

**SISHEN IRON ORE COMPANY (PTY) LTD**  
**Development of an Airfield, Near Postmasburg,**  
**Northern Cape Province**



**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE  
DEVELOPMENT OF AN AIRFIELD, NEAR POSTMASBURG,  
NORTHERN CAPE PROVINCE**

**DRAFT SCOPING REPORT – PUBLIC REVIEW**

**DAERDLR REFERENCE: TBC**

# ENVIRONMENTAL IMPACT ASSESSMENT FOR THE DEVELOPMENT OF AN AIRFIELD, NEAR POSTMASBURG, NORTHERN CAPE PROVINCE

## DRAFT SCOPING REPORT




SEPTEMBER 2022

REVISION 1

**DAERDLR REF: TBC**

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Report Sign-Off			
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## EXECUTIVE SUMMARY

Sishen Iron Ore Company (Pty) Ltd ("SIOC") – Kolomela mine, part of Kumba Iron Ore (Kumba) proposes to develop an airfield on Portions 1 and 2 of Farm/Plaas 538 Hay RD (Gruispan), approximately 11.6 km south of the town of Postmasburg, Tsantsabane Local Municipality, in the Northern Cape Province. The airfield will be used to accommodate air traffic related to passengers travelling to and from Kolomela mine, which is currently accommodated by Tommy's Airfield, situated 10km north west of Postmasburg. Tommy's Airfield does not have sufficient capacity to convey the current air traffic, resulting in overflow passengers flying to Kathu and being shuttled over 100 km by road.

The runway at Tommy's Field does not have sufficient space to accommodate larger airplanes which enhances the capacity deficiency. In order to address safety risks and accommodate more commuters, SIOC proposes to develop a new airfield in line with the requirements of the Civil Aviation Authority ("CAA").

The footprint of the project will cover approximately 80 hectares and will entail the development of the following structures/infrastructure.

- A runway (2.5 km in length and 30 m wide).
- Helipad(s).
- Fuel farm to house fuel storage tanks.
- Water storage tanks.
- Access road.
- Parking area.
- Septic tanks and evapotranspiration beds.
- Terminal building and supporting facilities.
- Waste management area; and
- Small scale solar farm.

Water supply to the facility will be sourced from onsite groundwater boreholes. A borrow pit will also be developed on site for the sourcing of fill material used in construction, subject to geotechnical investigations.

The proposed airfield triggers activities published in Listing Notice 1 (GN R. 327 of 2017) and Listing Notice 2 (GN R. 325 of 2017), promulgated in terms of the National Environmental Management Act (No. 107 of 1998) ("NEMA"). A full Environmental Impact Assessment ("EIA") and Scoping process in terms of the Environmental Impact Assessment ("EIA") Regulations (GN R. 326 of 2017) must therefore be undertaken to obtain Environmental

Authorisation ("EA") prior to commencement. A separate Water Use Licence ("WUL") will also be undertaken, concurrent to the EIA process, for water uses listed in section 21 of the National Water Act (No. 36 of 1998) ("NWA").

EXM Environmental Advisory (Pty) Ltd ("EXM") has been appointed as the independent Environmental Assessment Practitioner ("EAP") to facilitate the EIA, including the supporting Public Participation Process ("PPP"). This scoping report has been developed according to the requirements of the EIA regulations to verify, assess, and obtain the required approval of the scope of work for the EIA.

The purpose of the scoping phase and this supporting report is to provide information regarding the proposed project and details of alternatives, including layout, technology, operational and the no-go options. The report also provides a description of the baseline environment (natural and socio-economic) that will potentially be impacted by the airfield development. Preliminary potential impacts based on the project description and site sensitivities are identified and measures are included to mitigate (prevent or minimise) such impacts. One of the main outcomes of the scoping report is to provide a Plan of Study for the impact assessment phase. This includes aspects including specialist studies that will be undertaken in support of the EIA as well as tasks that will be completed during the process.

A PPP is also being conducted in terms of Chapter 6 of the NEMA and the EIA regulations as part of the subject EA application. The purpose of the PPP is to inform all the identified Interested and Affected Parties ("IAPs") of the proposed development and associated application process and allow them to raise comments and concerns.

The draft scoping report is available for a 30-day commenting period after which the comments will be incorporated in the report, and the final scoping report will be submitted to the Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (Northern Cape) ("DAERDLR") being the Competent Authority ("CA") responsible for approval of the subject EA.

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## ACRONYMS AND ABBREVIATIONS

Acronyms /Abbreviations	Definition
BID	Background Information Document
CA	Competent Authority
CAA	Civil Aviation Authority
CBA	Critical Biodiversity Area
C-Plan	Conservation Plan
DAERDLR	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (Northern Cape)
DFFE	Department of Forestry, Fisheries and Environment
DWS	Department of Water and Sanitation (Northern Cape)
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
ET	Evapotranspiration System/Bed
EXM	EXM Environmental Advisory (Pty) Ltd
FEPA	Freshwater Ecosystem Priority Areas
GNR	Government Notice Regulation
HIA	Heritage Impact Assessment
IAP	Interested and Affected Party
IWWMP	Integrated Water and Waste Management Plan
LoM	Life Of Mine
mamsl	Metres above mean sea level
NDCR	National Dust Control Regulations
NEMA	National Environmental Management Act
NEM: BA	National Environmental Management: Biodiversity Act
NEM: WA	National Environmental Management: Waste Act
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act
NIA	Noise Impact Assessment
NWA	National Water Act
PPP	Public Participation Process
SACNASP	South African Council for Natural & Scientific Professionals
SAHRA	South African Heritage Resource Agency
SANS	South African National Standards
SIOC	Sishen Iron Ore Company
SWSA	Strategic Water Source Areas
TIA	Traffic Impact Assessment
WUL	Water Use Licence

# **1. INTRODUCTION**

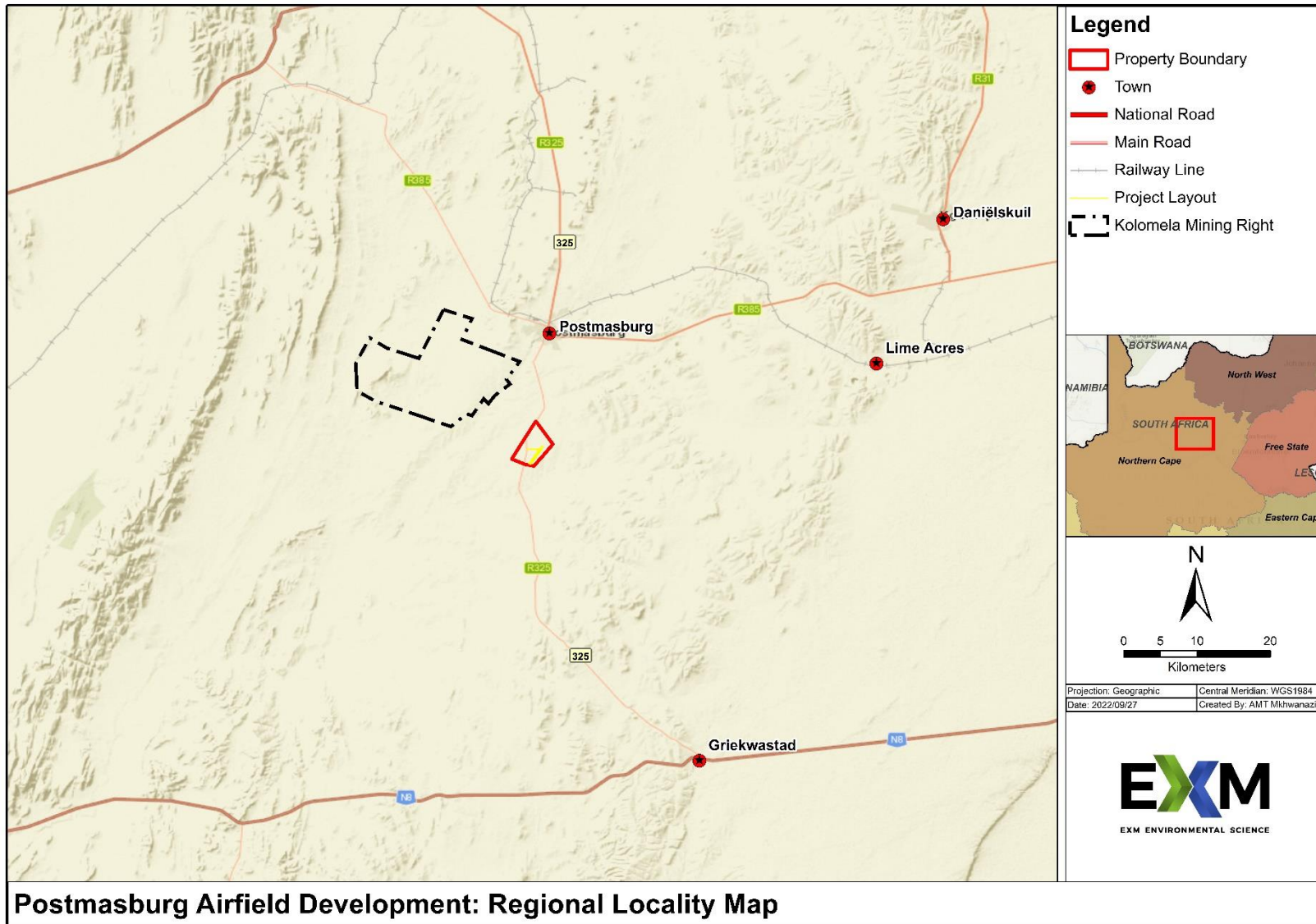
## **1.1 Project Background**

Sishen Iron Ore Company (Pty) Ltd ("SIOC") – Kolomela mine, part of Kumba Iron Ore (Kumba) proposes to develop an airfield on Portions 1 and 2 of Farm/Plaas 538 Hay RD (Gruispan), approximately 11.6 km south of the town of Postmasburg, Tsantsabane Local Municipality, in the Northern Cape Province. The airfield will be used to accommodate air traffic related to passengers travelling to and from Kolomela mine.

The footprint of the project will cover approximately eighty (80) hectares and will entail the development of the following structures/infrastructure.

- A runway (2.5 km in length and 30 m wide).
- Helipad(s).
- Fuel farm to house fuel storage tanks.
- Water storage tanks.
- Access road.
- Parking area.
- Septic tanks and evapotranspiration beds.
- Terminal building and supporting facilities.
- Waste management area; and
- Small scale solar farm.

Water supply to the facility will be sourced from onsite groundwater boreholes. A borrow pit will also be developed on site for the sourcing of fill material used in construction, subject to geotechnical investigations.



**Postmasburg Airfield Development: Regional Locality Map**

**Figure 1-1: Regional Locality Map**

## **1.2 Objectives and Purpose of the Scoping Report**

The proposed airfield triggers activities published in Listing Notice 1 (GN R. 327 of 2017) and Listing Notice 2 (GN R. 325 of 2017), promulgated in terms of the National Environmental Management Act (Act 107 of 1998) ("NEMA"). A full Environmental Impact Assessment ("EIA") and Scoping process in terms of the EIA Regulations (GN R. 326 of 2017) must therefore be undertaken to obtain Environmental Authorisation ("EA") prior to commencement. The Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform ("DAERDLR") is the Competent Authority ("CA") responsible for administering the EIA process. A separate Water Use Licence ("WUL") application will also be undertaken, concurrent to the EIA process, for activities listed in Section 21 of the National Water Act (No. 36 of 1998) ("NWA").

This scoping report has been developed according to the requirements of Appendix 2 of the EIA regulations. The content of this report, as required by the aforementioned regulations, and where each requirement is addressed within this report is provided in Appendix C.

The purpose of the scoping phase of the EIA and the supporting report is as following:

- Identify the relevant policies and legislation relevant to the proposed activity.
- Motivate the need and desirability of the proposed activity.
- Identify, confirm and assess preliminary project alternatives (layout, technology, operational, site location) and indicate alternatives to be included in the EIA phase for further assessment.
- Identify and confirm the preferred site location, based on the preliminary identification of impacts in terms of the baseline environmental description.
- Identify the key issues to be addressed in the EIA phase.
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity; and
- Identify preliminary suitable mitigation measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

## **1.3 Public Participation Process**

A public participation process ("PPP") is conducted in terms of Chapter 6 of the NEMA and the EIA regulations. The purpose of the PPP is to inform all the identified Interested and

Affected Parties ("IAPs") of the proposed development and associated application processes and allow them to raise comments and concerns.

The draft scoping report is available for a 30-day commenting period after which the comments will be incorporated in the report, and the final scoping report will be submitted to the CA for approval/acceptance. The final scoping report will also be distributed to the IAPs. Proof of public participation conducted to date is contained in **Appendix B** of this report.

#### **1.4 Specialist studies to be undertaken**

Based on the outcome of the scoping phase, it is proposed that the following specialist studies will be undertaken to provide input to the EIA process:

- Integrated Heritage Impact Assessment (inclusive of archaeology and palaeontology);
- Ecological Impact Assessment (including fauna and flora);
- Freshwater Impact Assessment;
- Traffic Impact Assessment;
- Noise Impact Assessment;
- Hydropedological Assessment; and
- Geohydrology (Groundwater) Study.

## 2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

This section provides details of the Independent Environmental Assessment Practitioner ("EAP") that is responsible to facilitate the EIA and public consultation processes in line with NEMA and EIA Regulations (GN R. 326 of 2017).

### 2.1 Details of EAP

Table 2-2 below contain details of the EAP responsible to facilitate the EIA and public consultation process.

**Table 2-1: Details of the Independent EAP**

<b>Name of The Practitioner</b>	Trevor Hallatt
<b>Affiliation</b>	EAP/Senior Environmental Scientist at EXM Environmental Advisory Services (Pty) Ltd
<b>Professional registration</b>	EAPASA (Reg. nr. 2019/1758) SACNASP (Reg. nr. 300123/15)
<b>Tel No</b>	071 689 2229
<b>E-mail address</b>	<a href="mailto:trevor@exm.co.za">trevor@exm.co.za</a>

### 2.2 Qualifications and Experience

Trevor obtained a B.Sc. degree from the North-West University (Potchefstroom campus) in Geography, Zoology and Tourism in 2010. This degree provided him with a sound base and understanding of the environment and human impacts on the environment. He also obtained honours and master's degrees (both cum laude) in Environmental Management at the NWU in 2011. Furthermore, Trevor obtained a master's degree in environmental management (cum laude) in 2014.


Trevor Hallatt has more than 11 years of environmental management experience in mining, power generating, industrial and local government sectors. His duties entail the planning and execution of projects related to environmental management, including ISO 14001: 2004 and legal compliance audits, EIA, Compilation of Environmental Management Programmes, Environmental Risk Assessments and Environmental Management Systems. Furthermore, he performed different functions in the planning and delivery of environmental short courses, including the development of modules and presenting on different topics. Trevor is registered with the South African Council for Natural Scientific Professions (Reg nr: 300123/15) as well as the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg nr. 2019/1758).

### 2.3 Declaration of Independence

I, Trevor Hallatt, as the independent EAP compiled this report and declare that it correctly reflects the findings made. I further declare that I,

- Have the necessary expertise in conducting environmental impact assessments, including knowledge of the act, regulations and any other guidelines that have relevance to the activity.
- Will comply with the Act, regulations, and all other applicable legislation.
- Will take into account the requirements of the EIA regulations as published in Government Notice R326 as well as other legislation.
- Have no, and will not engage in, conflicting interests in the undertaking of the activity.
- Will ensure that the comments of all interested and affected parties have been considered and are recorded in this report that is submitted to the competent authority in respect of the application.
- Have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.
- Declare that no information provided to the Department was at no stage influenced by the applicant and that we as the appointed Environmental Assessment Practitioners have explained the potential consequences of submitting this application.
- Will perform all other obligations as expected from an EAP in terms of the Regulations; and
- Realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

**Table 2-2: Declaration of EAP**

Name	Affiliation	Designation	Signature	Date
Trevor Hallatt	EXM Environmental Advisory (Pty) Ltd	Senior Environmental Scientist EAP		2022/10/17



### 3. PROJECT LOCATION AND PROPERTY DESCRIPTION

The proposed airfield will be located on Portions 1 and 2 of Farm/Plaas 538 Hay RD (Gruispan), approximately 11.6 km south of the town of Postmasburg, Tsantsabane Local Municipality, in the Northern Cape Province.

Table 3-1 contains the coordinates of the proposed airfield including the access road. Whereas Table 3-2 contains details of the general area and affected properties. Figure 3-1 provides the general location of the facility in relation to the affected properties.

**Table 3-1: Site Coordinates**

Project element	Corners	Longitude (E)	Latitude (S)
<b>Airfield</b>	Corner A	23.059278°	-28.465994°
	Corner B	23.061393°	-28.467175°
	Corner C	23.046110°	-28.488032°
	Corner D	23.043896°	-28.486725°
<b>Access road</b>	Start point	23.041265°	-28.469173°
	End point	23.054588°	-28.469513°

**Table 3-2: General Area Description**

<b>Application area (Ha):</b>	Development footprint size: <b>80 Hectares</b> Access road: <b>1.4 km</b>
<b>Magisterial district:</b>	The Hay Magisterial District (Tsantsabane Local Municipality) ZF Mgcawu District Municipality.
<b>Distance and direction from nearest town</b>	11.6 km south of Postmasburg.
<b>Locality map</b>	Refer to Figure 3-1.

**Table 3-3: Description of the Properties**

Farm Name	Portion	SG Code	Extent	Property owner
Plaas 538	Pt 1	C0310000000053800001	898.5 ha	Sishen Iron Ore Company
Plaas 538	Pt 2	C0310000000053800002	599.5 ha	

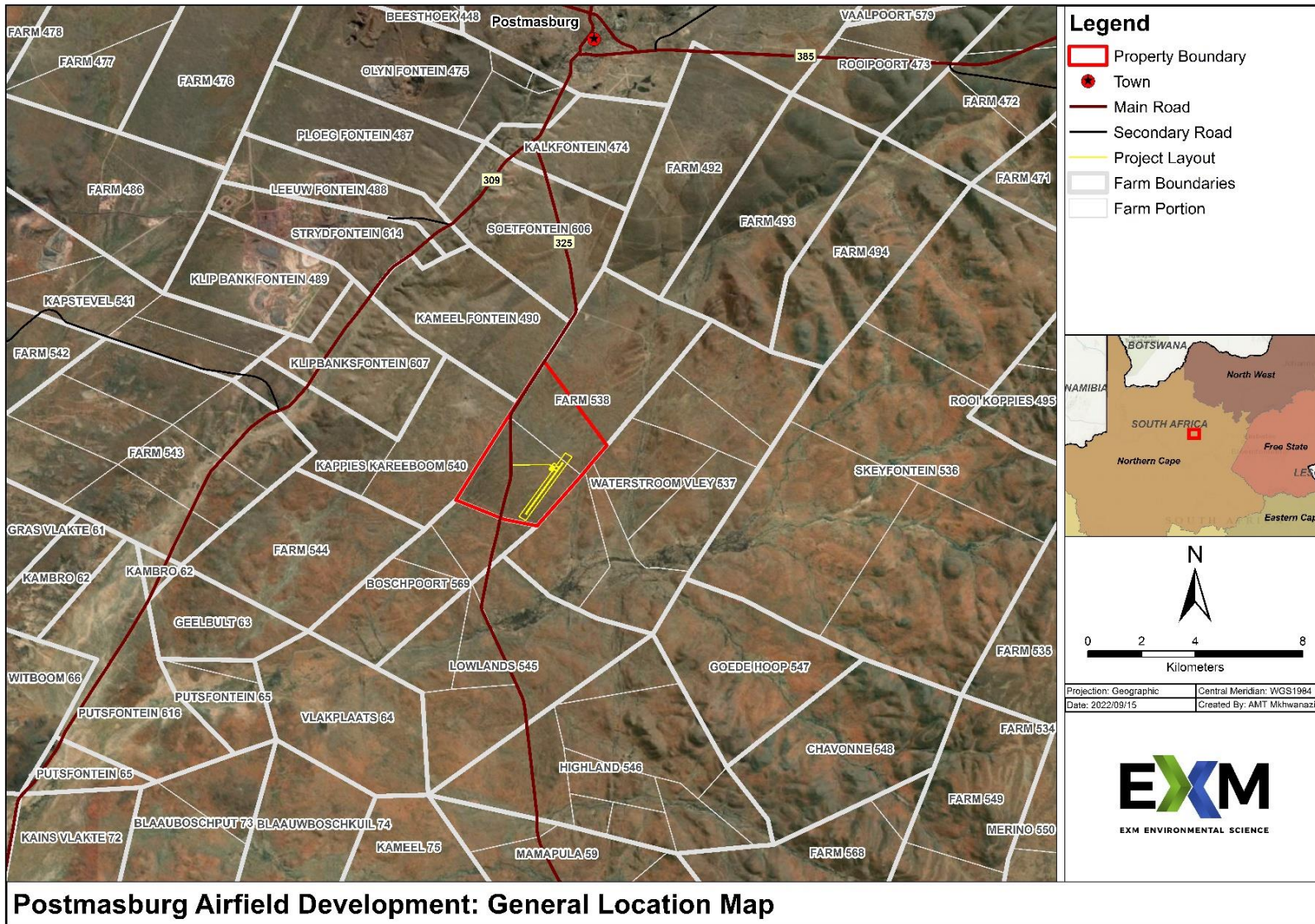


Figure 3-1: General Locality Map of the facility in relation to the affected properties

#### 4. DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY

This section provides a description of the proposed project, NEMA Listed Activities triggered, and a description of the activities and infrastructure associated with the airfield development.

##### 4.1 Listed and specified activities

Table 4-1 contains the listed activities in terms of Listing Notice 1 (GN. 327) and Listing Notice 2 (GN. 325) that are triggered by the proposed project. A full EIA and Scoping process in terms of the EIA Regulations (GN R. 326 of 2017) must therefore be undertaken to obtain an EA prior to commencement of the project.

**Table 4-1: NEMA Activities Triggered by the Proposed Airfield**

Applicable Regulation		Infrastructure triggering the Listed Activity
<b><u>Listing Notice 1 (GN R. 327 as amended in 2017)</u></b>		
<b>Activity 12</b>	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more. where such development occurs— a. within a watercourse. b. in front of a development setback; or c. (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse	Several pans (watercourses) are situated on the property which will potentially be impacted by the project footprint. A WUL application will be submitted to obtain authorisation in terms of activities listed in Section 21 of the National Water Act (No. 36 of 1998).
<b>Activity 14</b>	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	The development will entail the storage of fuel that will be used in the re-fuelling of airplanes.
<b>Activity 19</b>	The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from a watercourse;	Several pans (water courses) are situated on the property which will potentially be impacted by the project footprint. A WUL application will be submitted to obtain authorisation in terms of activities listed in Section 21 of the National Water Act (No. 36 of 1998)
<b>Activity 24</b>	The development of a road— (i) [a road] for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) [a road] with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres.	The length of the access road that will be constructed as part of the project will be approximately 1.4 km and will be wider than 8 meters.
<b>Activity</b>	Residential, mixed, retail, commercial, industrial, or institutional developments	The property on which the proposed

Applicable Regulation		Infrastructure triggering the Listed Activity
<b>28</b>	where such land was used for agriculture, game farming, equestrian purposes, or afforestation on or after 01 April 1998 and where such development: (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.	airfield is currently used for the purpose of cattle farming.
<b>Listing Notice 2 (GN R. 325 as amended in 2017)</b>		
<b>Activity 6</b>	The development of facilities or infrastructure for any purpose or activity which a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation of release of emissions, pollution, or effluent.	Effluent will be released from the on-site wastewater treatment works into evaporation ponds. The release of effluent requires a licence in terms of activities listed under Section 21 of the National Water Act (No. 36 of 1998) governing the generation of release of effluent.
<b>Activity 8</b>	The development of— (i) airports; or (ii) runways or aircraft landing strips longer than 1,4 kilometres.	The project entails the development of an airfield with a runway exceeding 1,4km.
<b>Activity 15</b>	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The project footprint will cover approximately 80 hectares and will entail the clearance of indigenous vegetation exceeding 20 hectares.

## 4.2 Description of Activities to be Undertaken

### 4.2.1 Project Background

SIOC proposes to develop an airfield on Portions 1 and 2 of Farm Plaas 538 Hay RD (Gruispan), approximately 11.6 km south of the town of Postmasburg, Tsantsabane Local Municipality, in the Northern Cape Province. The project area will cover approximately 80 hectares of undeveloped (greenfield) land. The purpose of the airfield will be to accommodate air traffic related to passengers travelling to and from Kolomela mine.

Currently, flights carrying passengers to and from Kolomela are serviced by Assmang's Tommy's Airfield. However, there is a shortage of capacity on the Kolomela flights, and many passengers are forced to fly to Kathu and are subjected to a long (over 100 km) and potentially dangerous road transfer from Kathu to Postmasburg. The existing runway at Tommy's Field is too short to accommodate larger planes. The short runway also does not allow for safe departures of fully loaded aircraft under 'hot and high' conditions and

safety incidents have been reported. Furthermore, it is probable that SA Airlink will retire the fleet of J41 aircraft currently servicing Kolomela in the future. Therefore, a need has been identified for a longer, safer runway to accommodate air traffic to Kolomela mine.

#### 4.2.2 **Project Infrastructure**

A summary of infrastructure associated with the airfield is provided in Table 4-2. The preliminary project layout is provided in Figure 4-1.

**Table 4-2: Project Infrastructure**

<b>Infrastructure</b>	<b>Description</b>
Runway and helipad(s)	The runway will be approximately 2.5 km in length and 30 meters wide, assuming a level runway. The dimensions of the runway have been calculated in terms of the type of aircraft that will be accommodated by the airfield. Factors such as take-off and landing velocity of the aircrafts were considered. A helipad(s) will also be developed to accommodate helicopters at the facility.
Access road	An access road will be developed which will connect the proposed airfield with the R325 regional road. The road will be approximately 1.4 km in length and 8 meters wide.
Fuel storage and supply	A jet fuel storage tank will be used for the refuelling of aircraft. An estimated total volume of +/- 40 000 litres will be stored on site. A re-fuelling depot with pumps and delivery systems will also be developed. Appropriate bunding will be installed to ensure potential spillages are contained.
Parking area	A parking area will be developed for airfield staff and travellers. The parking area will also accommodate car hire vehicles.
Fire and rescue building	A fire station building structure will be developed. Dedicated water tanks will be established for firefighting purposes.
Terminal building	The terminal will entail a departures lounge with 40 seat capacity plus standing room. The terminal will also include a baggage reclamation area, offices, kitchen, and ablution facilities. Two x-ray machines will be installed to scan hand luggage for security purposes.

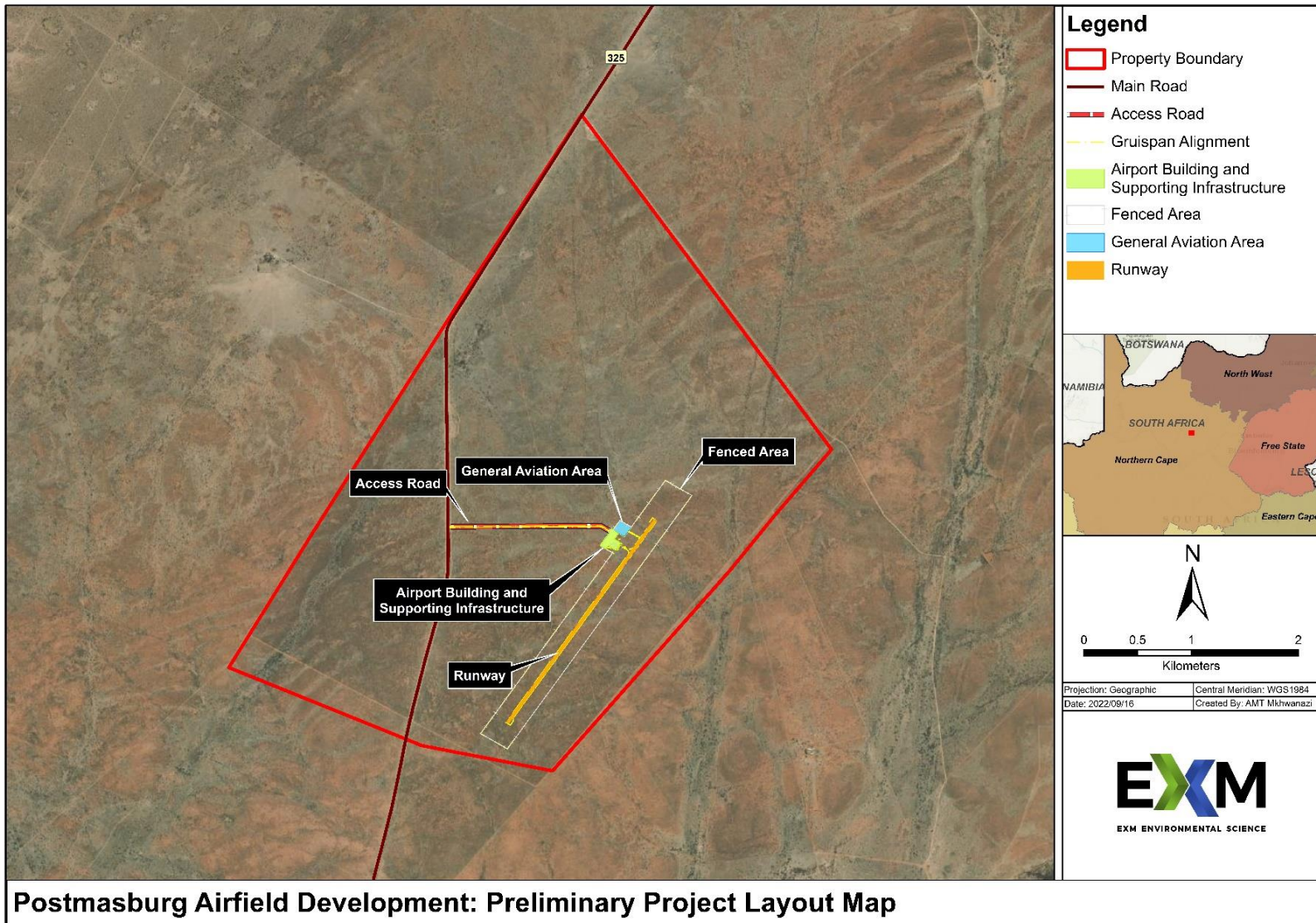


Figure 4-1: Preliminary Project Layout Map

#### 4.2.3 **Electricity supply**

Two options are currently considered with regards to energy supply to the facility. The first option entails the development of a relatively small Solar Photovoltaic ("PV") Facility to provide electricity to the site. The second option will be to establish a new electricity supply line of 11 Kilovolt ("kV") to connect the facility to the grid. There is a current transmission line that runs along the R325 regional road which can potentially provide a connection to the grid. The feasibility of these options is still under investigation and will be included as part of the impact assessment phase.

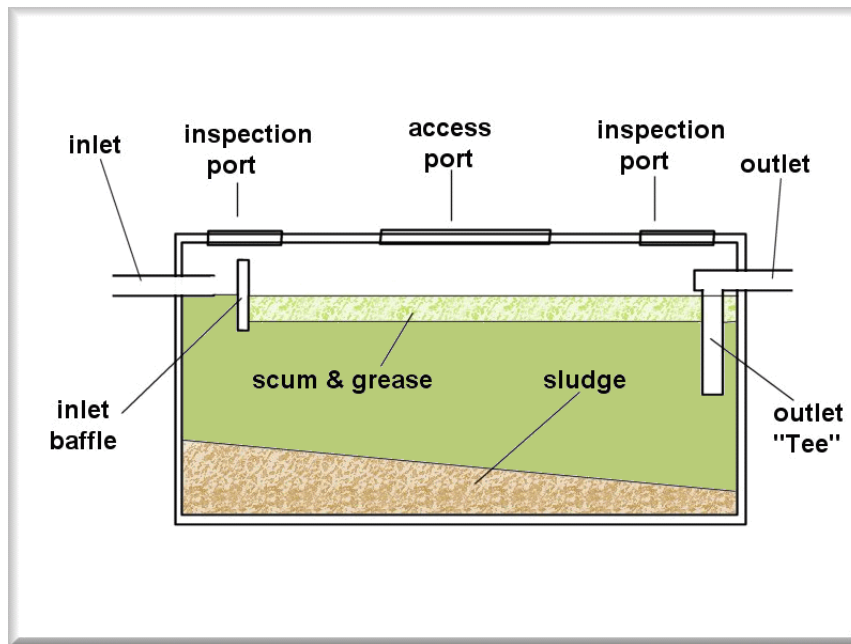
#### 4.2.4 **Water storage and supply**

Water use required at the new facility during construction will be for dust suppression and to wet construction fill material to its optimum moisture content for compaction as well as, for drinking, sanitation, firefighting, maintenance, and general use. Water use during operations will entail potable use, firefighting, landscaping, sanitary purposes, and maintenance. The water demand for the facility will be approximately 40m<sup>3</sup>/day during the construction phase and 21m<sup>3</sup>/day during the operational phase. SIOC proposes to abstract groundwater from an on-site borehole(s) to supply the water requirements at the airfield. Water (approximately 200m<sup>3</sup>) will be stored in elevated tanks for distribution to the respective areas of demand.

#### 4.2.5 **Wastewater management**

A septic tank system, conceptually illustrated in Figure 4-2, will be utilised at the facility for the management of grey water and sewage emanating from the airfield operations. A septic tank system utilises settling and anaerobic digestion to provide primary treatment to wastewater. The septic tank(s) will be located underground to facilitate gravity flow into the tank. Sludge emanating from the system requires secondary treatment and will be removed via a vacuum truck when required and transported to the Postmasburg Wastewater Treatment Works for secondary treatment.

An evapotranspiration ("ET") system is proposed to manage the "non-sludge" effluent emanating from the septic tanks. An ET system utilises the evaporation effect for the management of effluent. Effluent seeping into the ground will be prevented by means of two layers of Geosynthetic Clay Liner ("GCL") below a 1.5 mm HDPE liner.



**Figure 4-2: Illustration of a Typical Septic Tank System**

#### 4.2.6 Stormwater management

There is no existing stormwater infrastructure in the area on which the proposed airfield will be developed. A stormwater management plan will be developed as part of the WUL application.

The following provides a summary of the preliminary design of the system.

- The runway will be designed to allow stormwater to be removed from the surface as swiftly as possible to maintain skid resistance and enhance safety of aircraft movements. Minor systems such as culverts and open channels will be utilised to convey upstream and on-site runoff, designed not to concentrate run-off unnecessarily.
- Upstream runoff from the runway will be diverted around the terminal and apron area by means of channels or berms and released further downstream. It will be ensured that the velocities involved will be managed in such a way as to not cause erosion either within the diversion infrastructure or beyond the downstream release point.
- In the case of the access roads, taxiways and the runway, direct runoff will be channelled off of these surfaces by means of a chamber into the natural drainage systems if pooling is not a problem. Where pooling may be an issue, diversion channels will be used to convey stormwater to acceptable release points. Where natural drainage lines are found to cross these structures, culverts will be provided. Runoff velocities will be managed to ensure that erosion does not occur.



- Velocity management may be in the form of linings for stormwater management channels. Energy dissipation at release points may include riprap lined areas that would provide protection of in situ material, dissipate energy and spread flow over large areas to encourage sheet flow.
- Contaminated areas, such as fuelling installations, will be bunded to capture potentially contaminated runoff from these areas that will then be disposed-of appropriately.

#### 4.2.7 **Borrow pit**

Bulk earthworks related to runway construction is often the dominant cost component for a small airfield facility. Fill materials for construction purposes will therefore be sourced from an on-site borrow pit which will reduce costs significantly, compared to the sourcing of such material from external sources. The in-situ material on site are expected to be easily excavated using conventional excavators and/or dozers, however, the hardpan calcrete layers may require the use of pneumatic action and/or blasting before excavation can take place. The development of the borrow pit will be subject to a geotechnical investigation. The location of the borrow pit will be included in the EIA report.

### **4.3 Period for which the Environmental Authorisation is Required**

The operational life of the airfield is expected to exceed the life of Kolomela mine. It is expected that the airfield will become public infrastructure and available for public air travel sometime during and after mine closure.

## **5. POLICY AND LEGISLATIVE CONTEXT**

This document has been prepared strictly in accordance with the requirements of the National Environmental Management Act (No. 107 of 1998) ("NEMA") and the EIA Regulations (GN R. 326 as amended in 2017). This section outlines the key legislative requirements applicable to the project.

### **5.1 National Environmental Management Act (No. 107 of 1998)**

The purpose of the act is to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment.

Section 24 of NEMA provides for the Minister of Environmental Affairs to publish activities that require Environmental Authorisation ("EA") prior to commencement. This has resulted in the promulgation of Listing Notices 1 (GN. 327), 2 (GN. 325) and 3 (GN. 324) with the EIA Regulations (GN. 326) of December of 2014 as amended by GN. 324-327 of 7 April 2017. Activities included in Listing Notices 1 and 3 require a Basic Impact Assessment to be

undertaken and activities included in Listing Notices 2 require a scoping and full EIA process to be undertaken in order to obtain EA prior to commencement.

The project triggers activities listed in Listing Notice 1 (GN. 327) and Listing Notice 2 (GN. 325) and thus the application for EA requires the completion of a Scoping and full EIA process. The complete description of all activities triggered are provided in Section 4.1 of this report.

Authorisation is required for activities applicable to the development of the airfield in terms of the EIA Listing Notices 1 & 2 of GNR. 327-325, as amended.

## **5.2 National Environmental Management: Waste Act (No. 59 of 2008)**

The purpose of the act is to provide basis to implement measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. In terms of the National Environmental Management: Waste Act (No. 59 of 2008) ("NEM: WA"), waste management activities that are listed in regulations published under NEM: WA may not be undertaken without a Waste Management License ("WML"). The listed activities for which a WML is required are contained in GN R. 921. The proposed project will not trigger any of the listed activities and no WML is therefore required. The relevant Norms and Standards for the Storage of Waste will also be taken into consideration as part of the mitigation that will be included in the EMPr. The storage capacity will not exceed the threshold to register under the Norms and Standards.

The project will not require a Waste Management Licence in term of NEM: WA

## **5.3 National Environmental Management Act: Air quality Act (No. 39 of 2004)**

The National Environmental Management: Air Quality Act (No. 39 of 2004) ("NEMA: AQA") controls and regulates atmospheric emissions and provides for Listed Activities (GN. 893, November 2010) which have or may have a significant effect on the environment, including health, social conditions, economic conditions, ecological conditions, or cultural heritage. Any activity captured under this list require the person undertaking the activity to apply for an Atmospheric Emission Licence ("AEL"). The proposed Airfield will not trigger any of the listed activities and therefore an AEL is not required for the project.

SIOC is required to comply with the National Dust Control Regulations (NDCR, GN. 827 of 1 November 2013) (as amended in 2019). Dust fall monitoring may be required in terms of the NDCR to assess the facility's contribution to dust fall. Additional measures must be implemented to control dust if the monitoring results show excessive dust generation.

The project will not trigger activities listed in GN 893 and therefore an AEL is not required.

#### **5.4 National Forests Act (No. 94 of 1998)**

Sections 12 and 15 of the National Forests Act (No. 94 of 1998) requires any person who damages, cuts, destroys, prunes, or relocates a nationally protected tree (as listed in Regulation GN. 690, September 2017) to apply for a permit from the Department of Forestry, Fisheries, and the Environment ("DFFE") to do so. The occurrence of potential protected plants will be assessed during the EIA whereby the biodiversity specialist will identify and assess such plants after which a permit will be applied for, if required.

An application will be submitted for the removal of protected vegetation species identified as part of the biodiversity study within the project footprint, if necessary.

#### **5.5 Northern Cape Nature Conservation Act (No. 9 of 2009)**

Section 49 and 50 of the Northern Cape Nature Conservation Act (No. 9 of 2009) requires any person that intends to undertake a restricted activity in respect of protected plants and animals as set out in Schedule I and Schedule II of the Act to apply for a permit from the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform. Application will need to be made for the necessary permits prior to the commencement of site clearance in areas (if any) where protected plants are present. The permit applications will be supported by an Ecological Impact Assessment specialist study.

An application will be submitted for the removal of protected vegetation species identified as part of the biodiversity study within the project footprint, if necessary.

#### **5.6 National Water Act (No. 36 of 1998)**

The purpose of the National Water Act (No. 36 of 1998) ("NWA") is to ensure that the nation's water resources are protected, used, developed, conserved, managed, and controlled. Section 21 of the NWA contains a list of activities that require a Water Use Licence ("WUL") prior to commencement thereof. The following Section 21 water uses will be triggered by the project and therefore a WUL will be required prior to commencement. Table 5-1 below indicates the Section 21 Water Uses to be Included in the WUL application.

**Table 5-1: Section 21 Water Uses to be Included in the WUL Application**

Water Use	Activity Description	Infrastructure/activity
<b>Section 21 (a)</b>	Abstraction of groundwater from a borehole.	Abstraction of water from an onsite borehole. The water demand for the facility will be approximately 40m <sup>3</sup> /day during the construction phase and 21m <sup>3</sup> /day during the operational phase.
<b>Section 21 (c&amp;i)</b>	Infrastructure that will impact directly on water courses	Establishment of infrastructure footprint on wetland pans or within 500m of wetland pans.
	New infrastructure within 500 m regulated zone of a wetland/watercourse (specific infrastructure to include in the IWUL application will be confirmed after review of specialist findings)	
<b>Section 21 (g)</b>	Discharging water containing waste into a water resource and disposing of waste in a manner which may detrimentally impact on a water resource.	Septic tanks and evapotranspiration beds.

A WUL application process is being undertaken concurrently to the EA application process in terms of the Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals (GN R. 267 of 2017). The WUL application will be supported by an Integrated Water and Waste Management Plan ("IWWMP") compiled in accordance with the requirements of GNR. 267.

The project will require a Water Use Licence from the Northern Cape Department of Water and Sanitation ("DWS")

### **5.7 National Heritage Resources Act (No. 25 of 1999)**

The National Heritage Resources Act 25 of 1999 (NHRA) controls and regulates the interaction with heritage, archaeological and paleontological artefacts, and structures. Sections 34, 35 and 36 of the Act state that no person may demolish or alter any structure which is older than 60 years without a permit issued by the relevant provincial heritage resources agency. A Heritage Impact Assessment ("HIA"), Archaeological and Desktop Palaeontological Impact Assessment (PIA) will be undertaken as part of the EIA to identify any heritage/archaeological resources that will be affected and identify any permitting requirements. Consultation will be undertaken with the South African Heritage Resources Agency to obtain input during the EIA process.

The project may potentially require a permit for the disturbance of heritage resources in terms of the NHRA.

## **5.8 Civil Aviation Act (No 13 of 2009): Civil Aviation Regulations, 2011**

According to Regulation 36 of the Civil Aviation Regulations, an application for the aerodrome in term of regulation 21 must be supported by proof that the facility will comply with the appropriate noise standards as prescribed in Document SA-CATS 36.

Regulation 139.02.11 requires that an airfield must establish an aerodrome environment management programme which relates to foreign object debris ("FOD"), oil and fuel spillages, bird and wildlife presents or are likely to present a hazard to aircraft operating to or from the aerodrome. The Environmental Management Programme ("EMPr") must contain measures to minimise the effects of such hazard or potential hazard. The aerodrome operator shall ensure that an environmental management meeting is conducted with interval not exceeding three months and that the minutes of the meetings must be kept and must clearly indicate all identified environmental issues that may affect the operations and the rectification thereof.

In terms of Regulation 139.02.13, an application for the issuing of an aerodrome licence, or an amendment thereof, shall include an environmental impact report and written approval from all interested Government institutions.

The Civil Aviation Authority ("CAA") must be furnished with a copy of the Environmental Impact Report and the EA once it has been approved in support of the application in terms of the Civil Aviation Act. A license to operate the airfield will be required from the CAA.

## **5.9 Noise Control Regulations – Act PN 627 of 1998**

The purpose of the Noise Control Regulations (GN. 627 of 1998) is to create a set of strategies to reduce noise pollution or to reduce the impact of that noise, whether outdoors or indoors. The Regulations define and "*disturbing noise*" as "*a noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 decibels or more.*"

A noise impact assessment will be undertaken to determine current noise levels on the site and determine the degree that noise levels will increase due to the operations at the airfield.

## **6. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES**

### **6.1 Supporting function for Kolomela Mine**

Kolomela mine is situated in a remote section of South Africa and the mine is dependent on-air transportation to allow contractors and employees to travel in an effective and safe manner from other parts of the country, including SIOC Corporate office located in Gauteng. Air transportation prevents long overland travelling that would result in a loss of productivity and undue safety risks for the employees and contractors. An airfield and associated air travel provides an essential supporting function for the mine's operations. Therefore, a clear need exists for a facility that can accommodate passengers travelling to and from Kolomela mine. The proposed airfield will ensure the continued transportation of employees and contractors to the mine.

### **6.2 Increased capacity to accommodate air traffic**

The purpose of the airfield will be to accommodate air traffic related to passengers travelling to and from Kolomela mine from Johannesburg. While the Sishen mine is currently serviced by 19 flights per week of 37 seat regional jet aircraft, Kolomela is serviced by Assmang's Tommy's Field involving 7 flights in 29-seater Jetstream41 turbo-prop aeroplanes. Given the shortage of capacity on the Kolomela flights, many passengers are forced to fly to Sishen and are subjected to a long and a potentially dangerous road transfer over 100 km from Sishen airfield in Kathu to Postmasburg.

Furthermore, the runway at Tommy's Field is too short to allow for safe departures of fully loaded aircraft under 'hot and high' conditions and various safety incidents have been reported. Furthermore, it is likely that Airlink will retire the fleet of Jetstream41 aircraft currently servicing Kolomela in the future.

The existing runways at Tommy's Field and Postmasburg Airfield were investigated as possible solutions, but these facilities cannot be expanded for various technical reasons, including air space restrictions, proximity to mining activities and residential areas, thus necessitating the need for a new runway and airfield to be develop in Postmasburg to support air traffic to Kolomela mine.

A clear need exists to develop a new facility to provide sufficient capacity for air transportation to Kolomela.

### **6.3 Socio-economic contribution**

The project will contribute to economic development in terms of the following:

- Temporary jobs (skilled and unskilled) will be created during the construction phase of which a portion will be sourced from local labour. The project will result the

creation of a number of temporary jobs during construction.

- During the operational phase, Kolomela is likely to move the labour operating Tommy's Airfield to the new airfield. Operational phase employment impacts are considered low.
- The purchasing of local goods and services during construction and operations (fuel, food, cleaning services, maintenance, building material, etc.).

The project also has the potential to have socio-economic spin offs. The airfield could be used by local residents and can be used by other aircraft not related to Kolomela mine operations. It will improve transportation of local residents. The current status of infrastructure development in Postmasburg is not favourable and this project will contribute to infrastructure development in the area and region.

## **7. ALTERNATIVES ASSESSMENT**

### **7.1 Site location alternatives**

An extensive site selection process was undertaken by SMEC South Africa to identify a suitable location for the proposed airfield. The factors that were considered were based on the requirements of the Civil Aviation Authority and/or practical requirements and are considered as either significant or fatal flaws for the development of an airfield. Factors are discussed in Table 7-1 and the proposed site was selected based on these criteria. The properties where the proposed airfield will be developed are also owned by SIOC, and no land needs to be acquired. Figure 7-1 illustrates the factors which were taken into consideration during the site selection process as well as the potential sites that were identified.

Five (5) site alternatives (including were identified as a result of the site selection process as indicated in Figure 7-1. The sites included the proposed site (Gruispan), Erf 1 of the Town Postmasburg, upgrade of the existing Postmasburg airport and the upgrade of the existing Tommy's field airport.

**Table 7-1: Site Selection Criteria**

<b>Criteria</b>	<b>Description</b>
1. Radius	The site selection was conducted in a 20km radius from the town centre of Postmasburg which is optimal in terms of travelling distance and accessibility. All properties outside this radius have been excluded. Traveling further distances will also increase travelling time and safety concerns on roads.
2. Mining considerations	The DMRE D1 database was used to exclude properties on which existing Prospecting Rights or Mining Rights have been issued. The effect of mining activity on both the footprint of the airfield and aeronautical approach paths were

<b>Criteria</b>	<b>Description</b>
	considered.
3. Military artillery range at Lohatla military base	The Lohatla military base is situated 32km north of Postmasburg. A 15km buffer zone from the restricted airspace associated with the Lohatla bombing range has also been used as a factor for site selection. The buffer has been included to prevent any risk of entering the restricted air space due to previous safety incidents of this nature.
4. Accessibility and travelling distance	Potential sites situated on secondary unpaved roads that are located considerable distances away from Kolomela and Postmasburg have also been excluded due to the viability of road upgrades and accessibility.
5. Proximity to residential areas	Proximity to residential areas was also taken into account during the site selection process due to potential noise impacts and associated nuisance conditions.
6. Site Topography	The runway requires a relatively flat area with a maximum longitudinal slope on the runway centreline of 1.5% or less. A slope map of the 20km radius was generated with areas exceeding 1.5% being highlighted. Localised slope variations could be tolerated, but sites with overall slopes steeper than 1.5% were excluded from consideration.
7. Surrounding Topography	According to the requirements of the International Civil Aviation Organisation and, subsequently, the South African Civil Aviation Authority, the end of the runway must not be situated within 4000 meters from a topographical feature with a vertical height higher than 45 meters of the runway. The criteria were applied to sites that were deemed acceptable in terms of the above requirements (1. to 6.) and yielded exclusion zones within individual sites in terms of areas that would not meet this requirement.



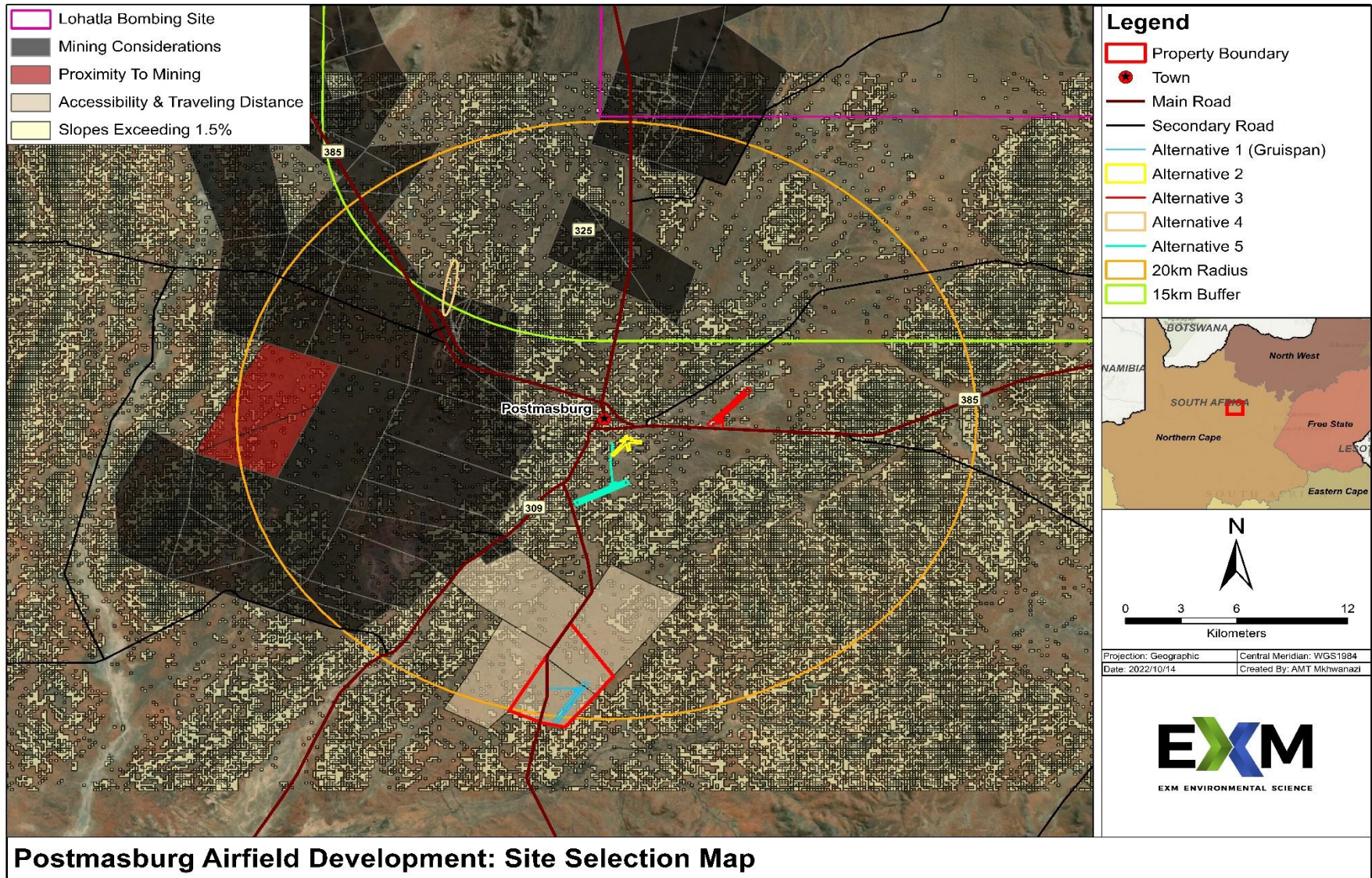


Figure 7-1: Site Selection Map

#### 7.1.1 **Portions 1 and 2 of Farm 538 Hay RD (Gruispan) (Alternative 1)**

The proposed and preferred site location alternative entails the development of an airfield on Portions 1 and 2 of the Farm Plaas 538 Hay RD. The site is easily accessible from the R325 regional road. No Ecological Support Areas ("ESAs") or Critical Biodiversity Areas ("CBAs") are located on the properties. No prominent drainage lines transverse the study area and only two relatively small wetlands classified as National Freshwater Ecosystem Priority Areas ("FEPAs") are located on the properties.

#### 7.1.2 **Upgrade of the existing Postmasburg airport (Alternative 2)**

The site is optimally located in terms of access and will only entail the extension of an existing facility not a new development. However, the site has been excluded for further assessment due to the very close proximity (<250m) to a residential area and the associated noise impacts. The footprint of the proposed expansion is partially located within a CBA 1 which is regarded as highly sensitive. This alternative is also not preferred due to the existence and location of nearby overhead power line structures which present potential hazardous aviation obstacles. An existing water tower presents a potential obstacle and bird activity from the nearby waste water treatment works also poses a potential aviation risk.

#### 7.1.3 **Erf 1 of the Town Postmasburg (Alternative 3)**

This site is not preferred as it is characterised by significant environmental features. Two prominent drainage features are located on Erf 1 that drain into the Groenwaterspruit river which is classified as an NFEPA river. The drainage features would be directly impacted. Large NFEPA wetlands are situated at the northern end where the runway would be situated and poses significant risk for bird strikes. Numerous other potential large wetland pans are also situated on the property and the topography of the area does not allow for any layout alterations to prevent impacts on wetlands. The land is currently leased by local farmers for grazing purposes and the proposed facility would impact the land use capability and livelihoods of these people.

#### 7.1.4 **Upgrade of the existing Tommy's field airport (Alternative 4)**

The site is not a preferred option due to the very close proximity (800 m) to Beeshoek mine and associated blasting activities, especially with the use of larger airplanes. Future expansion of activities at Beeshoek may also pose a risk to the project. The site is located close to the Lohatla Military Bombing Range airspace buffer zone and existing safety incidents have been recorded.

### 7.1.5 **Farm Kalkfontein 474, Postmasburg (Alternative 5)**

The Farm Kalkfontein (situated north of the Farm Gruispan) was previously considered as the preferred alternative to develop the airfield mainly due to the property's closer proximity to Postmasburg and Kolomela mine. However, the property is owned by a private entity and after due consideration of various factors (including processes to acquire the property) it was decided to pursue a property owned by SIOC for the development of the project. The Farm Kalkfontein was therefore excluded for further assessment as part of this EIA process.

## **7.2 Site Layout Alternatives**

The current/initial site layout and orientation of the runway are based on several factors, including the dominant wind direction, topography constraints, location of mining activities, etc. The layout and orientation will be refined based on the outcome of the specialist studies and site sensitivities as well as detailed topographical surveys. Layout alternatives will further be assessed during the EIA.

## **7.3 Electricity Supply Alternatives**

Two options are currently considered with regards to energy supply to the facility. The first option entails the development of a relatively small Solar Photovoltaic (PV) Facility to provide electricity to the site. The second option will be to establish a new electricity supply line of 11 Kilovolt (kV) to connect the facility to the grid. There is a current transmission line that runs along the R325 regional road which can potentially provide a connection to the grid. The feasibility of these options is still under investigation and will be assessed as part of the EIA phase.

## **7.4 Option of not implementing the activity**

The no-go alternative would entail the non-continuation of the airfield development. This would mean that Kolomela will continue to use Assmang's Tommy's Airfield. There is currently a shortage of capacity on the Kolomela flights at the airfield and many passengers are forced to fly to Sishen mine near Kathu and are subjected to a long and potentially dangerous road transfer from Kathu to Postmasburg. The existing runway is too short to accommodate larger planes. The short runway also does not allow for safe departures of fully loaded aircraft under 'hot and high' conditions and various safety incidents have been reported. As previously discussed, the upgrade of the Tommy's Airfield is not a feasible option. The non-continuation of the proposed airfield is therefore not a preferred option.

The non-continuation of the airfield development will also negate the socio-economic benefits associated with the facility, including job creation (especially during construction) and the purchasing of local goods and services. The project also has the potential to have socio-economic spin offs. The airfield could in future be used by local residents and other aircraft not related to Kolomela mine operations. The current status of infrastructure development in Postmasburg is not favourable and this project will contribute significantly to infrastructure development in the area. These benefits will be prevented if the project does not proceed.

The status quo will remain, and the no-go alternative would prevent any potential negative environmental impacts associated with the proposed airfield. The actual social and economic benefits associated with the project as well as the biophysical impacts will be investigated as part of EIA phase of the project and appropriate mitigation will be proposed.

## **8. DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED**

A public participation process is conducted in terms of the Chapter 6 of NEMA and the EIA regulations. The purpose of the public participation process is to inform all the identified Interested and Affected Parties ("IAPs") of the proposed development and associated EA application process and allow them to raise comments/concerns.

### **8.1 Identification of Interested and Affected Parties**

An IAP database (**Appendix B1**) has been created for the purposes of this project. Potential IAPs were identified based on the definition of IAPs in the EIA regulations:

- Landowners or tenants adjacent to or within 100 m from the proposed study area. For the purposes of this study all neighbouring landowners have been identified and notified.
- Any ratepayers association that represents the community in the area (if applicable).
- Ward councillor with jurisdiction in the area.
- Officials from the Tsantsabane Local Municipality and the ZF Mgcawu District Municipality
- Authority or organs of state having jurisdiction in respect of any aspect of the activity, including. The following organs of state have been notified:
  - Northern Cape Department of Water and Sanitation ("DWS")

- Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform;
  - South African Heritage Resources Council (Northern Cape);
  - Northern Cape Department: Co-operative Governance, Human Settlements and Traditional Affairs.
  - Northern Cape Department of Agriculture; and
  - Northern Cape: Department of Land Reform and Rural Development.
- Persons who respond to the Background Information Document ("BID"), press advertisements and site posters.

## **8.2 Notification of Interested and Affected Parties**

In accordance with Section 41(2)(b) of Chapter 6 of the EIA Regulations (GN. 326 of 2017, as amended), written notification (including BID document by email) was provided to all persons on the IAP database.

- Site notices (Afrikaans and English) have been placed at the access roads to the site as well as at public areas in Postmasburg (**Appendix B 4**)
- Email notifications have been sent to the identified I&APs (**Appendix B5**).
- SMS notification have been sent to the identified I&APs (**Appendix B5**).
- Advertisements have been placed in two newspapers (local and regional), one in English and one in Afrikaans which are distributed in the Postmasburg area (Kalahari Bulletin and Volksblad) (**Appendix B3**).

A copy of the BID is provided in **Appendix B2**. Proof of distribution of the BID is contained in Annexure B5.

## **8.3 Distribution of draft Scoping report for comment:**

The scoping report is distributed for a period of 30 days to the identified IAPs by means of the following methods:

- An electronic link has been provided to the identified IAPs with access to email. Two platforms will be used including OneDrive and Dropbox to ensure access.
- IAPs for whom only cell number are available have been notified of the availability of the report and provided the opportunity to request access to the documents.
- Hard copies will be provided to the competent authority.

Proof of distribution is included in **Appendix B5**.

## 8.4 Public meeting

A public meeting will be held with the prominent community members to introduce the project and also to provide information regarding the EIA process as part of the Impact Assessment phase of the EIA after the EIR has been distributed for comment. All IAPs will be invited to the meeting.

## 8.5 Response to comments received

No comments have been received thus far. All comments will be incorporated in the final Scoping Report that will be submitted to the CA.

# 9. BASELINE ENVIRONMENTAL ATTRIBUTES

This section provides a description of the baseline environment associated with the study area. The baseline environmental sensitivities were derived from a desktop assessment, and which was used to identify potential impacts and to determine which specialist studies are required in support of the EIA.

## 9.1 Climate

### 9.1.1 Temperature

Temperatures in the area range between -7°C and 38°C. The highest temperatures occur in November (max: 38.1°C) and the lowest in June (min: -7.1°C). Table 9-1 below provides a summary of the monthly temperatures experienced in the Northern Cape area

**Table 9-1: Monthly Temperature Summary**

Hourly Minimum, Hourly Maximum and Monthly Average Temperatures (°C)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum	10.7	12.4	6.5	3.0	-2.3	-7.1	-4.9	-4.5	-0.3	2.2	6.8	8.4
Maximum	37.9	37.1	36.0	32.2	29.4	26.3	25.9	29.0	34.3	36.9	38.1	36.3
Average	27.4	25.2	24.1	19.0	16.2	11.6	11.5	12.7	18.0	21.7	24.0	24.9

### 9.1.2 Rainfall and evaporation

Postmasburg is situated within a low rainfall area with a mean annual rainfall of approximately 285 mm. Rainfall is highly unpredictable with most rainfall occurring between November and April. The rainfall usually falls as a result of thunderstorms when tropical thunderstorm activity extends southwards over the Kalahari. The Mean Annual Evaporation (2 450mm) is significantly higher than the annual rainfall (374 mm), which results in a major net moisture deficit of over 2 000 mm throughout the year.

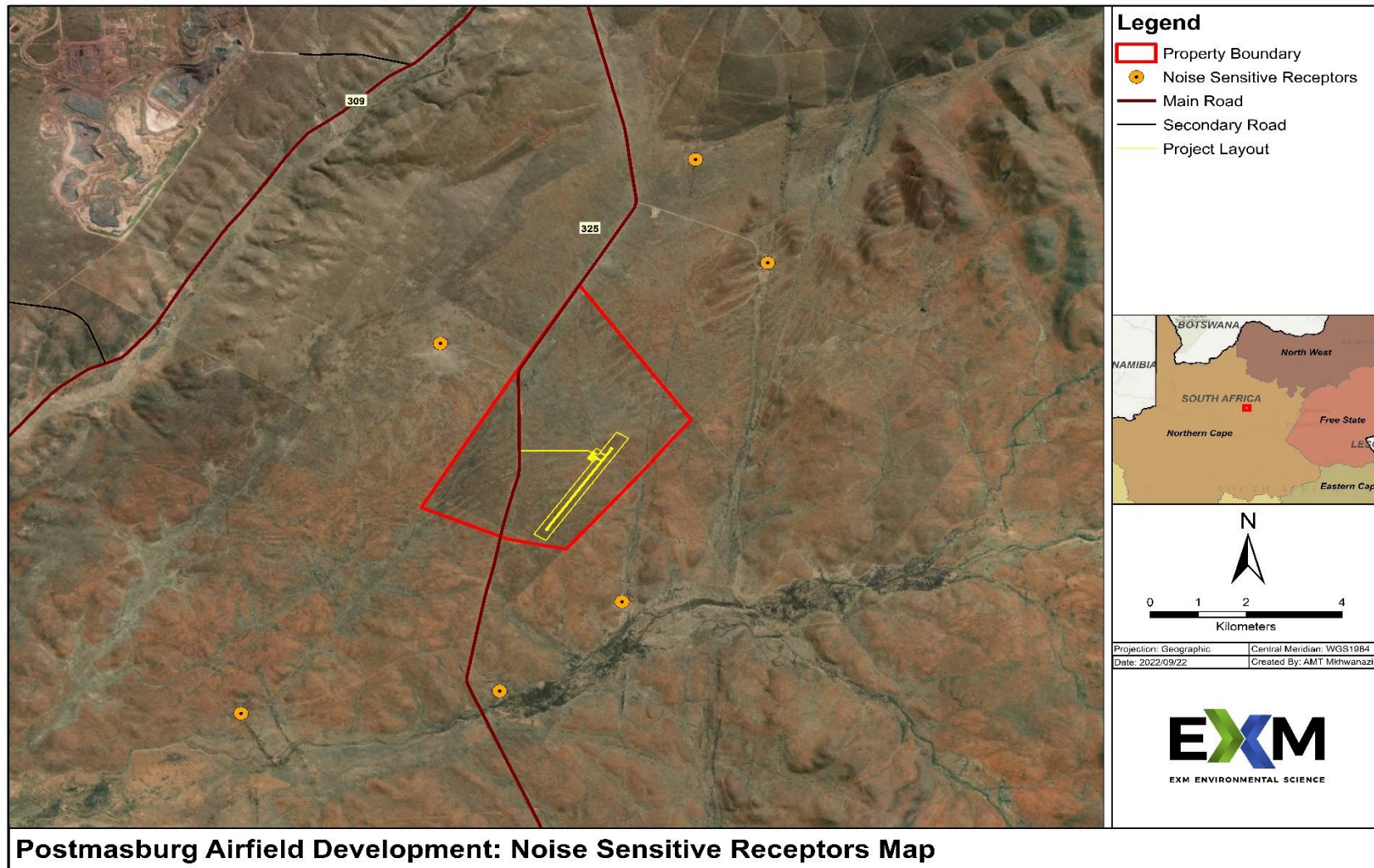
## 9.2 Air Quality

According to the Air Quality Impact Assessment for Kolomela mine (Airshed, 2021), the region is characterised as being a relatively dry, arid, and dusty environment. It is

expected that various local and far-a-field sources contribute to suspended fine particulate (PM2.5 and PM10) concentrations in the region. Local sources include wind erosion from exposed areas.

### **9.3 Noise**

The area is characterised by a rural environmental with no major sources of noise, except for Kolomela mine which is situated 7 km north west of the site. The Noise Sensitive Receptors ("NSR") surrounding the properties are indicated in Figure 9-1. The airfield has the potential to result in increased noise levels due to the approaching/departing of aircraft which will be assessed by a Noise Impact Assessment ("NIA").



**Figure 9-1: Noise Sensitive Receptors Map**



## **9.4 Topography and Hydrology**

The regional topography of the area is characterised by flat, gently undulating plains interspersed with hills and mountains as the surrounds; with the valleys being used for extensive mining and farming activities while steep mountainous ridges being inhabitable. The study area, as illustrated in Figure 9-2, is relatively flat with a slight slope. Most of the site drains towards the south western side while a relatively small section in the south drains towards the south east of the site. In both cases the site drains towards the Skeifonteinspruit which flows in a south western direction and merges with the Groenwaterspruit 16 km from the site from where the Groenwaterspruit converges with the Soutloop river 14 km downstream.

## **9.5 Soil, Land Capability and Land Use.**

### **9.5.1 Soil**

The soil type associated with the study area as indicated in Figure 9-3 is classified as LP2 and CM. LP2 is characterised by soil with minimum development, usually shallow, on hard or weathered rock, with or without intermittent diverse soils. Lime is rare or absent in the landscape. CM is characterised by red soils with high base status.

### **9.5.2 Land Use**

The land use associated with the project footprint and general area is illustrated in Figure 9-4. The land use related to the footprint of project site is classified as natural (low scrubland). Cattle farming is currently undertaken by SIOC on the properties on which the proposed airfield will be established. The surrounding properties is also used for livestock farming. Kolomela mine is located 7 km north west of the site. The town of Postmasburg is located 11.6 km north of the site.

### **9.5.3 Land Capability**

As illustrated in Figure 9-5, the area is rated as having a Class VII land capability (non-arable land capability) with the potential for low intensity grazing. The properties are currently used for grazing purposes and indication show that grazing will continue on the remainder of the properties. The proposed facility will entail the conversion of land to be utilised for the development of an airfield and therefore reduce the agricultural potential of the area over the limited extent/area of the proposed development.

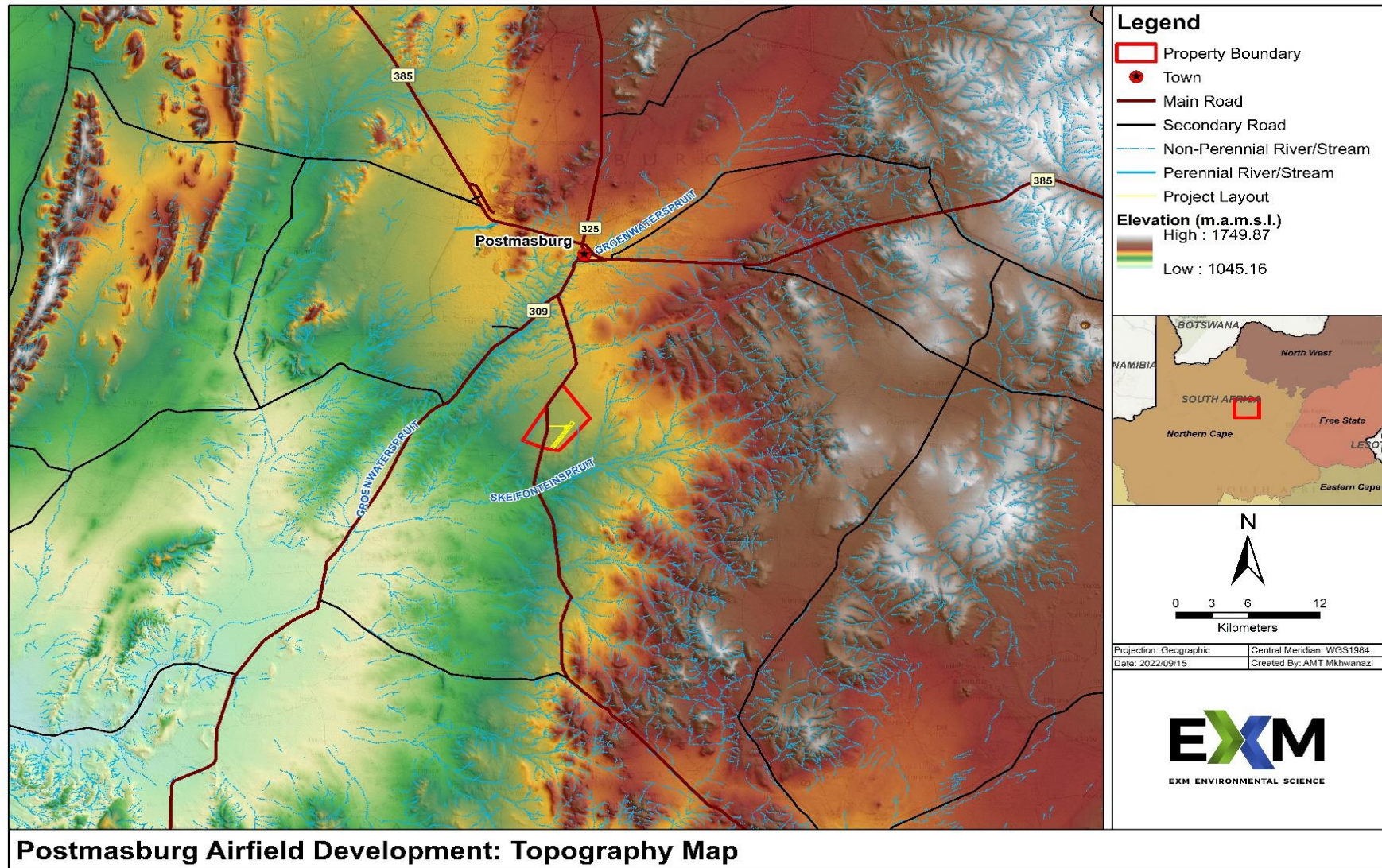


Figure 9-2: Topography Map

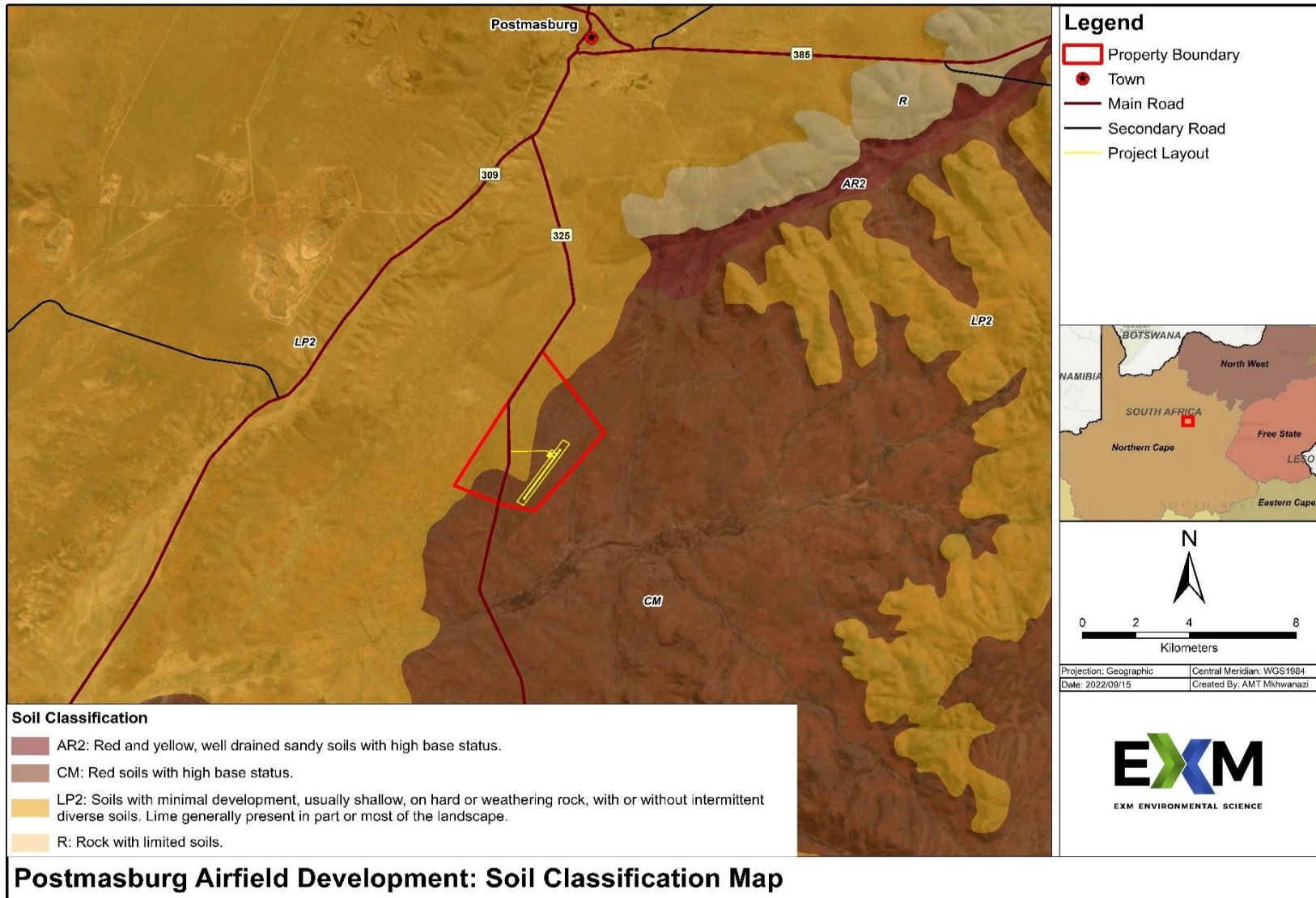


Figure 9-3: Soil Classification Map

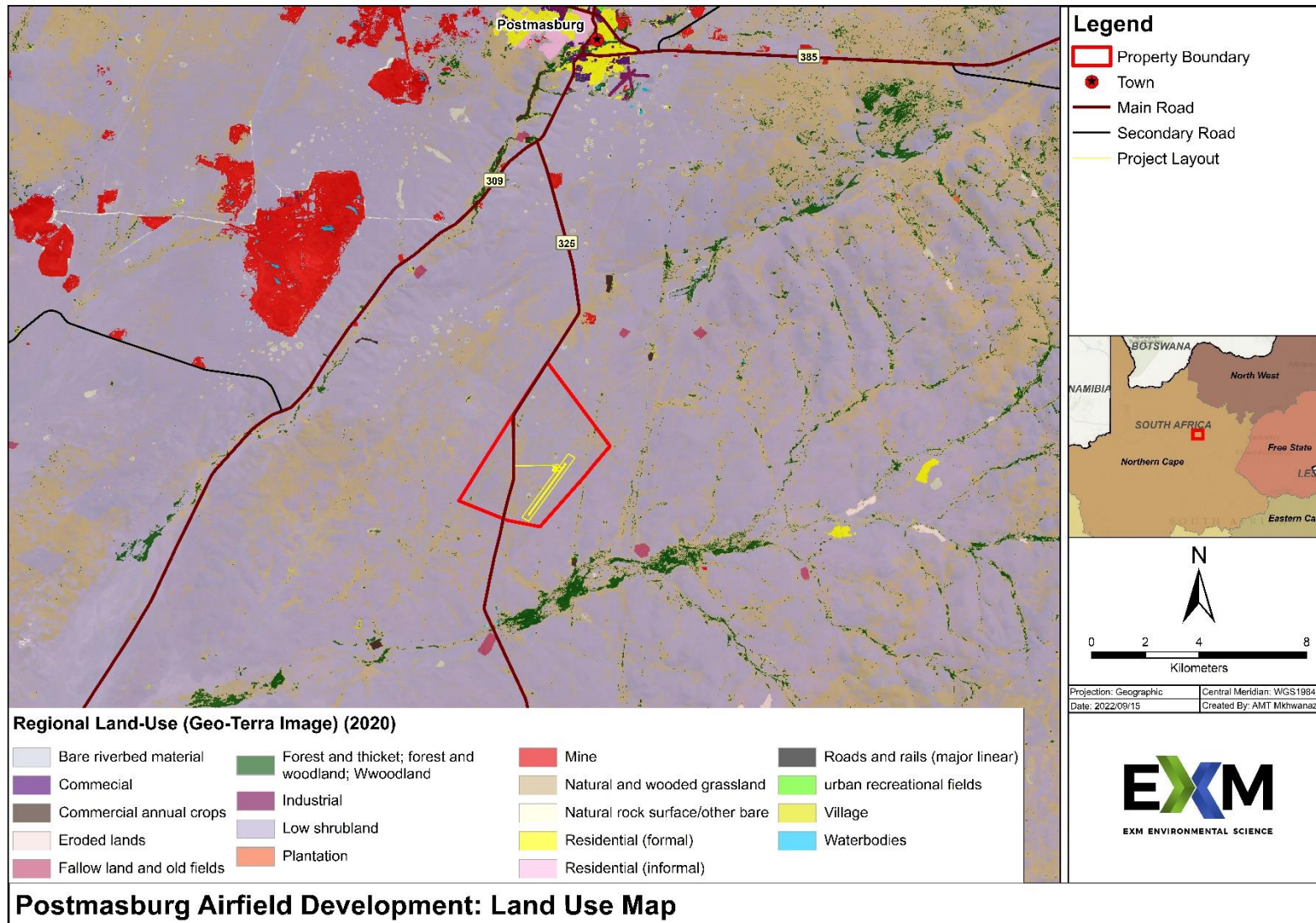


Figure 9-4: Land Use Map

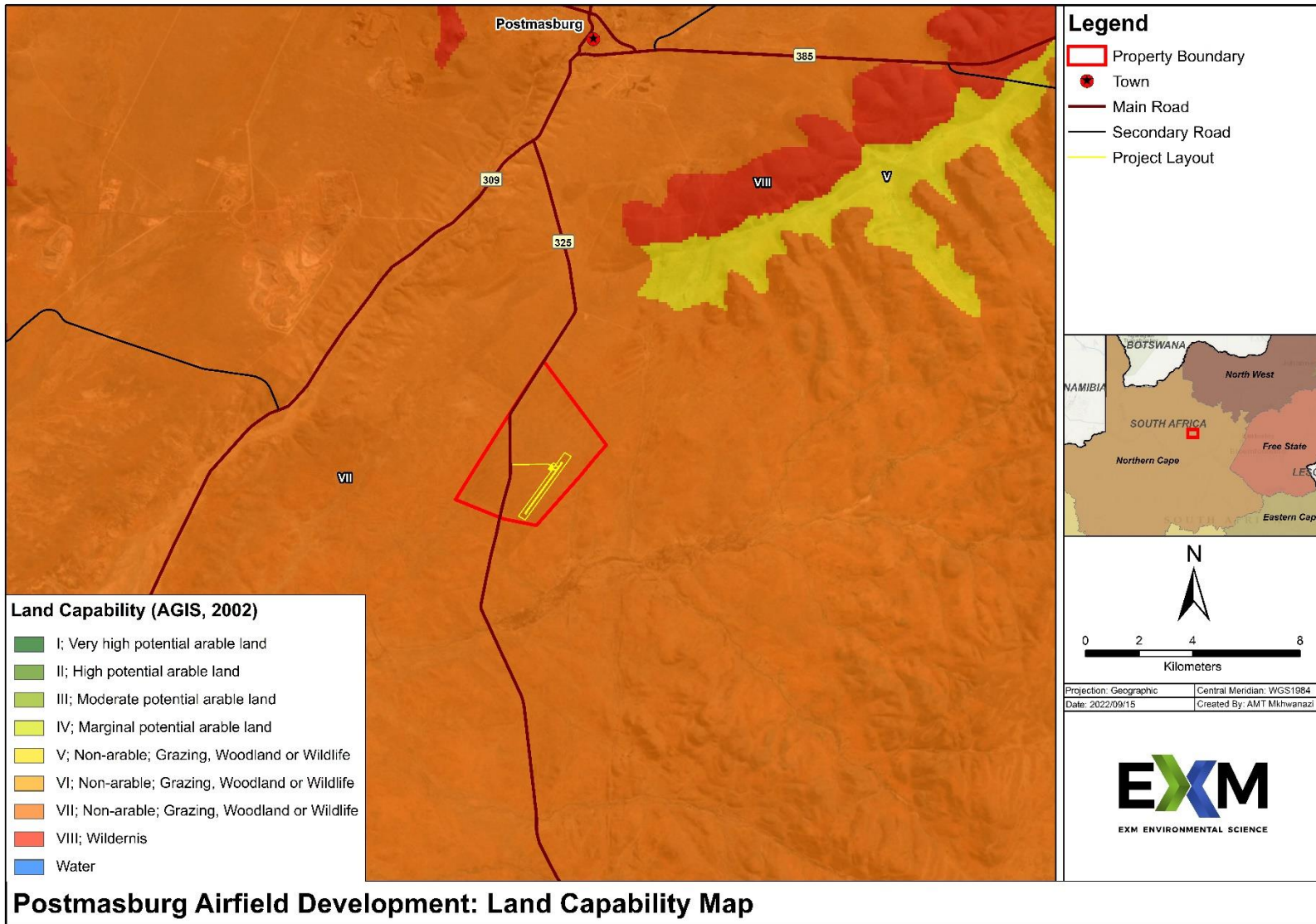


Figure 9-5: Land Capability Map

## 9.6 Biodiversity

This section provides a description of the biodiversity associated with the study area, including vegetation types, sensitive biodiversity areas and conservation/protected areas.

### 9.6.1 Fauna and Flora

The site is situated in the Savanna Biome which is the largest Biome in South Africa. Savanna is characterised by herbaceous layer usually dominated by grass species and a discontinuous to sometimes very open tree layer. There are several vegetation types in the wider area around the site, as illustrated in Figure 9-6 of which two are associated with the project area. The site falls predominantly within the Olifantshoek Plains Thornveld and Postmasburg Thornveld vegetation types. These are summaries below:

- The **Postmasburg Thornveld (SVk 14)** vegetation type, as defined by Mucina and Rutherford (2006), has a conservation status of Least Concern. This vegetation type is characterised by flat areas surrounded by mountains supporting open, shrubland characterised by a dense shrub layer and often lacking a tree layer. The grass layer is very sparse, and the shrubs are generally low with a karroid affinity. It forms part of the Savanna Biome in the Eastern Kalahari Bushveld Bioregion. Key tree species of conservation importance that occur in the area include *Boscia albitrunca* and *Vachellia haematoxylon* which are protected under the National Forests Act (No. 84 of 1998).
- The **Olifantshoek Plain Thornveld (SVk 13)** is characterised by scattered trees and shrubs and a ground layer dominated by grasses. It is described as a very diverse unit on the plains with an open tree and shrub layers which vary in composition from place to place across the unit. Key species associated with this vegetation type are *Vachellia luediritzii*, *Boscia albitrunca* and *Searsia tenuinervis*. The vegetation type is classified as Least Threatened and has not been significantly impacted by transformation and about 99% of the original extent remains. It is however very poorly conserved. No endemic species are known from this vegetation unit, which can be ascribed to its relatively limited extent and association with a relatively homogenous and unspecialised habitat.

### 9.6.2 Sensitive Biodiversity Areas

Biodiversity sensitivity associated with the project area were assessed by using relevant government GIS databases as illustrated in Figure 9-7. According to the Northern Cape Critical Biodiversity Plan this site is not situated on an area classified as Terrestrial Ecological

Support Area ("ESA")<sup>1</sup> or Critical Biodiversity Areas (CBA)<sup>2</sup>. A Biodiversity Study, including faunal and floral assessment will be undertaken in support the EIA process to verify site sensitivity.

### 9.6.3 **Conservation and Protected Areas**

The desktop assessment found that the nearest protected area is located 28 km south east of the study area which comprises of the Rockwood Nature Reserve. The abovementioned protected area is promulgated in terms of the National Environmental Protected Areas Act ("NEM:PA") (No. 57 of 2003) and is classified as a Nature Reserve. There are no protected areas or conservation areas within or close to the project area, as illustrated in Figure 9-8.

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<sup>1</sup> Terrestrial and aquatic areas that are **not essential for meeting biodiversity targets**, but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration.

<sup>2</sup> Terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems. CBA's are **essential to meet biodiversity targets**.

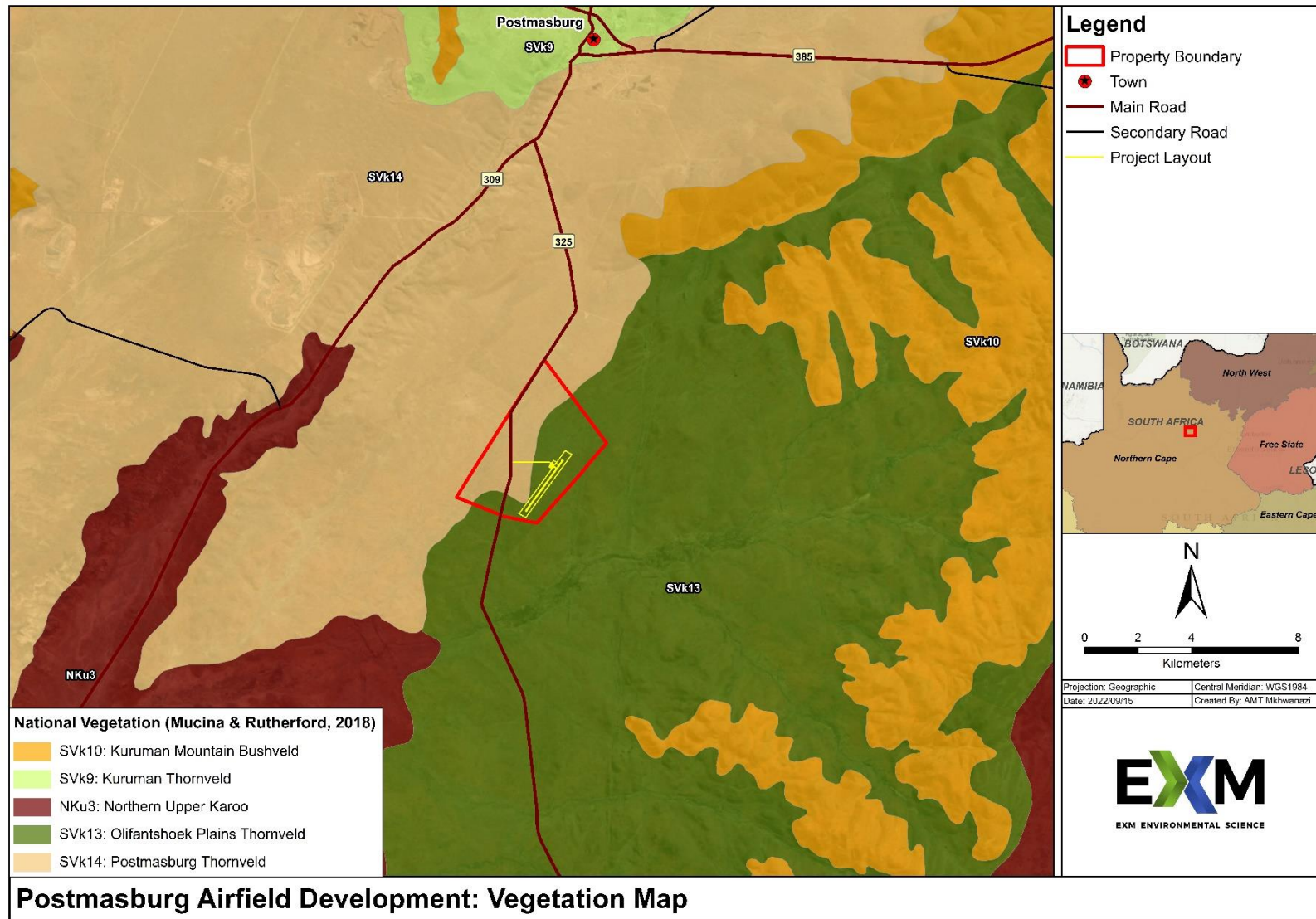


Figure 9-6: Vegetation Map



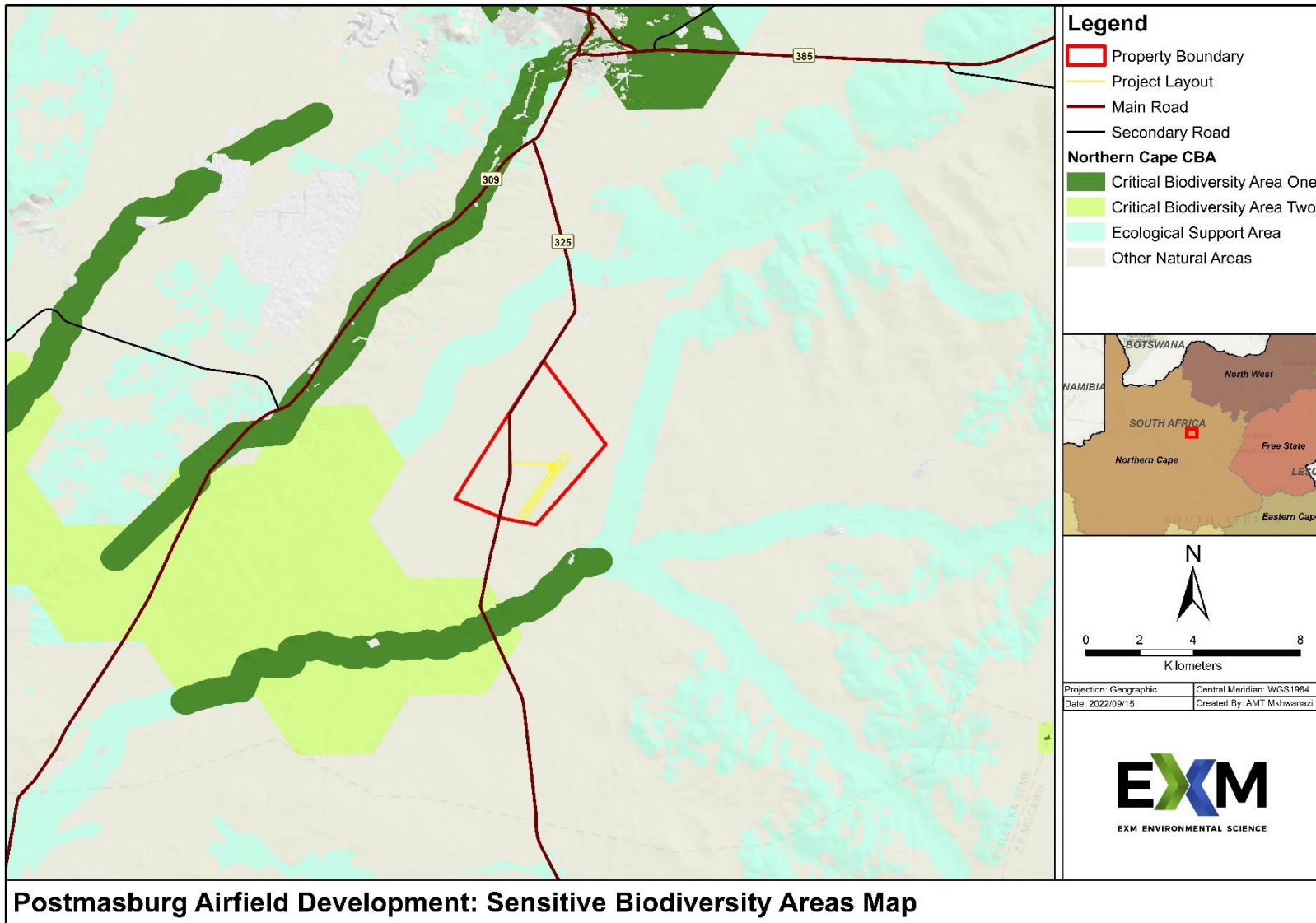


Figure 9-7: Sensitive Biodiversity Area

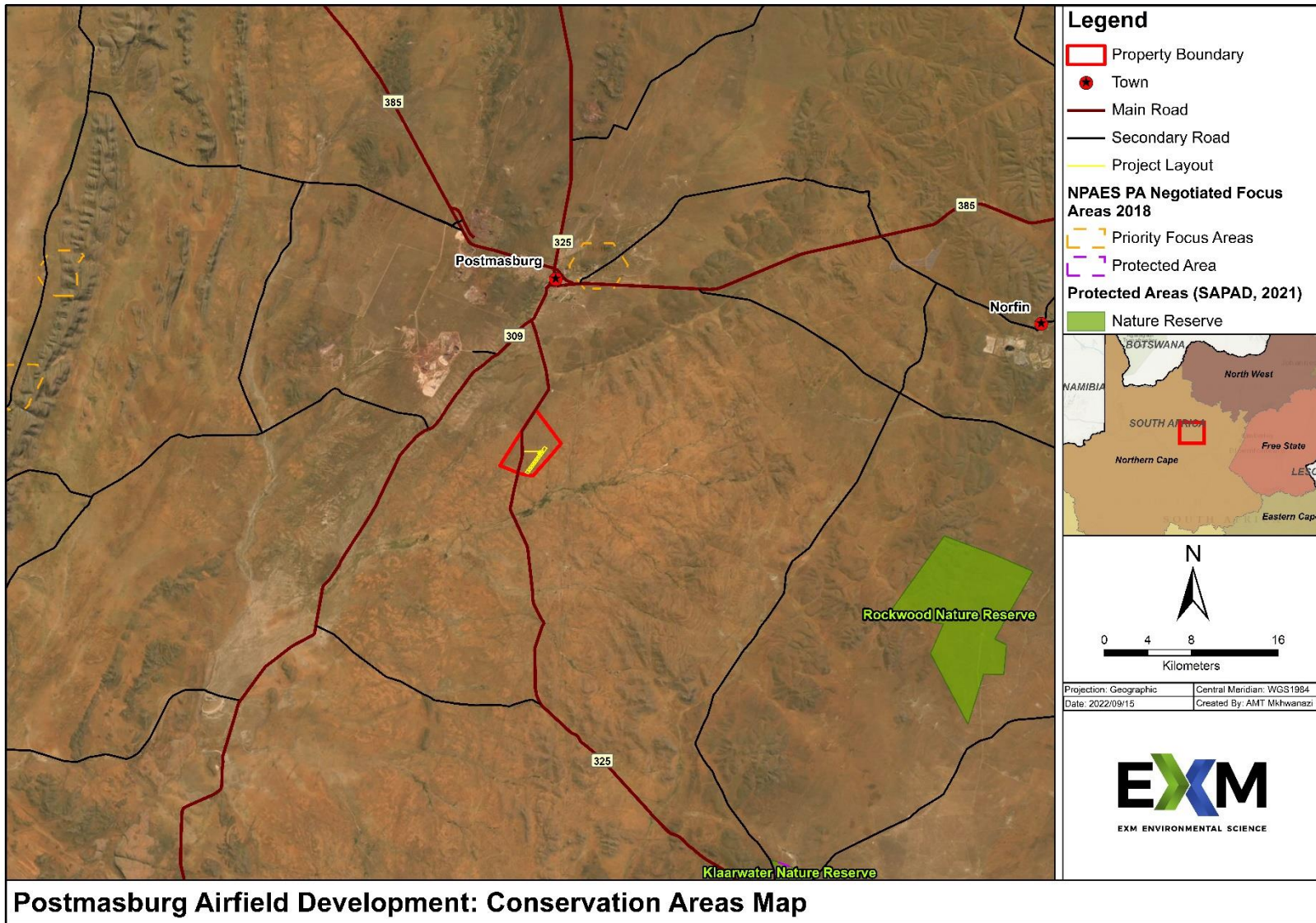


Figure 9-8: Conservation Areas Map

## 9.7 Surface Water Resources

The surface water resources, and priority areas associated with the study area are illustrated in Figure 9-9. The study area is located in an upstream catchment in which human activities need to be managed to prevent degradation of downstream river Freshwater Ecosystem Priority Areas ("FEPAs") downstream of the site. The northern section of the property is located in a Strategic Water Source Areas ("SWSA") which is defined as an area of land that have high groundwater recharge and where the groundwater forms a nationally important resource.

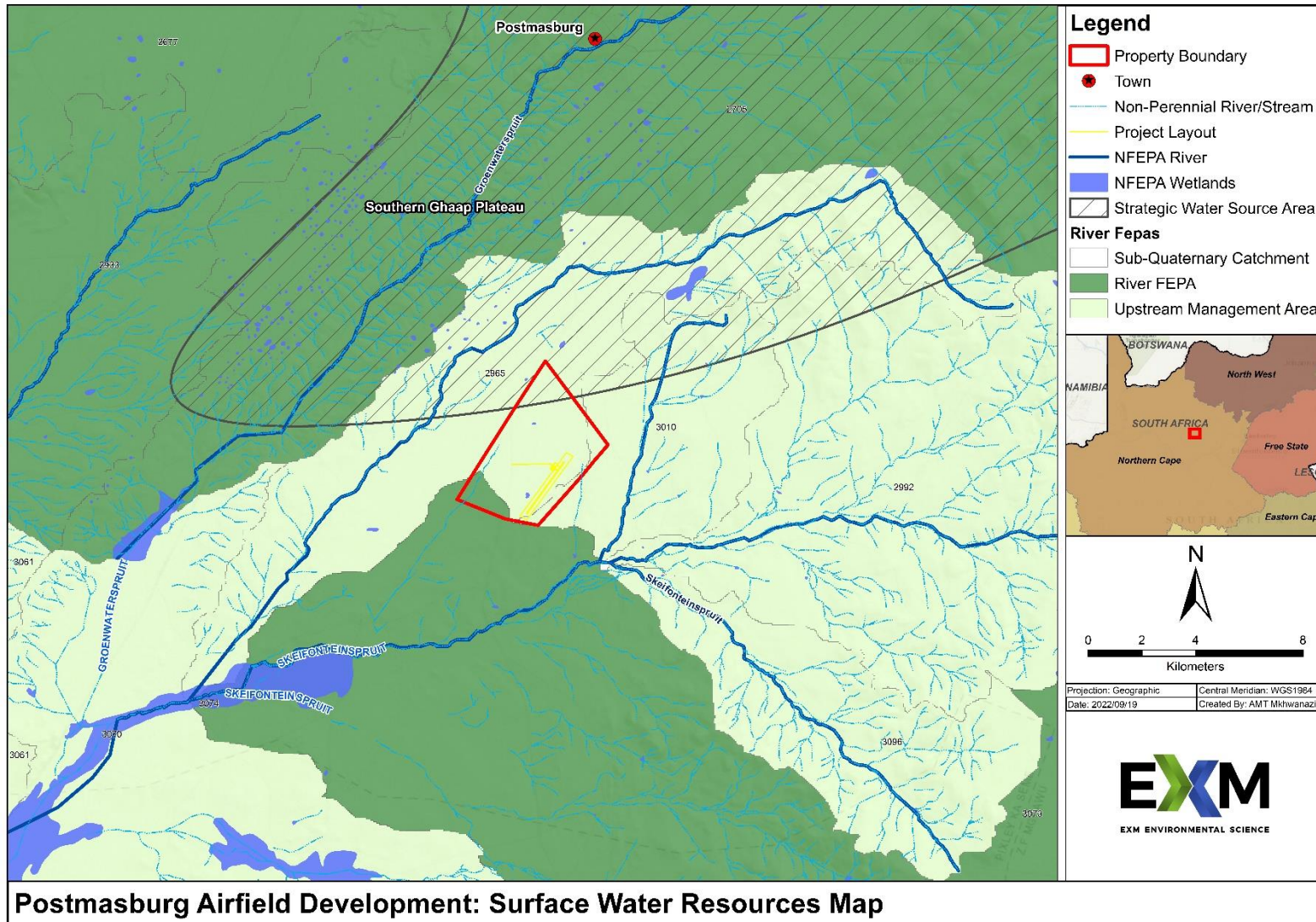
Based on the desktop assessment, the footprint of the airfield will not directly affect any perennial or NFEPA rivers or transverse directly into areas classified as FEPA<sup>3</sup>. The management of indirect downstream impacts however should be prioritised. According to the desktop assessment, two NFEPA wetlands are located in close proximity to the airfield. A freshwater impact assessment will be undertaken in support the EIA process to delineate water courses and to assess potential impacts.

## 9.8 Geology

The geology of the area is characterised by the metamorphosed sediments and volcanics. It is intruded by granites and is known as the Namaqualand Metamorphic Province. According to Mucina & Rutherford (2006), the areas that are covered by Postmasburg Thornveld and Olifantshoek Plain Thornveld (the vegetation types of the area) are dominated by quartzite outcrops, hematite deposits and other metamorphosed rock types. The plains are covered by Kalahari sand. As illustrated in Figure 9-10 the site is underlain by andesitic and basaltic lava with abundant pillows and minor jasper which corresponds to the above description.

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<sup>3</sup> **Freshwater Ecosystem Priority Areas** are aquatic ecosystems that have been identified that are necessary to meet national biodiversity goals for freshwater ecosystems. FEPA status indicates that the water resource should remain in a good condition in order to contribute to national biodiversity goals and support sustainable use of water resources.



**Postmasburg Airfield Development: Surface Water Resources Map**

**Figure 9-9: Surface Water Resources Map**

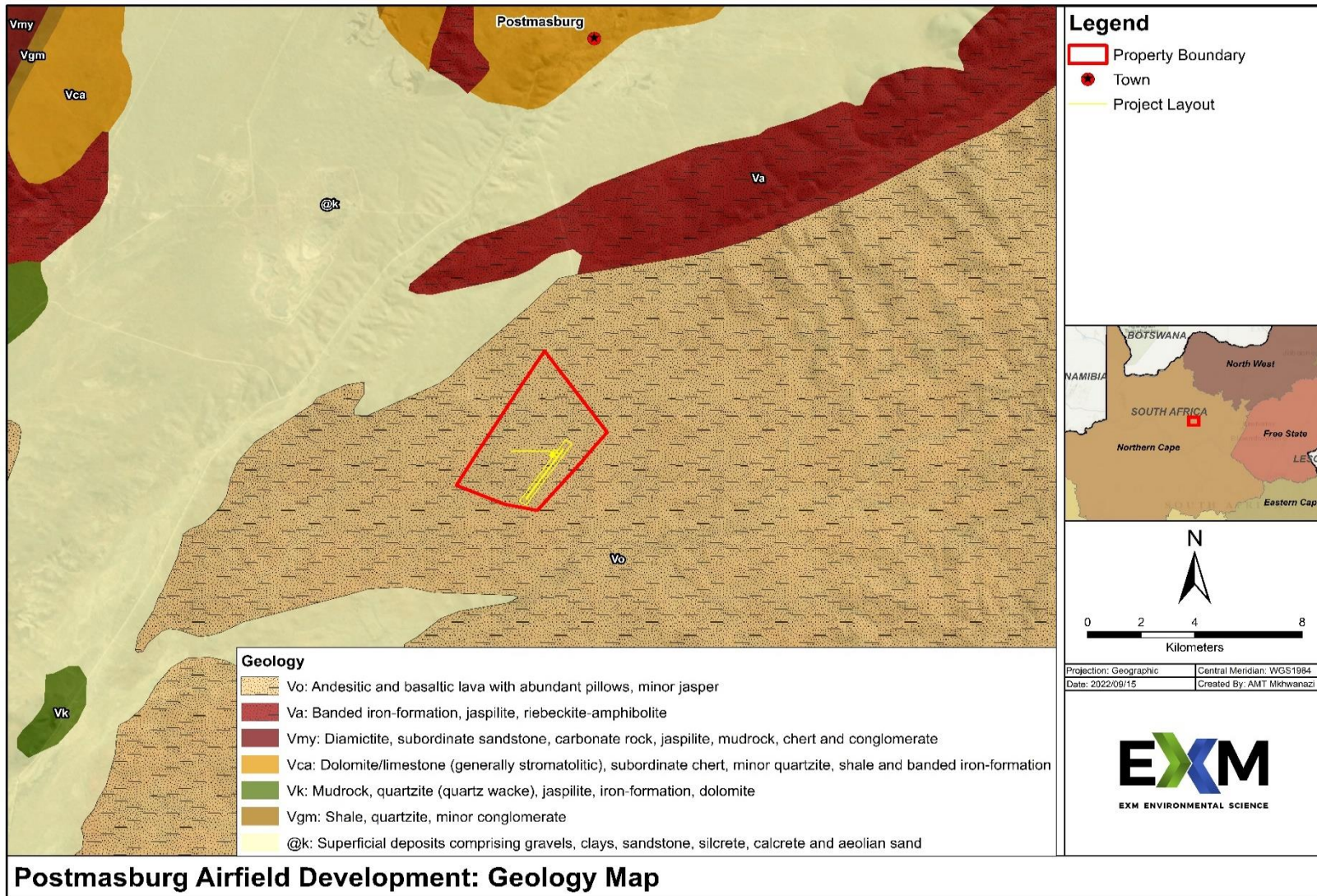


Figure 9-10: Local Geology Map

## 9.9 Groundwater

According to Gradient (2022), the study area falls within the Griqualand West groundwater region, which is characterised by compact sedimentary strata, iron formations, jaspilite, diabase intrusive, mafic lavas, arenaceous strata and dolomites. From available data and literature as well as the inferred hydrogeological map, three main aquifer systems are predominantly present:

- An **upper, weathered to semi-weathered, Kalahari Formation aquifer**, comprising of aeolian and calcareous sands, which extends down to the more competent calcretes. The calcretes retards groundwater flow and groundwater recharge because of its low permeability. Yields from calcrete are low, exceptions around the drainage valleys occur with higher recharge and increased hydraulic conductivity. The shallow calcrete aquifer is widely used for livestock watering and domestic supply.
- A **deep, un-weathered, fractured rock aquifer** where water occurs is mainly within fissures and fractures in the brecciated lavas where mineralization and preservation of ore bodies occurred through folding, thrusting, fracturing and sinkholes. Yields can vary from 1 – 40 L/s. This type of aquifer is heterogeneous and aquifer parameters are variable.
- A **dolomitic aquifer** in which water occurrence is mostly restricted to karstic compact carbonate rock. The dolomitic aquifers also fall under the secondary, fractured rock aquifer. Exploration in the dolomites indicate yields of 2 – 4 L/sec. However, regional data records indicate yields of up to 80 L/sec.

In addition to the three main aquifer systems, temporary perched, riverbed aquifers are also found in the area which are located in the riparian zone surrounding the drainage lines and rivers. This primary alluvial sand aquifer is directly recharged during rainfall events and is limited to a zone of variable width and depth, largely determined by the depth and extent of the calcrete and pebble beds. From the local groundwater levels and subsurface lithology, it is assumed that this aquifer directly contributes to river flow after significant rainfall events. Loss in contribution to baseflow will be minimal as the current groundwater contribution to baseflow is insignificant.

A complete geohydrological assessment will be undertaken to determine the sustainable safe yields for borehole abstraction and potential impacts that the proposed borehole abstraction will have.

## 9.10 Land Tenure

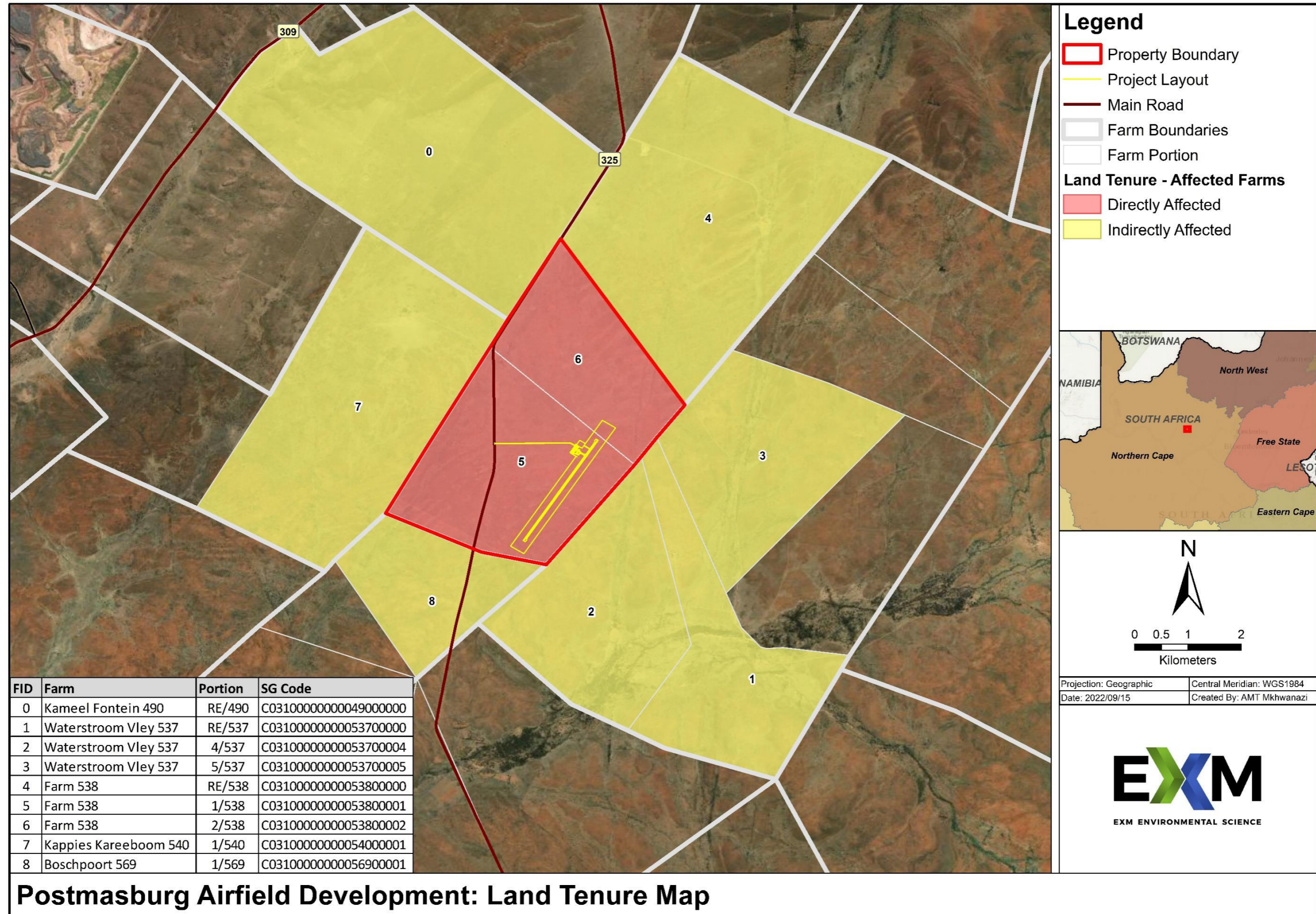
As indicated in the Table 9-2 and Figure 9-11, the proposed airfield will be located on Portions 1 and 2 of Farm Plaas 538 Hay RD (Gruispan).

**Table 9-2: Description of the Properties**

Farm Name	Portion	SG Code	Extent	Property owner
<b>Airfield</b>				
Farm 538	1/538	C03100000000053800001	898.5135 H	Sishen Iron Ore Company (Pty) Ltd
Farm 538	2/538	C03100000000053800002	599.5724 H	
<b>Surrounding properties</b>				
Kameelfontein 490	RE/490	C03100000000049000000	2070.7351 H	Johan De Klerk Van Zyl
Waterstroom Vley 537	RE/537	C03100000000053700000	865.1701 H	S & L Vermeulen Family Trust Speedy Vermeulen
Waterstroom Vley 537	4/537	C03100000000053700004	868.7233 H	Hendrik du Plooy
Waterstroom Vley 537	5/537	C03100000000053700005	942.1885 H	Hendrik du Plooy
Kappies Kareeboom 540	1/540	C03100000000054000001	1609.7901 H	Hendrik du Plooy
Farm 538	RE/538	C03100000000053800000	1786.5173 H	Postmasburg Bospoort Boerdery Pty Ltd Johan van der Merwe
Boschpoort 569	RE	C03100000000056900001	585.3126 H	

## 9.11 Heritage, Archaeological and Palaeontological

According to the data obtained from the DFFE screening tool, an archaeological site of high significance occurs within the study area (as indicated in Figure 9-12). The details of not known but given the proximity to a pan area it is anticipated that this is likely to be a stone age artefact. The remainder of the site has a low heritage/archaeological sensitivity. The site also has an overall medium sensitivity in terms of potential palaeontology resource (Figure 9-13). A Heritage/Archaeological Impact Assessment and desktop palaeontological assessment will be undertaken to verify this site and also to identify additional heritage/Archaeological sites.



### Postmasburg Airfield Development: Land Tenure Map

Figure 9-11: Land Tenure Map



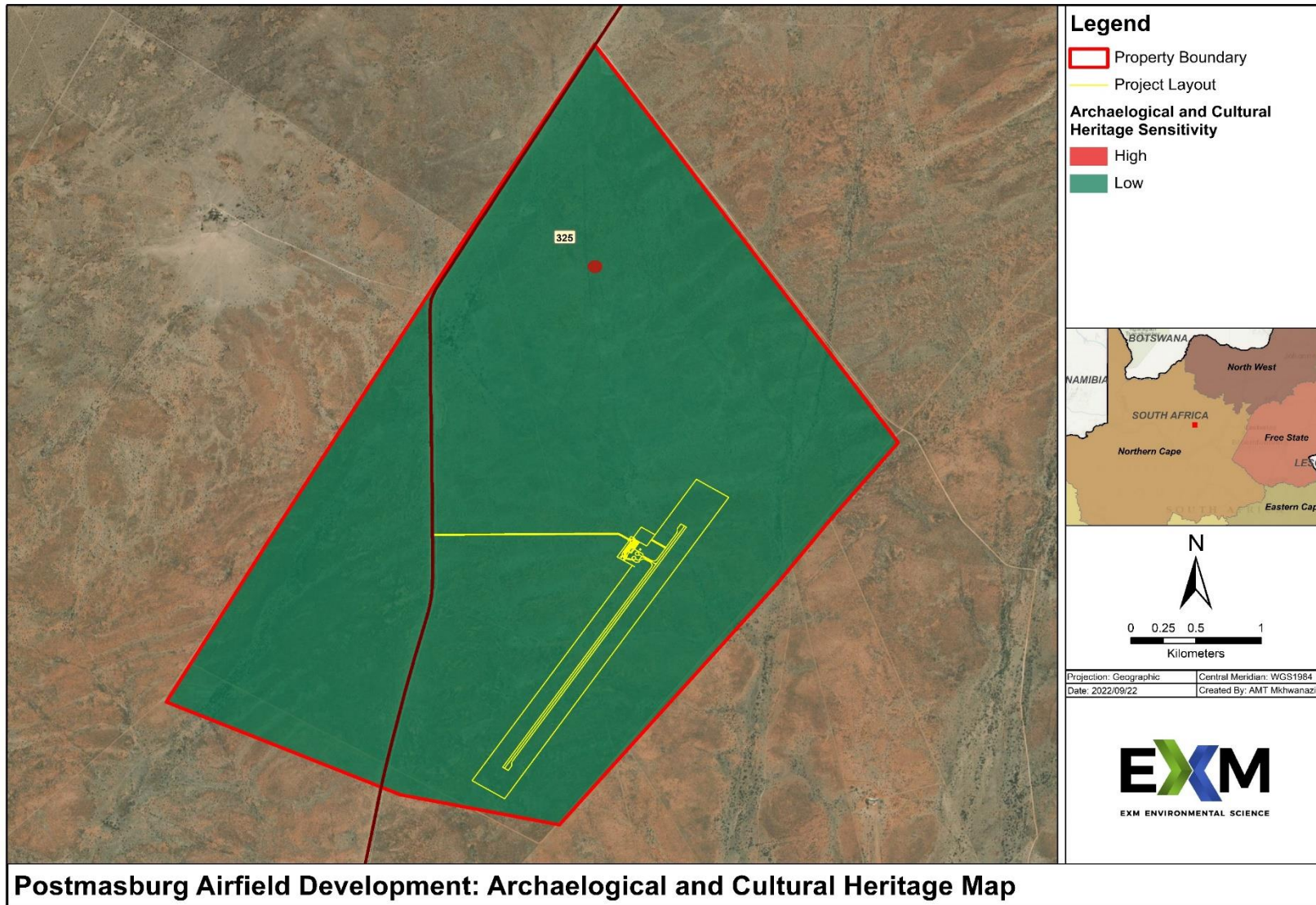
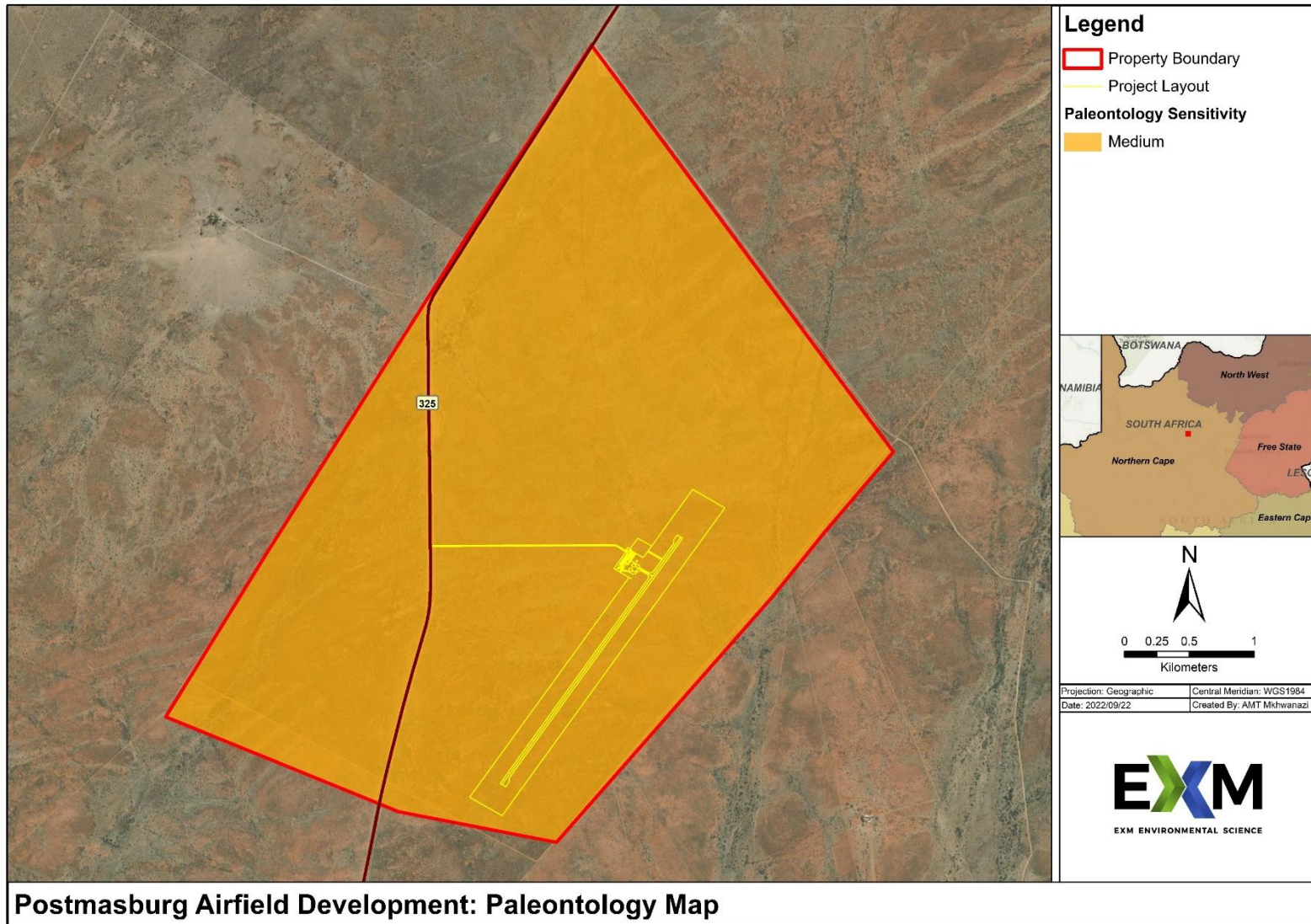


Figure 9-12: Archaeological and Cultural Heritage Sensitivity Map



**Postmasburg Airfield Development: Paleontology Map**

**Figure 9-13: Palaeontology Sensitivity**

## **9.12 Socio-Economic Environment**

### **9.12.1 Residence/occupiers of land to be affected**

The properties on which the proposed development will be undertaken is currently not occupied by any external party. Agricultural activities (grazing) are undertaken by SIOC and will continue on the remainder of the site after the facility has been established. There are farmsteads located on the surrounding properties. However, these residences will not be directly affected by the development and no displacement will be required. Indirect impacts will, however, include noise and traffic impacts that will be assessed as part of the specialist studies and impact assessment phase.

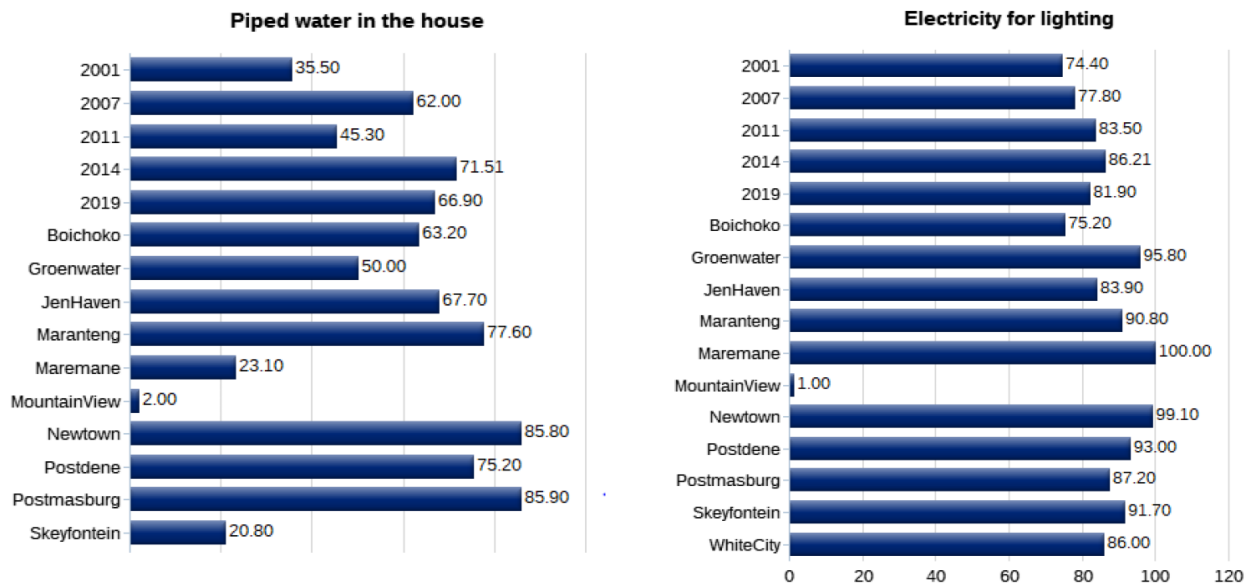
### **9.12.2 Regional Economic Activities**

The site is located in the Tsantsabane Local Municipality within the ZF Mgcawu District Municipality. Mining and agriculture have been coexisting in the Tsantsabane area for many years as the main economic sectors, although mining has become more prominent in recent years. The Kolomela and Beeshoek Iron Ore mines are the most prominent mines in the immediate area. Some of the smaller, newer mines close to Postmasburg have also recently been developed.

The energy sector is becoming more prominent with various green energy projects being established in the Tsantsabane municipal area, including Redstone Solar Thermal Power, Jasper Solar Energy and Lesedi Solar Park.

### **9.12.3 Public Services and Infrastructure**

There is a distinct lack of facilities and amenities in Tsantsabane (for sport, recreation, leisure, healthcare) which results in residents having to frequently travel to other towns and cities in the region. Access to basic services in Tsantsabane has improved gradually since 2001. However, between 2014 and 2019 there was a drop in the percentage of households with access to the services displayed below (Figure 9-14). The lower number can be attributed to a sharp increase in informal settlements (as explained earlier), as well as service delivery pressures on the Tsantsabane Local Municipality.



**Figure 9-14: Piped water in houses and Electricity for lighting per area**

#### 9.12.4 Access to basic services

Access to basic services in Tsantsabane has improved gradually since 2001. However, between 2014 and 2019 there was a drop in the percentage of households with access to the services. The lower number can be attributed to a sharp increase in informal settlements, as well as service delivery pressures on the Tsantsabane Local Municipality. Rural areas such as Groenwater, Maremane, Skeyfontein and Jen Haven do not have access to proper refuse removal services and many households do not have access to proper sanitation.

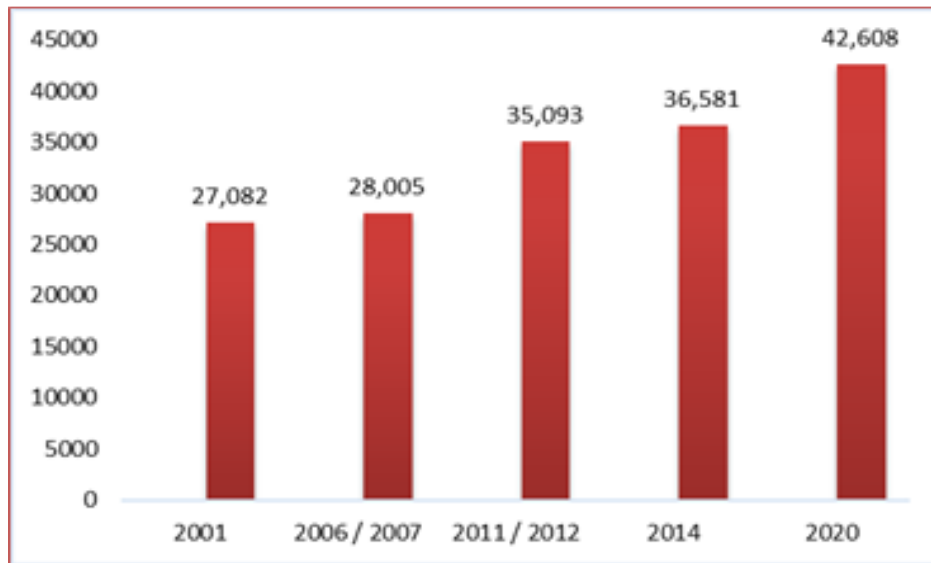
Infrastructure in Tsantsabane is in a poor condition. Tar roads are full of potholes and gravel roads are not being maintained. Bulk infrastructure is old and not able to endure the pressure of a rapidly increasing population. Water and electricity interruptions happen frequently.

#### 9.12.5 Population and demographics

The population in the Tsantsabane municipal area has increased significantly since 2001. The population estimate for 2020 according to Stats SA, is 57% higher than in 2001, as indicated in Figure 9-15. The population increase can be attributed to the increased economic activity due to mining development.

Even though Kolomela mine's presence is not the only contributing factor to population growth, the mine is generally viewed as the biggest "pull factor" for job seekers. Almost three quarters of participants in the 2019 community baseline survey (73%) indicated that Kolomela mine is seen as a key reason for rapid population growth in Tsantsabane. Any project undertaken by Kolomela mine will result in community expectations of

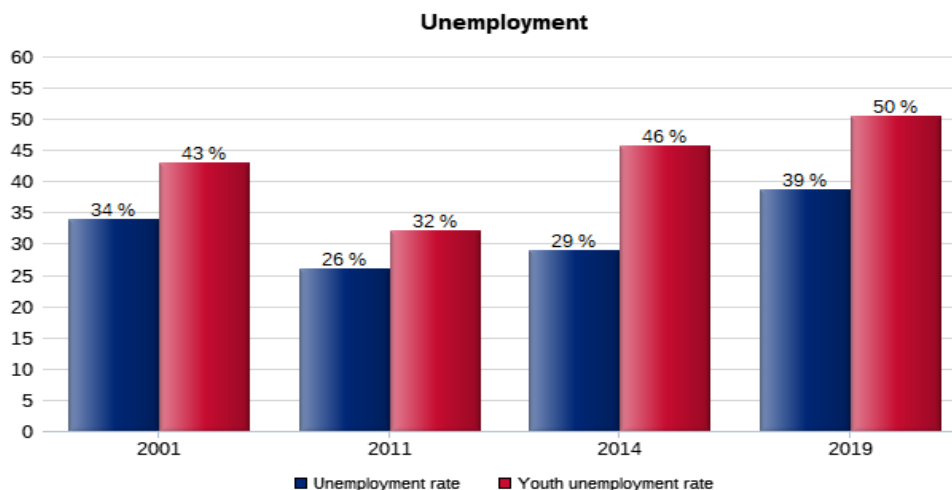
employment by the growing population. There is also the increased potential for site-induced migration.



**Figure 9-15: Tsantsabane Population Growth (Source: Social Impact Assessment (Naude, 2020))**

#### 9.12.6 Unemployment

The employment rate for adults is low, with only 33% employed full-time, 16% part-time and 2% self-employed, bringing the employment rate to 51%. The unemployment rate is at 39%, which is significantly higher than the national average of 29%. Low education and skills levels among adults described earlier, contribute to a low employment rate for the area.



**Figure 9-16: comparison of unemployment over time for adults and youth in Tsantsabane**

The unemployment rate declined between 2001 and 2011, with the arrival of Kolomela mine. But from 2014 the unemployment rate started to rise again, as a result of an influx of job seekers to the area and with the construction of the mine coming to an end in 2012. Youth unemployment (adults of 35 years old or younger) showed the same trend, but at

much higher rates. The youth unemployment rate was at 50% in 2019, a very concerning statistic, especially given the low number of learners who passed Grade 12 at one of the high schools and the lack of post-school training among the youth. The national youth unemployment rate was at an all-time high in the third quarter of 2019, at 58.2% - which provides some perspective on the unemployment rate among the Tsantsabane youth.

#### 9.12.7 **Education and skills**

Education and skills levels in Tsantsabane is low. Only 53% of the Tsantsabane adult population have passed Grade 12. People that have some skills due to being employed at some time, however, lack formal certification and training and as such are not employable. There is thus a distinct lack of semi-skilled candidate for employment within the Tsantsabane community.

### **9.13 Description of key environmental features and site sensitivity**

The section below provides a description of the pertinent environmental features associated with the study area. The overall site sensitivity map is illustrated in Figure 9-17.

#### 9.13.1 **Water resources**

Based on the desktop assessment, the footprint of the airfield will not directly affect any perennial or NFEPA rivers or transverse directly into areas classified as Freshwater Ecosystem Priority Areas (FEPA). The management of indirect downstream impacts however should be prioritised. According to the desktop assessment, two NFEPA wetlands are located in close proximity to the airfield.

#### 9.13.2 **Biodiversity**

The airfield footprint will not be located in any areas classified as a Terrestrial Ecological Support Area ("ESA") or Critical Biodiversity Areas (CBA).

#### 9.13.3 **Noise Receptors**

The area is characterised as rural with no nearby sources of noise. Some Noise Sensitive Receptors have been identified in the surrounding area that could be affected by noise associated with the operations at the airfield.

#### 9.13.4 **Heritage/Archaeological and Palaeontological**

According to the data obtained from the DFFE screening tool, a heritage site of high significance occurs on the study area. The details of not known but given the proximity to a pan area it is anticipated that this is likely to be a stone age artefact.

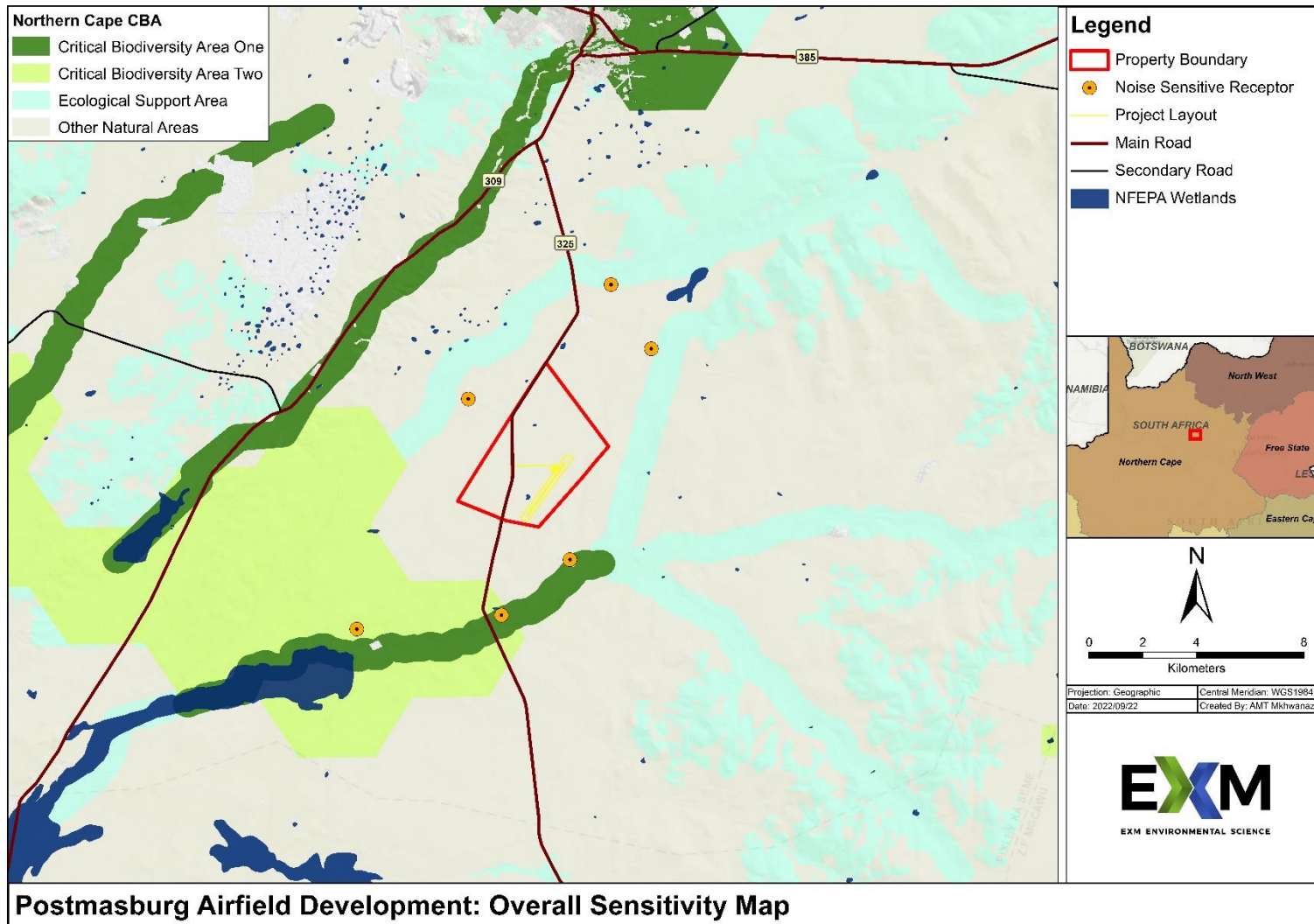


Figure 9-17: Overall Environmental Sensitivity Map

## 10. IMPACT ASSESSMENT METHODOLOGY AND IDENTIFICATION

A scoping level identification of potential environmental impacts (physical, biological, social, and economic) associated with the proposed project are listed in Table 10-1 and Table 10-2.

### 10.1 Methodology used in determining the significance of environmental impacts

The impact assessment method that will be used in the EIA will take into account the current environment, the details of the proposed amendment activities and the findings of the specialist studies. The significance of the impact is dependent on the consequence and the probability that the impact will occur.

<p><b>impact significance</b> = (consequence x probability)</p> <p>Where:</p> <p><b>consequence</b> = (severity + extent)/2</p> <p>and</p> <p><b>severity</b> = [intensity + duration]/2</p>
--

#### 10.1.1 Criteria for Assessing the Impact Significance

##### 10.1.1.1 Severity Criteria

INTENSITY = MAGNITUDE OF IMPACT	RATING
Insignificant: impact is of a very low magnitude	1
Low: impact is of low magnitude	2
Medium: impact is of medium magnitude	3
High: impact is of high magnitude	4
Very high: impact is of highest order possible	5

DURATION = HOW LONG THE IMPACT LASTS	RATING
Very short-term: impact lasts for a very short time (less than a month)	1
Short-term: impact lasts for a short time (months but less than a year)	2
Medium-term: impact lasts for the for more than a year but less than the life of operation.	3
Long-term: impact occurs over the operational life of the proposed mine.	4
Residual: impact is permanent (remains after mine closure)	5



<b>EXTENT = SPATIAL SCOPE OF IMPACT/ FOOTPRINT AREA / NUMBER OF RECEPTORS</b>	<b>RATING</b>
Limited: impact affects the mine site	1
Small: impact extends to the whole farm portion	2
Medium: impact extends to neighbouring properties	3
Large: impact affects the surrounding community	4
Very Large: The impact affects an area larger the municipal area	5

### 10.1.1.2 Probability

<b>PROBABILITY = LIKELIHOOD THAT THE IMPACT WILL OCCUR</b>	<b>RATING</b>
Highly unlikely: the impact is highly unlikely to occur	0.2
Unlikely: the impact is unlikely to occur	0.4
Possible: the impact could possibly occur	0.6
Probable: the impact will probably occur	0.8
Definite: the impact will occur	1

### 10.1.2 Impact Significance

#### **NEGATIVE IMPACTS**

≤1	Very low	Impact is negligible. No mitigation required.
>1≤2	Low	Impact is of a low order. Mitigation could be considered to reduce impacts. But does not affect environmental acceptability.
>2≤3	Moderate	Impact is real but not substantial in relation to other impacts. Mitigation should be implemented to reduce impacts.
>3≤4	High	Impact is substantial. Mitigation is required to lower impacts to acceptable levels.
>4≤5	Very High	Impact is of the highest order possible. Mitigation is required to lower impacts to acceptable levels. Potential Fatal Flaw.

#### **POSITIVE IMPACTS**

≤1	Very low	Impact is negligible.
>1≤2	Low	Impact is of a low order.
>2≤3	Moderate	Impact is real but not substantial in relation to other impacts.
>3≤4	High	Impact is substantial.
>4≤5	Very High	Impact is of the highest order possible.

10.1.3 **The possible mitigation measures that could be applied and the level of I risk.**

The significance of the impact with mitigation has been weighted by multiplying the significance rating without significance by the following depending on the confidence placed in the successful implementation of the mitigation measures or the effectiveness of those measures in reducing the impact.

1	Very low	Measures are very difficult or expensive to implement or are not expected to be effective in reducing the impact (No Confidence)
0.8	Low	Measures are difficult or expensive to implement or are expected to have limited effectiveness in reducing the impact (20% Confidence)
0.5	Moderate	Measures can be implemented with some effort and cost and/or the measures can be effective in mitigating the impact if implemented (50% Confidence)
0.2	High	There is high confidence that mitigation measures can be implemented and can be effective in mitigating the impact (80% Confidence)

**10.2 Positive and negative impacts that the proposed activity (in terms of the initial site layout) will have on the environment**

Table 10-1 provides a summary of potential key impacts associated with the proposed facility (initial layout) which will form the basis of the EIA and specialists studies.

**Table 10-1: Summary of Identified Impacts**

Impact category	Description
Biodiversity	The project will entail the removal of natural vegetation in an area of approximately 80 hectares which will directly affect associated habitats and potential protected species. However, the project will not affect any ESAs or CBAs. The desktop assessment found that the nearest protected area is Rockwood Nature Reserve located in close proximity to the site but will not be affected by the development. The Biodiversity Assessment will include a faunal and floral Assessment which is required in support of the EIA.
Surface water resources	The footprint of the airfield will not directly affect any perennial rivers or transverse NFEPA. The study area is however located upstream of two NFEPA rivers and has therefore the potential to result in indirect impacts such as erosion and sedimentation. According to the desktop assessment, two NFEPA wetlands are located in close proximity to the airfield. A freshwater aquatic assessment will be undertaken in support the EIA process.
Land use/agricultural potential	The area is classified as low scrubland where cattle farming is currently undertaken by SIOC. It is rated as having land capability related to moderate potential for non-arable land capability and the project will entail the conversion of such land for the establishment of the airfield.

Impact category	Description
Groundwater use	Groundwater abstraction at the facility has the potential to impact on the aquifer yield and downstream water users. A Geohydrological Assessment will be undertaken as part of the WUL application process to determine potential impacts.
Noise	The airfield will result in increased noise levels due the approach and departure of aircraft to the facility which may affect the sense of place for surrounding residence. A noise impact assessment will be undertaken to determine the potential and degree to noise levels will increase.
Heritage	The establishment of the project footprint has the potential to disturb sites of heritage significance. A Heritage Impact Assessment will be undertaken to identify and assess potential sites and also evaluate the associated impact.
Socio-economic	The project will entail the generation of temporary employment during the construction phase and limited employment during the operational phase.

### **10.3 The possible mitigation measures that could be applied and the level of residual risk.**

A scoping level description of the impacts, possible mitigation measures and level of residual risk are described in Table 10-2

**Table 10-2: Project impacts, mitigation measures and the level of residual risk**

PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
<b>PLANNING</b>	Biodiversity	Incorrect planning may lead to the destruction of protected species/habitats.	<ul style="list-style-type: none"> <li>The site layout must incorporate the outcome of the biodiversity (Fauna and Flora) Specialist Study to be undertaken.</li> <li>Site layout alternatives to be assessed during EIA phase to minimise impacts.</li> <li>Alternatively, relevant permits must be obtained if impacts are unavoidable.</li> </ul>	<p><b>Significance: Low</b></p> <ul style="list-style-type: none"> <li>The establishment of the project footprint will result in the removal of natural vegetation, however not in a CBA.</li> <li>The footprint can potentially be changed (if required) to protect sensitive environments and species.</li> <li>There could be a loss of some individual species of conservation importance (permits required)</li> <li>To be determined by specialist study.</li> </ul>
	Surface water resources	Incorrect planning may lead to the destruction of surface water resources such as prominent drainage features and pans.	<ul style="list-style-type: none"> <li>Site layout must incorporate the outcome of the Aquatic Ecological Impact Assessment.</li> <li>Site layout alternatives to be assessed during EIA phase to minimise impacts.</li> <li>Obtain WUL.</li> </ul>	<p><b>Significance: Medium</b></p> <ul style="list-style-type: none"> <li>The establishment of the project footprint will potentially result in the disturbance of water resources including pans.</li> <li>The footprint can potentially be changed (if required) to protect sensitive environments.</li> <li>To be determined by specialist study.</li> </ul>
	Noise	If not planned correctly, the operations of the airfield and increased noise levels has the potential to cause nuisance conditions.	<ul style="list-style-type: none"> <li>Potential change in the orientation of the runway in line with the location of sensitive receptors.</li> </ul>	<p><b>Significance: Low</b></p> <ul style="list-style-type: none"> <li>Noise receptors are not located in close proximity to the airfield. Potential impact will be confirmed by the specialist.</li> </ul>
<b>CONSTRUCTION</b>	Biodiversity	Site clearance resulting in the disturbance of vegetation, habitats and/or sensitive environments/ species.	<ul style="list-style-type: none"> <li>Biodiversity (Fauna and Flora) Specialist Study to be undertaken to identify sensitive habitats and species.</li> <li>Construction limited to demarcated area.</li> <li>Site layout planning to ensure protection of areas of high sensitivity where practicable.</li> <li>Potential search and rescue of</li> </ul>	<p><b>Significance: Low</b></p> <ul style="list-style-type: none"> <li>The establishment of the project footprint will result in the removal of natural vegetation, however not in a CBA.</li> <li>The footprint can potentially be changed (if required) to protect sensitive environments and species.</li> <li>There could be a loss of some individual species of conservation importance (permits required)</li> </ul>

PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
	Surface water resources		protected species.	<ul style="list-style-type: none"> <li>To be determined by specialist study.</li> </ul>
		Site clearance resulting in the disturbance of surface water resources, including non-perennial pans and drainage lines	<ul style="list-style-type: none"> <li>A Freshwater Impact Assessment Specialist Study to be undertaken to assess impact on aquatic environment.</li> <li>Construction will be limited to a demarcated area.</li> <li>Site layout planning to ensure protection of areas of high sensitivity where practicable.</li> </ul>	<p><b>Significance:</b> Medium</p> <ul style="list-style-type: none"> <li>The establishment of the project footprint will potentially result in the disturbance of water resources.</li> <li>The footprint can potentially be changed (if required) to protect sensitive environments.</li> <li>To be determined by specialist study.</li> </ul>
		Pollution of water courses due to sewage spills.	<ul style="list-style-type: none"> <li>Provide adequate sanitation facilities to construction workers.</li> <li>Toilets to be emptied on a regular basis. Keep facilities clean and tidy.</li> </ul>	<p><b>Significance:</b> Low</p> <p>Adequate sanitation facilities to be provided.</p>
		Storage and use of hazardous substances, including hydrocarbon material – spillages that may lead to contamination of surface water resources.	<ul style="list-style-type: none"> <li>Implement appropriate containment (bunding) measures at designated storage areas.</li> <li>Spill response procedures and equipment.</li> </ul>	<p><b>Significance:</b> Low</p> <p>Risk can be managed though the implementation of appropriate mitigation measures</p>
	Runoff from disturbed areas resulting in soil erosion and sedimentation/ siltation of downstream water sources.	<ul style="list-style-type: none"> <li>Implement stormwater system, including appropriate diversion and energy dissipation.</li> <li>Establish buffer from drainage areas and wetlands close to the site.</li> <li>Rehabilitate disturbed areas not allocated for development as soon as practicable.</li> <li>Visual inspections of the site to proactively identify erosion problems.</li> </ul>	<p><b>Significance:</b> Medium</p> <p>The site is located relatively close and upstream of an NFEPA river.</p>	
Soil	Runoff from disturbed areas resulting in soil erosion and loss of topsoil.	<ul style="list-style-type: none"> <li>Visual inspections of the site to proactively identify erosion problems.</li> </ul>		

PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
			<ul style="list-style-type: none"> <li>Implement additional controls if erosion problems are detected.</li> <li>Additional measures to be included in EMPr.</li> </ul>	
		Loss of soils and land capability.	<ul style="list-style-type: none"> <li>Soils to be removed and protected for use in rehabilitation of temporarily disturbed areas and landscaping.</li> </ul>	<b>Significance:</b> Low Soils can be salvaged and used in rehabilitation/landscaping.
	Soil/ groundwater	Pollution of soil and groundwater due to spillage and seepage of contaminants used during construction.	<ul style="list-style-type: none"> <li>Establish appropriate containment measures.</li> <li>Implement measures to protect soil and groundwater resources.</li> </ul>	<b>Significance:</b> Low Risk can be managed through the implementation of appropriate mitigation measures
	Air quality	Increased dust fall from the following sources: Earthworks for infilling and to establish foundations. Development of a road Vehicle movement on exposed surfaces.	<ul style="list-style-type: none"> <li>Watering of exposed surfaces, i.e., by using a water bowser if increased dust fall is observed.</li> <li>Maintain a complaints register.</li> <li>Conduct dust fall monitoring in terms of the National Dust Control Regulations.</li> <li>Implement additional measures if required.</li> </ul>	<b>Significance:</b> Low The proposed development site is situated relatively far from receptors that can be impacted by increased dust levels. Impacts will be temporary only associated with the construction phase.
		Vehicle emissions – release of Greenhouse Gas Emissions	<ul style="list-style-type: none"> <li>Only use vehicles in good working order</li> </ul>	<b>Significance:</b> Low
	Noise	Increased noise levels from the following sources: <ul style="list-style-type: none"> <li>Earth moving equipment.</li> <li>Generators.</li> <li>Vehicle movement.</li> </ul>	<ul style="list-style-type: none"> <li>Limit construction to the daytime, if possible.</li> </ul>	<b>Significance:</b> Low The proposed development site is situated relatively far from receptors that can be impacted by increased noise levels. Impacts will be temporary and only associated with the construction phase.
	Heritage and palaeontology	Site clearance resulting in the disturbance of heritage and	<ul style="list-style-type: none"> <li>Identify heritage resources through a Heritage Impact</li> </ul>	<b>Significance:</b> Low

PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
		palaeontology resources.	<p>Assessment and indicate on layout planning.</p> <ul style="list-style-type: none"> <li>Implement Chance Find Procedure.</li> <li>Revise layout to protect heritage resources, if required.</li> </ul>	<p>Should heritage resources be identified these can be protected with buffer zones.</p> <p>A destruction permit will have to be obtained from SAHRA if required.</p>
	Land use	Alteration of land with agricultural potential.	<ul style="list-style-type: none"> <li>Minimise project footprint.</li> </ul>	<p><b>Significance:</b> Low</p> <ul style="list-style-type: none"> <li>The remainder of the properties will still be utilised for grazing purposes.</li> </ul>
	Resource consumption	Abstraction of groundwater to supply construction water requirements – impact on local aquifer and groundwater users.	<ul style="list-style-type: none"> <li>Abstraction to be conducted in line with sustainable safe yields.</li> <li>Implement water conservation strategy and rainwater harvesting as far possible</li> <li>Awareness among employees and passengers.</li> </ul>	<p><b>Significance:</b> Medium</p> <p>Impact on groundwater reserve to be determined.</p>
OPERATIONS	Biodiversity	Edge effects on surrounding habitats	<ul style="list-style-type: none"> <li>Limit/prevent activity in surrounding landscape.</li> </ul>	<p><b>Significance:</b> Low</p> <p>To be determined by specialist study.</p>
	Surface water resources	Pollution of water courses due to sewage spills.	<ul style="list-style-type: none"> <li>Maintenance of septic tank and ET bed system.</li> <li>Establish containment measures.</li> <li>Regular removal of sludge.</li> </ul>	<p><b>Significance:</b> Low</p> <p>Sewage system to be maintained by trained operators.</p>
		Pollution of water courses due to spillages at fuel storage area. Runoff from wash bay area	<ul style="list-style-type: none"> <li>Bulk fuel tanks must be placed in bunded areas.</li> <li>Spillages must be reported and cleaned appropriately.</li> <li>Appropriate containment must be established at wash bay</li> </ul>	<p><b>Significance:</b> Low</p>

PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
			area.	
		Increased runoff volume and velocity from acritical surfaces – siltation and sedimentation of downstream water courses	<ul style="list-style-type: none"> <li>Implement stormwater system, including appropriate diversion and energy dissipation.</li> <li>Establish buffer from drainage areas and wetlands close to the site.</li> <li>Rehabilitate disturbed areas not allocated for development as soon as practicable.</li> <li>Visual inspections of the site to proactively identify erosion problems.</li> <li>Implement additional controls if erosion problems are detected.</li> <li>Additional measures to be included in EMPr.</li> </ul>	<p><b>Significance:</b> Medium</p> <p>The site is located relatively close and upstream of an NFEPA river.</p>
	Resource consumption	Abstraction of groundwater to supply water requirements – impact on local aquifer and groundwater users.	<ul style="list-style-type: none"> <li>Abstraction to be conducted in line with sustainable safe yields.</li> <li>Implement water conservation strategy and rainwater harvesting as far possible</li> <li>Awareness among employees and passengers.</li> <li>Low flow taps</li> </ul>	<p><b>Significance:</b> Medium</p> <p>Impact on groundwater reserve to be determined.</p>
		Utilising solar power to supply the airfield with electricity – reduction in consumption of non-renewable resources such as coal.	<ul style="list-style-type: none"> <li>Renewable resources have a positive impact.</li> </ul>	<p><b>Significance:</b> Low positive</p>
	Noise	Increased levels of noise affecting sense of place	<ul style="list-style-type: none"> <li>Undertake Noise Impact Assessment to model noise impact.</li> <li>Potential realignment of runway.</li> </ul>	<p><b>Significance:</b> Medium</p> <p>To be determined by specialist study</p>



PHASE	IMPACT CATEGORY	POTENTIAL IMPACTS	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISK
			<ul style="list-style-type: none"> <li>Operational plan must be aligned with the outcome of the specialist study.</li> </ul>	
	Socio-economic	Contribution to local economy – job creation and purchasing of goods and service	<ul style="list-style-type: none"> <li>Use local labour/products and services.</li> </ul>	<b>Significance:</b> Medium positive
<b>DECOMMISSIONING AND REHABILITATION</b>	Socio-economic	Job losses and discontinuation of local spending	Pro-active consultation with employees	<b>Significance:</b> Low
	Waste management	Incorrect management of hazardous and general waste. Environmental pollution and nuisance conditions due to littering.	Conduct waste management according to relevant legal requirements.	<b>Significance:</b> Low
	Erosion	Unsuccessful rehabilitation and vegetation growth may lead to erosion and siltation of downstream water courses.	Unsuccessful rehabilitation and vegetation growth may lead to erosion and siltation of downstream water courses.	<b>Significance:</b> Medium positive Follow up and maintenance of the rehabilitation must be undertaken to ensure sustained vegetation growth and to monitor the site for residual erosion.
	Biodiversity	Encroachment of alien invasive plants	Implement follow up measures to identify and eradicate alien invasive plants	
	Biodiversity	Rehabilitation of the site will reinstate the disturbed area to provide habitat for species in the area.	Rehabilitate the area to achieve functional end land use.	
	Visual	Improved aesthetic character of the area.	Rehabilitate the area to achieve functional end land use.	<b>Significance:</b> Medium visual appearance will permanently change if rehabilitation measures are successfully implemented.

## **11. PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

This section provides a plan of study for the EIA process, including the alternatives that will be further assessed, steps that will be taken during the process as well as the specialist studies to be undertaken.

### **11.1 Description of Alternatives to be Considered including the Option of Not Going Ahead with the Activity.**

The following alternatives will be considered and assessed as part of the EIA process:

#### **11.1.1 No-Go alternative**

The no-go alternative (not proceeding with all or part of the proposed activities) will be further considered in the EIA phase of the project. Should the impacts of the entire proposed project be considered to be unacceptable, even with mitigation then the no-go alternative could be considered.

#### **11.1.2 Layout alternatives**

The current proposed layout for the development of the airfield will (potentially) be revised based on the outcomes of the specialist studies and EIA process. This will be done in consultation with the Applicant to ensure that the impacts of the project are kept to a minimum. Alternative routes for electricity transmission lines (if applicable) as well as access road alignment alternatives will further be investigated based on the outcome of the EIA and specialists studies.

### **11.2 Description of the aspects to be assessed as part of the environmental impact assessment process (including aspects to be assessed by specialists)**

Where the EAP does not have sufficient expertise or information in a particular field to adequately determine the baseline environmental conditions or to assess the impacts, specialists in those fields will be appointed to provide the necessary information required to facilitate the EIA.

The requirements for further work have been identified in the scoping phase. This forms the terms of reference for the EIA phase of the project. The following outlines the scope of work for specialist studies to inform the EIA and Environmental Management Programme ("EMPr"). Should it become apparent during the EIA phase that additional specialist studies are required, the terms of reference will be drawn up and these will then be included in the EIA report. Specialist reports will be structured in terms of *GNR 326 Appendix 6, as amended*. The specialist studies identified thus far are discussed below.

### 11.2.1 Integrated Heritage Impact Assessment (inclusive of archaeology and palaeontology)

**Specialist:** A Pelsers Archaeological Consulting

Heritage Impact Assessments are carried out to ensure the significance of historic assets are taken into account when developing and designing new projects. A Heritage Impact Assessment ("HIA") provides insight into the impacts of the proposed development on heritage resources and provides mitigation measures to limit the effects of those impacts.

### 11.2.2 Ecological Impact Report (including fauna, flora, avifauna)

**Specialist:** Dr. Andrew Husted from The Biodiversity Company

#### 11.2.2.1 Floral Assessment

The scope of work of the Floral Assessment will include the following:

- A desktop study will be conducted of available databases and previous work done at the site and in the area.
- A description of each habitat type based on conservation importance and present ecological state.
- Vegetation communities will be identified and mapped.
- Species lists and dominant species associated with each vegetation community will be compiled.
- Focus will also be given to identifying areas of severe alien and invader encroachment and Category 1, 2 and 3 species.
- Veld condition will be assessed and will also be compared to the typical vegetation for the vegetation type of the area.
- Sensitive areas will be mapped where detail will be given of the ecological aspect of concern in each sensitivity zone; and
- Recommendations on management and mitigation measures.

#### 11.2.2.2 Faunal Assessment

The scope of work of the Faunal Assessment will include the following:

- Determining the ecological importance and sensitivity of the study area according to the relevant conservation databases.
- Visual observations of actually occurring species.
- Identification of evidence of occurrence, e.g., call spoor, droppings etc
- The reports produced will include sensitive habitat types (which will be mapped) and impacts from habitat disturbance, faunal assemblages at risk and an assessment of impacts on migratory routes.

- An assessment of cumulative impacts on faunal assemblages in the region will also be made, with specific emphasis on avifauna
- Recommendations on management and mitigation measures.

### 11.2.3 **Freshwater Impact Assessment**

**Specialist:** Scientific Aquatic Services

The study will include:

- A desktop study of available databases and previous work done at the site and in the area.
- Delineation of the watercourses within the study area.
- Delineation of watercourses within 500m of the study area.
- All watercourses identified during the field assessment will be mapped.
- Watercourse classification assessment.
- Applicable buffer zones and/or zones of regulation according to relevant legislation or provincial guidelines will be delineated around the watercourses.
- The watercourse Present Ecological State ("PES") will be assessed according to relevant indices.
- Provision of recommendations on management and mitigation measures (including opportunities and constraints) with regards to the development/operation of the proposed development; and
- Compilation of report to incorporate the study findings.

### 11.2.4 **Geohydrological Assessment**

**Specialist:** Gradient Consulting (Pty) Ltd

The study will include:

- Establish site baseline and background conditions and identify sensitive environmental receptors.
- Review and evaluation of existing borehole information for planning of aquifer tests.
- Perform constant discharge pump tests to determine aquifer sustainable borehole yields and borehole duty cycles.
- Determine the current status quo of the regional groundwater system including aquifer classification, aquifer unit delineation and vulnerability.
- Develop a numerical groundwater flow model to be applied to quantify and qualify the proposed impact of abstraction activities on the groundwater environment.
- Development of an analytical groundwater catchment water balance to

determine the effective recharge volume and aquifer exploitation potential.

- Hydrogeological impact assessment and risk matrix.
- Recommendations on mitigation and management measures to be implemented.

#### 11.2.5 **Noise Impact Assessment**

**Specialist:** Airshed Planning Professionals

The study will include:

- Identification of all sensitive receptors and a description of the physical environment i.e., meteorology (noise propagation mechanisms) and topographical data.
- Measurement of baseline noise will be conducted according to the South African National Standards.
- The compilation of noise source levels incl. the identification and quantification of all noise sources associated with the proposed construction and operations.
- Calculation of the propagation of noise from the proposed project.
- Noise impacts will be calculated both in terms of total ambient noise levels as a result of the project as well as the effective change in ambient noise levels; and
- The findings of the noise assessment will inform recommendations of noise management measures

#### **11.3 Description of the tasks that will be undertaken during the environmental impact assessment process**

Table 11-1 contains the activities that will be undertaken as part of the EIA. The following tasks will be undertaken as part of the EIA phase of the project.

- Conduct public consultation and respond to comments on draft Scoping report.
- Submit final amended scoping report (incorporating public and commenting authority comments).
- Address public and authority comment and modify scope of work to EIA as required.
- Completion of specialist studies and collation of additional information.
- Identification of additional mitigation and environmental management requirements for incorporation into the project.
- Assess impacts and revise as required.
- Compile Draft EIA Report; and compile Draft EMPr
- Public Review of Draft EIR and EMPr Report
- Address public comment
- Finalise EIA Report and EMPr
- Consult with the DAERDLR and address queries as required.

**Table 11-1: Activities to be Undertaken as Part of the EIA**

Phase	EAP Activity	Opportunities for Consultation and Participation		Schedule
		Competent Authorities	IAPs, State Departments and Organs of State	
	Submit application form to the CA (Electronic & Hard Copy)	The CA to acknowledgement of receipt of application	-	October 2022
Scoping	Notification IAPs Inform persons of the amended project	Register interest, concerns and questions	IAPs to register interest, concerns and questions	September 2022
	Submit draft scoping to public and commenting authorities	Draft support submitted	IAPs to provide comments	September 2022
	Submit scoping report to DMR and acceptance	Authority to accept scoping report OR refuse (43 days of receipt)	IAPs comments are in the final scoping report	November 2022
Specialist Studies	EAP to manage specialist activities and collate information for EIA.	-	-	October/ November
EIA Phase	Assess environmental impacts. Compile draft EIA and EMP report	-	-	November/ December 2022
	Arrange meetings and consultations	Meetings if required.	Public feedback meeting/. Focused consultation with IAPs or commenting authorities if required.	January/ February 2023
	Submit draft EIA report to IAPs authorities.	Review of draft EIA report (30 days). Comments to EAP	Review of draft EIA report (30 days). Comments to EAP	
	Address public comment and finalise EIA and EMPr reports			
	Final EIA report to authority (106 days from acceptance of scoping).	Authority acknowledges receipt of EIA report (10 days).		March 2023
Authority review and Authorisation Phase	-	Environmental Authorisation Granted / Refused (107 days).	-	July 2023
	Notifications to I&APs regarding environmental authorisation (granted or refused).		-	July 2023
Appeal Phase	EAP to provide guidance regarding the appeal process as and when required.	Consultation during processing of appeal if relevant.	Submit appeal in terms of National Appeal Regulations	As required

## **12. OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY**

### **12.1 Impact on the socio-economic conditions of any directly affected person.**

Socio-economic impacts will be assessed as part of a specialist studies during the EIA Phase.

### **12.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.**

The impacts on heritage will be assessed in the EIA Phase and impacts avoided as far as practicable based on revised layout planning and the outcome of the Heritage Impact Assessment.

### **12.3 Other matters required in terms of sections 24(4)(a) and (b) of the Act**


Non applicable at this stage of the EIA.

## **13. UNDERTAKINGS BY THE EAP**

I, Trevor Winston Hallatt, the Environmental Assessment Practitioner responsible for compiling this report, undertake that:

- the information provided herein is correct.
- the comments and inputs from stakeholders and I&APs have been correctly recorded.
- information and responses provided to stakeholders and I&APs by the EAP is correct; and
- the level of agreement with I&APs and stakeholders has been correctly recorded and reported.

The undersigned declares that this report represents an independent and objective assessment of the risks associated with the proposed development.

<b>Name</b>	<b>Affiliation</b>	<b>Designation</b>	<b>Signature</b>	<b>Date</b>
Trevor Hallatt	EXM Environmental Advisory (Pty) Ltd	Senior Environmental Scientist EAP		17/10/2022

## **14. REFERENCES**

Airshed Planning Professionals, September 2021. Air Quality Impact Assessment Report for the Proposed Amendments and Expansions at Kolomela Mine. Report No. 20EXM05.

Department of Environmental Affairs (2022). Screening Report.

Mthombeni, Thulani Fanifani Vegetation classification of the Witsand Nature Reserve, Northern Cape Province, South Africa.

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P.J du Preez, 2016. Ecological and wetland survey for the proposed power line corridors between the proposed Metsimatala solar plant and the Manganore substation, Postmasburg district, Northern Cape Province.

Simon Todd Consulting, 2017. Basic Assessment for the 132/11kV Substation for the Olifantshoek- Emil 132kV Powerline, Northern Cape Province: Fauna and Flora Specialist Report. Water Research Commission. 2011. Technical Report for the National Freshwater Ecosystem Priority Areas project.



## Appendix A: Curriculum Vitae of EAP

## Appendix B: Public Participation Proof

## Appendix C: Scoping Report Content

Requirement of Appendix 2 - GN 326	Scoping report sections
1 (a) details of— (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Section 2.1 to 2.2 - Environmental Assessment Practitioner
(b) the location of the activity, including— (i) the 21-digit Surveyor General code of each cadastral land parcel. (ii) where available, the physical address and farm name. (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 3- Project Location and Property Description
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is— (i) a linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 3- Project Location and Property Description
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered. (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Section 4.1 to 4.3- Description of The Scope of The Proposed Activity
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 5- Policy and Legislative Context
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 6- Need and Desirability of The Proposed Activities
(g) a full description of the process followed to reach the proposed preferred activity, site, and location of the development footprint within the site, including— (i) details of all the alternatives considered. (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs. (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects. (v) the impacts and risks ( <b>identified for</b> ) which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of ( <b>the</b> ) such identified impacts, including the degree to which these impacts— (aa) can be reversed. (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed, or mitigated. (vi) the methodology used in ( <b>determining</b> ) identifying and ranking the nature, significance, consequences, extent, duration, and probability of potential environmental impacts and risks associated with the alternatives. (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community	Section 7- Alternatives Assessment Section 8- Details of The Public Participation Process Followed Section 10.1 to 10.3- Impact Assessment Methodology and Identification

Requirement of Appendix 2 - GN 326	Scoping report sections
<p>that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk.</p> <p>(ix) the outcome of the site selection matrix.</p> <p>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;</p>	
<p>(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including—</p> <p>(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.</p> <p>(ii) a description of the aspects to be assessed as part of the environmental impact assessment process.</p> <p>(iii) aspects to be assessed by specialists.</p> <p>(iv) a description of the proposed method of assessing the environmental aspects, <b>(including a description of the proposed method of assessing the environmental aspects)</b> including aspects to be assessed by specialists.</p> <p>(v) a description of the proposed method of assessing duration and significance.</p> <p>(vi) an indication of the stages at which the competent authority will be consulted.</p> <p>(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and</p> <p>(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process.</p> <p>(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.</p>	<p>Section 11- Plan of Study for The Environmental Impact Assessment Process</p>
<p>(i) an undertaking under oath or affirmation by the EAP in relation to—</p> <p>(i) the correctness of the information provided in the report.</p> <p>(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and</p> <p>(iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;</p>	<p>Section 13- Undertakings by the EAP</p>
<p>(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;</p>	<p>Section 13- Undertakings by the EAP</p>
<p>(k) where applicable, any specific information required by the competent authority; and</p>	<p>Section 12- Other Information Required by The Competent Authority</p>
<p>(l) any other matter required in terms of section 24(4)(a) and (b) of the Act.</p>	<p>Section 12.3- Other Information Required by The Competent Authority, Other matters required in terms of sections 24(4)(a) and (b) of the Act</p>