and vehicles which will increase traffic and place additional pressure on the road infrastructure. This is not expected to be very limited.	Moderate	Low
SOCIAL AND ECONOMIC ENVIRONMENT				
1,2,1,15	Socio-Economics	Local procurement and enterprise development due to activities at project	Moderate (+)	Moderate (+)
1,2,1,16		Local employment of persons involved directly or indirectly in operations	Moderate (+)	Moderate (+)
1,2,1,17		Added value to the economy due to operational expenditure relating to the project and the potential identification of future mining projects	Moderate (+)	High (+)
1,2,1,18		Dust, noise and water abstraction impacting the farming community's quality of life and livelihoods	Moderate	Low
1,2,1,19		Strained relationships with selected stakeholders due to unmet expectations of economic benefits from the development	Moderate	Low
1,2,1,20		Increased traffic & consequences on road networks.	Moderate	Low
1.2.1. INDIRECT OPERATIONAL IMPACTS				
Appendix F: Impact rating table 1 - section reference	Impact	Impact Source/Description	Impact Significance (No Mitigation)	Impact Significance (Mitigation)
PHYSICAL ENVIRONMENT				
1.2.2.1	Dust generation	On the roads the dust can affect visibility and traffic safety. When dispersed, the dust could be a nuisance to nearby receptors and can settle on plants thereby negatively impacting their vigour and palatability and reducing the grazing capacity in the area.	Moderate	Low
BIOLOGICAL NATURAL ENVIRONMENT				
1.2.2.2	Alien and invasive Plants	The disturbance of the soil surface and importation of materials and soil could provide opportunity for alien and invasive plant species to establish and proliferate.	Moderate	Low
SOCIAL AND ECONOMIC ENVIRONMENT				
1.2.2.3	Socio-Economics	Local procurement and enterprise development due to construction activities at project	Moderate (+)	Moderate (+)

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1.2.2.4		Added value to the economy due to operational expenditure relating to the project	Moderate (+)	High (+)
1.2.2.5		Dust, noise and water abstraction impacting the farming community's quality of life and livelihoods	Moderate	Low
1.2.2.6		Increased traffic & consequences on road networks.	Moderate	Low
TRAFFIC				
1.2.2.8	Roads, Traffic and Infrastructure	The activities (traffic and delivery of equipment and materials) will result in a slight increase in movement of heavy motor vehicles and vehicles which will increase traffic and place additional pressure on the road infrastructure. All staff will be housed in existing facilities in Kathu, therefore no temporary accommodation on the site will occur except in existing facilities	Moderate	Low

1.1.3. CUMULATIVE CONSTRUCTION IMPACTS

Appendix F: Impact rating table 1 - section reference	Aspect	Existing Impacts	Incremental (Additional) Impacts	Cumulative Impacts
PHYSICAL NATURAL ENVIRONMENT				
1.1.3.1	Air Quality	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
1.1.3.2	Noise/Vibrations	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)
SOCIAL AND ECONOMIC ENVIRONMENT				
1.1.3.3	Roads, Traffic and Infrastructure	Moderate Negative (Long term)	Low Negative (Short term)	Moderate Negative (Long term)

1.4. DECOMMISSIONING AND CLOSURE PHASE

The table below summarises the anticipated impacts associated with the **decommissioning and closure phase** of the of the proposed Geological Camp. Limited to no impacts are anticipated for the planning and design phase. Please also refer to Appendix F for the impact rating tables developed for the proposed project which contains the proposed mitigation measures, including the impact assessment methodology used.

Please note that all mitigation measures identified for the construction phase that may eliminate or reduce the potential impacts are listed within Appendix F and have been integrated into the associated EMPr (Appendix G).

1.3.1. DIRECT/INDIRECT AND CUMULATIVE DECOMMISSIONING IMPACTS

Appendix F: Impact rating table 1 - section reference	Impact	Impact Source/Description	Impact Significance (No Mitigation)	Impact Significance (Mitigation)
1.3.1.1	Reinstate of the affected area to reflect pre site conditions.	The facility is not expected to be decommissioned. If the camp is closed down the decommissioning will include disassembling of the components of the facility, site preparation and finally site rehabilitation to a degree depending on the final land use of the affected area. Decommissioning by itself is therefore not assessed in detail. The reason for this is that all activities associated with the decommissioning phase are similar in nature to construction impacts; however this is adequately addressed in the EMPr (Appendix G). Any recyclable materials such as steel structures/piping will be sent to recycling facilities while other infrastructure will be disposed-off in accordance with the EMPr .	Low (+)	Moderate (+)

Alternatives

The farm Demaneng 546 was primarily selected based on the following:

- The property is currently owned by SIOC;

- The site is centrally located within relatively close proximity to all SIOC prospecting and mining based activities; and
- The disturbed nature of the selected area has been largely affected by historic anthropogenic activities.

Site and layout Alternatives 2 (not preferred) would entail the clearance of approximately 25 ha indigenous vegetation. None of the footprint area would consist of previously disturbed areas and therefore it is anticipated that this alternative would result in significant biodiversity impacts, compared to the proposed alternative. This alternative requires a full EIA and Scoping process as clearance would exceed 20 ha and trigger Activity 15 of Listing Notice (GNR 325).

No-go Options

The no-go option refers to the alternative of the proposed development not going ahead at all. This alternative will avoid potentially positive and negative impacts on the environment, and the status quo of the area would remain. Should this alternative be exercised, the socio-economic and environmental benefits of the proposed project will not be realised. These benefits would include the following:

- The proposed development is important and is required to address the current fragmented activities at SIOC by providing a centralised geological facility.
- Direct temporary employment opportunities will be added to the market during the construction phase of the development. Indirect employment opportunities might be created through upkeep and the maintenance of infrastructure. Therefore, the No-Go option will result in negative socio-economic impacts and the best option to mitigate will be to commence with alternative 1 (preferred alternative).

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

Sishen Iron Ore Company (Pty) Ltd ("SIOC") proposes to construct a regional geological camp on the Remaining Extent (RE) of the Farm Demaneng 546. The proposed geological camp and associated infrastructure will be located on the Farm Demaneng 546 in the Northern Cape Province (refer to Figure 1 and Appendix A). The nearest residential centre to the facility is the town of Kathu which is located approximately 15km to the north of the site in the Gamagara Local Municipality.

The geological camp will serve as the regional administration centre for prospecting activities undertaken by SIOC in the Northern Cape. The intention is to centralise all the SIOC geological activities supporting Sishen and Kolomela Mines, but also all prospecting projects within the Northern Cape. The site will be supported by administrative offices, sheds for the storage, sampling and processing of geological core material, workshop, washbay and parking areas. **It should however be noted that no physical prospecting activities is planned on the farm Demaneng 546.**

Alternative 1 (preferred alternative) is approximately 19.5 ha and makes provision for all infrastructure relating to the proposed development and falls outside delineated watercourses and associated riparian zone of the non-perennial Ga-Mogara River. It's also the most feasible as it will not require a substantial amount of earthworks due to the fact the development footprint largely falls within a previously disturbed degraded and excavated area.

BIODIVERSITY

In relation to the floral aspect, the data gathered during the site visit indicate that the Transformed Habitat Unit is of low sensitivity, the Senegalia-Tarconanthus Open Thornveld Habitat Unit is of intermediate sensitivity,

and the Rocky Habitat is of moderately high sensitivity. Prior to mitigation measures implemented, impact significance on floral habitat and diversity varies between medium-low and very low across the study area. With mitigation measures implemented, the direct and indirect impacts on the floral habitat and diversity for the study area can mostly be reduced to low and very low significance levels across the study area. Several floral SCC were recorded within the study area and included provincially protected species, as per the NCNCA, namely *Babiana bainesii*, *Gomphocarpus fruticosus*, and *Oxalis lawsonii*, and two nationally protected tree species (in terms of the NFA) including *Vachellia erioloba* and *Vachellia haematoxylon*. No nationally threatened SCC, in terms of NEMBA Section 52(2), were recorded during the site assessment. The required permit from authorities is required prior to the removal or alteration to these species.

FRESHWATER ECOSYSTEM

The proposed Demaneng exploration camp is located outside of the applicable Zones of Regulation associated with the Ga-Mogara River in terms of both the National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment (EIA) Regulations (2014), as amended, and the National Water Act, 1998 (Act No. 36 of 1998). Therefore, from a watercourse enviro-legal standpoint, no constraints are perceived. The proposed development will however be situated upgradient of the Ga-Mogara River, and therefore, although no direct impacts are anticipated, indirect impacts which could affect the freshwater ecosystem could occur. Therefore, the strict implementation of basic “good housekeeping” mitigation measures as outlined in this report are required to minimise the significance of potential edge effects on the watercourse. From a freshwater ecosystem management perspective, as long as appropriate mitigation measures are implemented throughout all phases of the proposed Demaneng geological camp development, the development may be considered for approval.

TRAFFIC

The traffic impact assessment undertaken concluded that the traffic volumes generated are low with no impact on the level of service of the N14 nor the intersection. The second portion of road D333 (km 2,9 to 6,1) will require widening to account for the proposed traffic and the necessary waybills need to be obtained from the relevant authority.

ARCHAEOLOGICAL, HERITAGE AND PALAEOLOGICAL

Archaeological, heritage and palaeontological impacts (prior to mitigation) is expected to be of Moderate significance in terms of the identified heritage fabric of the study area. With mitigation successfully completed, the impact of the proposed development on the identified heritage sites will result in negative impacts of Low significance. As a result, on the condition that the recommendations made in this report, associated specialist studies and EMPR are adhered to, no heritage reasons can be given for the development not to continue.

The most significant impact of the development at the proposed project would be the clearance and disturbance of natural vegetation for the required development footprint and associated loss of biodiversity and archaeological resources that would result. However, the net positive socio-economic benefits of the project are deemed to outweigh the potential impacts on the regional biodiversity. The majority of the anticipated direct impacts will be of short duration and can be managed through the implementation of appropriate mitigation measures. The following conclusions can be made:

- Various plant communities and areas that are sensitive were observed at the sites and mapped accordingly. The vegetation specialist concluded that the proposed development will have a small negative impact on the immediate environment. The direct impact on vegetation will be localised to only the installation of the required infrastructure onsite.
- Heritage resources were identified by the heritage specialist, but the significance thereof is deemed to be medium to low. Impacts can be reduced to low if mitigation measures are implemented.
- A Water Use Licence in terms of section 21 of the National Water Act (NWA) from the Department of Water affairs (DWA) is required for the groundwater abstraction.
- The proposed project is expected to have a long term, positive impact on the surrounding environment, if managed appropriately.
- The infrastructure layout should be further optimised within the transformed habit unit.
- Through the implementation of the EMPr (Appendix G), it is expected that impacts on identified areas can be mitigated to acceptable levels.

Refer to Appendix F in this report for the complete set of tables with the anticipated project impacts throughout the entire life of the project.

Alternative B

Site and layout Alternatives 2 (not preferred) would entail the clearance of approximately 25 ha indigenous vegetation. None of the footprint area would consist of previously disturbed areas and therefore it is anticipated that this alternative would result in significant biodiversity impacts, compared to the proposed alternative. This alternative requires a full EIA and Scoping process as clearance would exceed 20 ha and trigger Activity 15 of Listing Notice (GNR 325).

No-go alternative (compulsory)

If the no-go alternative is imposed the natural environment will remain in its current state and none of the environmental features will be negatively impacted. The no-go alternative will however mean that none of the positive aspects identified in this assessment will become a reality. These include the following:

- Local procurement and enterprise development due to construction and operational activities relating to the project;
- Local employment of persons involved directly or indirectly in construction and operations;
- Added value to the economy due to operational expenditure relating to the project
- The concerned property will remain in its poor state with numerous historic excavations and disturbances
- The proposed development is of utmost importance to SIOC and is required to address the current fragmentation of geological activities at SIOC. Thus providing a centralised and streamlined area to facilitate prospecting projects and provide a consolidated area to process, analysis and store geological material from Sishen and Kolomela Mines, including geological projects throughout the Northern Cape.
- Indirect employment opportunities will be created through the construction and operational phases, including the upkeep and the maintenance of the facility. This include the retention of the existing workforce.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES ✓	NO
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If “NO”, indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

It is the Environmental Assessment Practitioners’ (EAP’s) opinion that the BA process to date has been undertaken correctly and within the bounds of the applicable regulatory environment. It is, therefore, recommended that the BA Report be accepted by the DENC. Furthermore, it is the EAP’s opinion that the respective applications be viewed favourably by the Competent Authority, provided that the proposed mitigation and conditions put forward in this report, specialist reports and associated EMPr are adhered to and made legally binding to the Proponent (i.e. SIOC). The positive project impacts are deemed to outweigh the negative project impacts, which can be mitigated to the extent that no significant, or residual, environmental damage will result through project approval(s). The following conditions should be included in the Environmental Authorisation (EA):

- All sensitive areas identified in Appendix A and D1 should be avoided as far reasonably possible by the development and no access to these areas should be allowed. If development is to take place within these areas care should be taken not to remove any sensitive or protected species.

BASIC ASSESSMENT REPORT

- The identified archaeological sites (DEM-01 and DEM-02) must be assessed in the field by a suitably qualified Stone Age specialist long before construction commences. This is to allow this specialist report, and any mitigation measures recommended by the specialist, to be undertaken before construction commences.
- All mitigation measures detailed in this report, and draft EMPr (Appendix G)) must be implemented.
- The EMPr must be binding to the proponent as well all contractors. The EMPr is a living document and should be updated as determined or required.
- An Environmental Control Officer (ECO) must be appointed to monitor compliance with the attached EMPr for the entire life of the facility.
- A water use licence in terms of section 21 of the National Water Act (NWA) from the Department of Water affairs (DWA) is required for the groundwater abstraction.

Is an EMPr attached?

YES ✓	NO
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The EMPr must be attached as Appendix G.

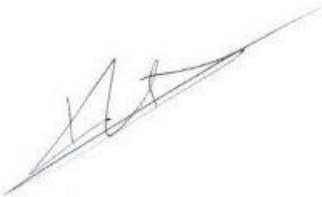
The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

ROELOF LETTER

NAME OF EAP



SIGNATURE OF EAP

20/07/2021

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

- A1: Regional Location of proposed Regional Geological Camp, Northern Cape.
- A2: Location of the proposed Geological Camp
- A3: Biodiversity and freshwater Sensitivity map
- A4: Heritage and archaeological Sensitivity map
- A5: Facility illustration, including site sensitivity map

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

- D1: Biodiversity Assessment: Part A
- D2: Biodiversity Assessment: Part B: Floral Assessment
- D3: Biodiversity Assessment: Part C: Faunal Assessment
- D4: Freshwater ecosystem verification, delineation and high-level ecological status determination
- D5: Traffic Impact Assessment
- D6: Archaeological, Heritage and palaeontological assessment

Appendix E: Public Participation

- E1: Comments and Responses Report
- E2: Interested and Affected Parties Database
- E3: Proof of Newspaper placements
- E4: Proof of placement of Site Notices
- E5: Background Information Document
- E6: Proof of distribution of BID to all I&As
- E7: Minutes of meeting held

Appendix F: Impact Assessment

- Appendix F1: Impact Assessment Methodology
- Appendix F2 Impact Assessment Tables

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information