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SCOPING REPORT FOR THE COZA IRON ORE PROJECT ON THE FARMS DRIEHOEKSPAN 435 AND THAAKWANENG 675

February 2016

SCOPING REPORT

**SUBMITTED FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE
NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998) AND THE
NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT (ACT 59 OF 2008) IN
RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY
APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES
DEVELOPMENT ACT (ACT 28 OF 2002) (AS AMENDED)**

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SCOPING REPORT FOR THE COZA PROJECT ON THE FARMS DRIEHOEKSPAN 435 AND THAAKWANENG 675

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ACRONYMS AND ABBREVIATIONS

Acronyms / Abbreviations	Definition
BID	Background information document
DAFF	Department of Agriculture, Forestry and Fisheries
DMR	Department of Mineral Resources
DPWRT	Department of Public Works, Roads and Transport
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental impact assessment
EIR	Environmental impact report
EMPr	Environmental management programme
GN	General Notice
Ha	Hectares
IAPs	Interested and/or affected parties
Km	Kilometres
Kv	Kilovolts
m	Meters
MAMSL	Metres above mean sea level
mm	Millimetres
MPRDA	Mineral and Petroleum Resources Development Act
MR	Mining Right
NEMA	National Environmental Management Act
NEM:WA	National Environmental Management: Waste Management Act
NGO	Non-government organisation
SACNSP	South African Council for Natural Scientific Professionals
SAHRA	South African Heritage Resources Agency
SANS	South African National Standards
SLR	SLR Consulting (Africa) (Pty) Ltd
SMS	Short Message Service
WRD	Waste Rock Dump
WULA	Water Use License Application

INTRODUCTION

Introduction to the proposed project

COZA Mining (Pty) Ltd is proposing to develop the COZA Iron Ore Project located approximately 10 km north-northwest of Postmasburg Town in the Tsantsabane Local Municipality of the Northern Cape Province (refer to Figure 0-1).

The proposed development is a green-fields project that will involve the mining of iron ore from an open pit on the farm Driehoekspan 435 (Remaining Extent) (Driehoekspan) (refer to Figure 0-1). At this stage no infrastructure is planned on the farm Thaakwaneng 675, although it has been included in the mining right application. It should be noted that Coza lodged applications in 2013 for open pit mining on the farm Doornpan 445 (Portion 1) (Doornpan) (refer to Figure 0-1 for the location of this farm), which is currently being handled in a separate application process.

The open pit mining will be undertaken by means of truck and shovel. Mined ore will be crushed, screened and blended on site prior to being transported via rail for further processing off site.

Synergistics Environmental Services (Pty) Ltd, part of the SLR Group (SLR), an independent firm of environmental assessment practitioners, has been appointed to undertake the Scoping and Environmental Impact Assessment (EIA) process required for the COZA Iron Ore Project.

Authorisation requirements

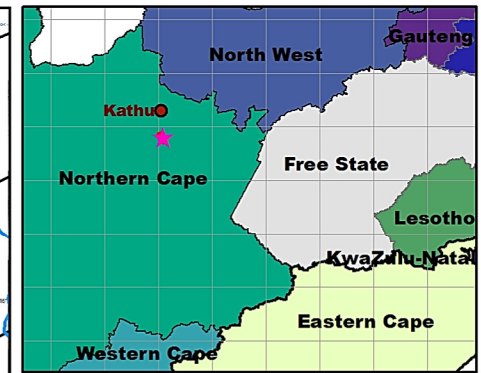
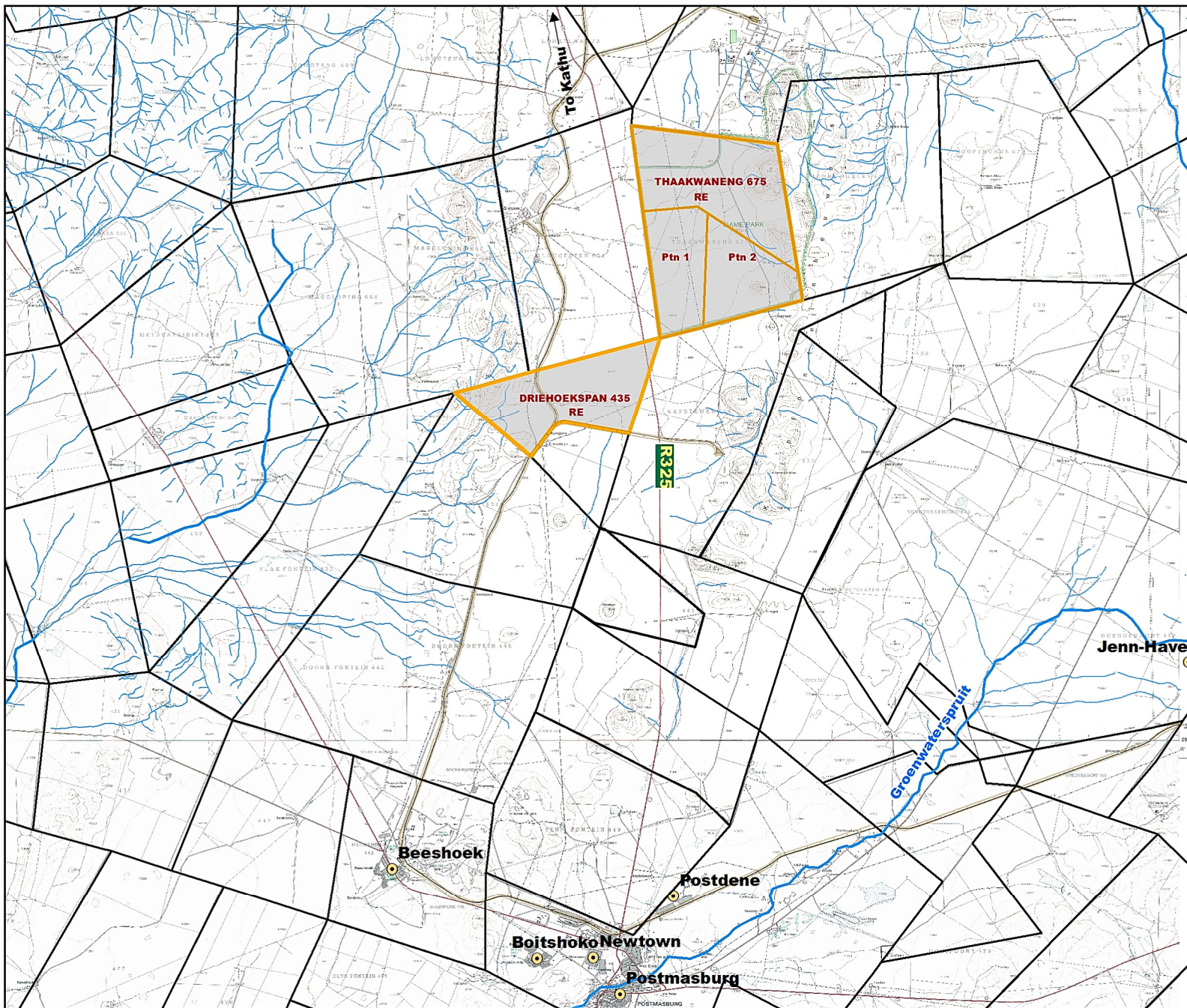
Prior to the commencement of the proposed project, environmental authorisation is required from various government departments. These include:

- A mining right in terms of the MPRDA which is regulated by the Department of Mineral Resources (DMR).
- Environmental authorisation from the DMR in terms of National Environmental Management Act (NEMA) (Act 107 of 1998) (NEMA). The proposed project incorporates several listed environmental activities. The applicable list of activities is provided in Section 4.1 of this report. The EIA regulations being followed for this project are Regulation 983, 984 and 985 (December 2014 EIA Regulations).
- A waste management licence from the DMR in terms of the National Environmental Management: Waste Act (NEM:WA) (Act 59 of 2008). The applicable list of activities is provided in Section 4.1 of this report.
- A water use license the Department of Water and Sanitation (DWS) in terms of the National Water Act (NWA) 36 of 1998.

Any additional approvals/permits needed for the project will be identified during the course of the environmental assessment process. A detailed list of such requirements will be provided in the EIR and EMPr report.

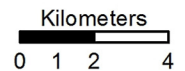
Scoping phase objectives

The objectives of the scoping phase are to understand the proposed project, identify and describe potential environmental and social impacts, consult with interested and affected parties (IAPs) to understand their issues and concerns and to set out any related terms of reference for further investigations that will enable the meaningful assessment of all relevant environmental and social issues. The terms of reference for further investigations are included in Section 9.



Legend

- Place Names
- Main Road
- Minor Road
- Railway
- Game Park
- Rivers & Streams
- Property Boundaries -Project Area

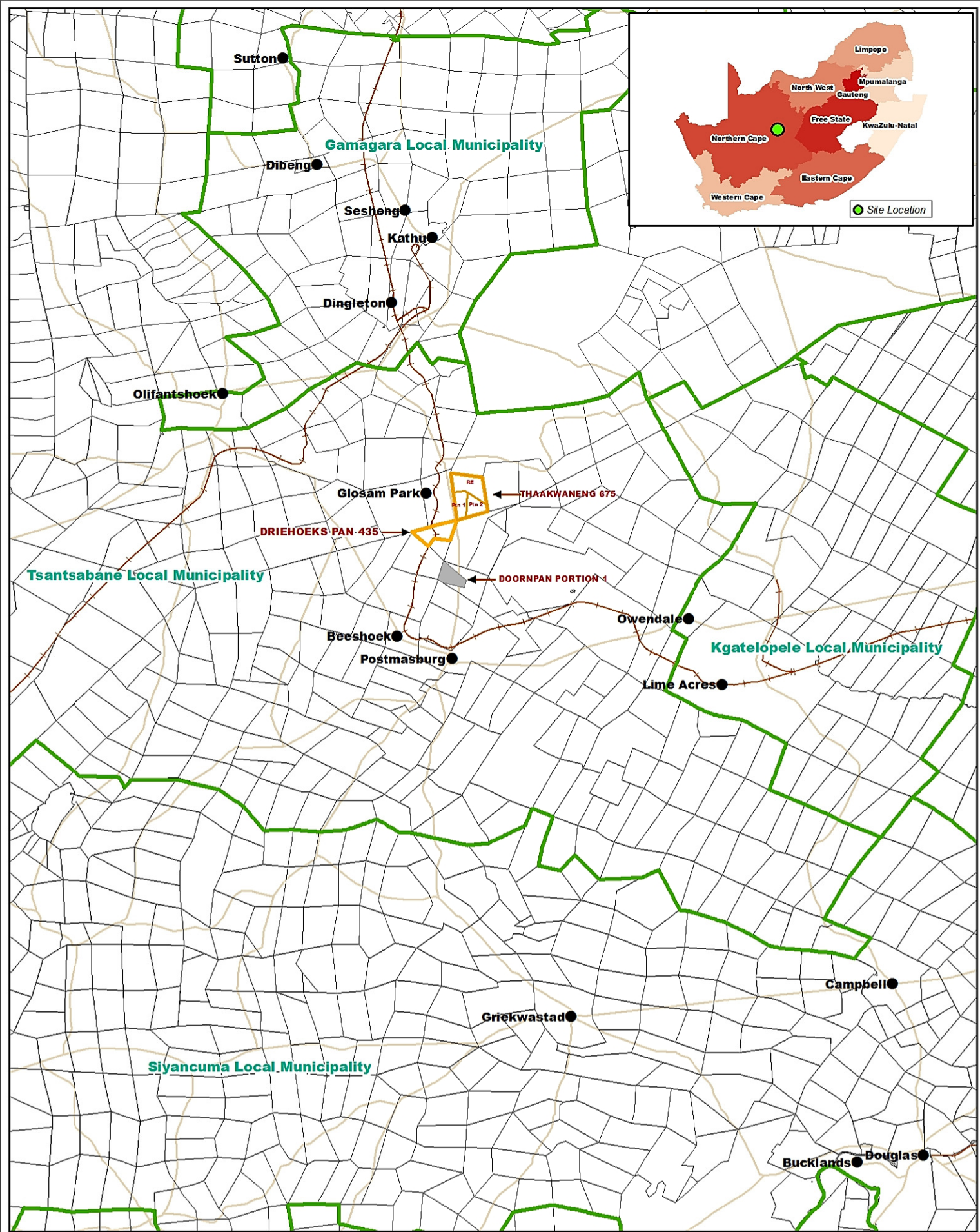


SLR Synergistics is a SLR group company

Figure 0-1: Regional and Local Setting

S0707

Coordinate System	
Spheroid	DMS
WGS84	Central Meridian
	LO



Legend

- Place Names
- Roads
- ▭ Local Municipalities
- +— Railway
- ▭ Farm Boundaires
- ▭ Mining Rights Application Area

Kilometers
0 5 10 20

Synergistics
Environmental Services

Figure 0-1: Regional and Local Setting of the COZA Iron Project

SO707

1 CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 DETAILS OF THE EAP WHO PREPARED THE REPORT

The details and role of the environmental assessment practitioners (EAPs) that were involved in the preparation of this scoping report are provided in Table 1-1 below.

Neither SLR nor any of the specialists involved in the environmental assessment process have any interest in the project other than fair payment for consulting services rendered as part of the environmental assessment process.

TABLE 1-1: DETAILS OF THE EAPS

DETAILS	SCOPING REPORT AUTHOR	REVIEWER
Name of the practitioner	Linda Munro	Brandon Stobart
Tel No.:	011 467 0945	011 467 0945
Fax No.:	011 467 0978	011 467 0978
E-mail address	lmunro@slrconsulting.com	lmunro@slrconsulting.com

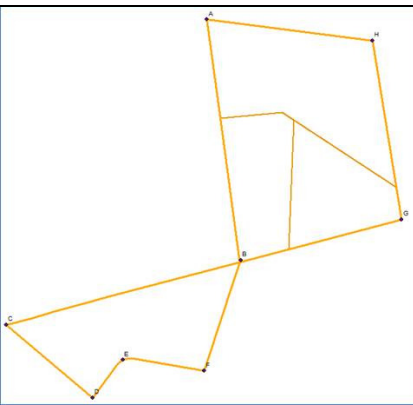
1.2 EXPERTISE OF THE EAP

Linda Munro holds a Masters Degree in Environmental Management, has over 14 years of relevant experience in the assessment of impacts associated with mining operations and is registered as a Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP). Brandon Stobart is the SLR Africa Managing Director, has over 17 years of relevant experience and is registered as an environmental assessment practitioner with the interim certification board. Both Brandon Stobart and Linda Munro have been involved in several impact assessment for large scale mining development in Southern Africa. Proof of registrations of the relevant practitioners is provided in Appendix 1 and relevant curricula vitae are attached in Appendix 2.

2 DESCRIPTION OF THE PROPERTY

A description of the property on which the proposed project is located is provided in Table 2-1.

TABLE 2-1: DESCRIPTION OF THE PROPERTY

Farm Name	Remainder of Driehoekspan 435 and Thaakwaneng 675 portion 2, the remaining extent of portion 1 and the remaining extent																												
Corner of property point co-ordinates	 <table border="1"> <thead> <tr> <th>Corner point</th> <th>Longitude</th> <th>Latitude</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>23° 4' 19.48" E</td> <td>28° 3' 3.24" S</td> </tr> <tr> <td>B</td> <td>23° 4' 54.20" E</td> <td>28° 7' 9.34" S</td> </tr> <tr> <td>C</td> <td>23° 0' 53.61" E</td> <td>28° 8' 15.70" S</td> </tr> <tr> <td>D</td> <td>23° 2' 22.16" E</td> <td>28° 9' 30.19" S</td> </tr> <tr> <td>E</td> <td>23° 2' 53.14" E</td> <td>28° 8' 51.74" S</td> </tr> <tr> <td>F</td> <td>23° 4' 16.64" E</td> <td>28° 9' 2.94" S</td> </tr> <tr> <td>G</td> <td>23° 7' 38.73" E</td> <td>28° 6' 27.74" S</td> </tr> <tr> <td>H</td> <td>23° 7' 9.18" E</td> <td>28° 3' 24.60" S</td> </tr> </tbody> </table>		Corner point	Longitude	Latitude	A	23° 4' 19.48" E	28° 3' 3.24" S	B	23° 4' 54.20" E	28° 7' 9.34" S	C	23° 0' 53.61" E	28° 8' 15.70" S	D	23° 2' 22.16" E	28° 9' 30.19" S	E	23° 2' 53.14" E	28° 8' 51.74" S	F	23° 4' 16.64" E	28° 9' 2.94" S	G	23° 7' 38.73" E	28° 6' 27.74" S	H	23° 7' 9.18" E	28° 3' 24.60" S
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H	23° 7' 9.18" E	28° 3' 24.60" S																											
Application area (Ha)	Approximately 3 076 ha																												
Magisterial district	Siyanda District Municipality																												
Distance and direction from nearest town	Approximately 3km west of Thaakwaneng lies a small settlement (Glosam Park).																												
21 digit Surveyor General Code for each farm portion	C 003100000000043500000 C 004100000000067500002 C 004100000000067500000 C 004100000000067500001																												

3 LOCALITY MAP

The local and regional setting of the proposed project site is provided in Figure 0-1 and in Appendix 3.

4 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 LISTED AND SPECIFIED ACTIVITIES

Table 4-1 lists the activities and infrastructure associated with the proposed project. In each case the relevant listed activity is identified and comprises the NEMA and NEM: WA activities applied for.

TABLE 4-1: LIST OF ACTIVITIES/INFRASTRUCTURE ASSOCIATED WITH THE PROPOSED PROJECT

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Power generation through the use of backup generators during construction and operations of up to 10 megawatts covering an area greater than 1 hectare.	Approx. 1ha	X	GNR 983, activity 1.	
Bulk transport of water or stormwater exceeding 1,000 metres in length, with an internal diameter of 0.36 meters or more or with a peak throughput of 120 liters per second or more.	TBA	X	GNR 983, activity 9.	
Bulk transport of sewage, effluent, process water, return water, waste water in infrastructure exceeding 1 000 meters in length, with an internal diameter of 0.36 meters or more or with a peak throughput of 120 liters per second or more.	TBA	X	GNR 983, activity 10	
Water sourced from pit dewatering may be transferred off-site to other catchments. Large storm water canals can potentially transfer up to 50 000 m ³ of water a day between impoundments/attenuation dams on site during peak flows.	n/a	X	GNR 984, activity 11	
Primary processing of ore: crushing, screening, and blending will take place on site. Crushed ore will then be blended prior to transport off-site where it will be further processed.	Approximately 869 366 tonnes in total.	X	GNR 984, activity 21	
The storage of water containing waste, i.e. pumped from the pits, requires a water use license in terms of the NWA which governs the release of waste.	TBA	X	GNR 984, activity 6.	
Mineralised waste residue disposal	TBA			Activities 7, 10 and 11 of

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
				Category B
Bridges, canals, water storage dams, buildings and other infrastructure will be constructed which exceed 100 square metres in size may be constructed within 32 m of a watercourse.	>100m ²	X	GNR 983, activity 12.	
Construction of pollution control dam/s or attenuation dams exceeding 50,000 cubic metres for the off-stream storage of water.	TBA	X	GNR 983, activity 13	
Construction of a fuel storage facility with a capacity to store in excess of 500 m ³ of diesel. Dependent on contractor requirements and arrangements during construction phase.	TBA	X	GNR 984, activity 4	
The mining activities and the construction of infrastructure will cross watercourses, requiring earthworks (excavation/fill) of more than 5 cubic meters.	TBA	X	GNR 983, activity 19	
New haul roads and other roads will be required, e.g. service roads for construction of linear infrastructure. Some of the roads will be wider than 8 meters.	TBA	X	GNR 983, activity 24	
Construction of pollution control dam/s or attenuation dams.	TBA	X	GNR 984, activity 16	
Raising of an existing farm dam walls ia being considered	TBA	X	GNR 983, activity 50	
The main access roads to the properties may require widening to accommodate the movement of heavy machinery on site.	TBA	X	GNR 983, activity 56	
The construction of a permanent immobile fuel storage facility	TBA	X	GNR 984, activity	

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
which stores in excess of 500m ³ requires an atmospheric emissions license i.t.o. NEMAQA.			28	
Clearance of more than 20 ha of indigenous vegetation for the establishment of infrastructure.	Approximately 150ha	X	GNR 984, activity 15	
Mining of ore in open pits (requires a mining permit in terms of the MPRDA)	Approximately 16 ha	X	GNR 984, activity 16	

4.2 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

The COZA Iron Ore Project is currently at the pre-feasibility stage and the details of the project are still being determined. It should therefore be noted that information presented in this section may be refined based on the findings of the feasibility studies and specialists input.

OVERVIEW

The proposed COZA Ore Iron Project will involve the mining of iron ore from an open pit on the farm Driehoekspan. The proposed development will be a green-fields project with an estimated area of disturbance of 175 ha at Driehoekspan. A preliminary layout plan has been developed for the Driehoekspan mining area (refer to Figure 4-1). At this stage, no infrastructure or activities are planned on the farm Thaakwaneng, although it has been included in the mining rights application. The life of mine is estimated at 10-20 years.

CONSTRUCTION PHASE

Construction phase surface infrastructure

Temporary construction facilities will be established on site during the initial development of the mine. These facilities could include:

- Workshops, stores, washbays, lay-down areas, fuel handling and storage area, offices, ablution facilities
- Handling and storage area for construction materials (paints, solvents, oils, grease) and wastes
- Generator/s for temporary power supply
- Construction camp.

These facilities would either be removed at the end of the construction phase or incorporated into the layout of the operational mine.

Construction phase activities

The following significant activities are expected to take place during construction:

- Setting up a contractor's laydown area and accommodation area
- Clearing of vegetation in areas designated for surface infrastructure (excluding the open pit as this will be cleared progressively during the operational phase as the pit advances) in line with a biodiversity management plan to be developed for the project
- Stripping and stockpiling of soil resources in areas designated for surface infrastructure (excluding the open pit as this will be cleared progressively during the operational phase as the pit advances) in line with a soil conservation procedure to be developed for the project
- Developing borrow pits within the project area for sourcing building materials
- Digging and/or blasting foundations and trenches

- Establishing haul roads
- Delivery of materials
- Excavating process and water storage dams as required
- Preparing the residue disposal area
- General building activities including the erection of structures.

Transportation and Access Roads

The construction phase access to site will be provided via the existing access roads that link to the R325. The project's trip generation and traffic loads will be provided in the EIA.

Water Supply and Use

Water requirements for the construction is still being determined. Water will be sourced either from the Vaal Gamagara Water Scheme or boreholes. Another option will be to truck in water from a municipal source. Water will be needed for dust suppression, construction activities (concrete mixing), in addition to domestic use.

General and Hazardous Waste (Non-mineralised) Management

General and hazardous waste as defined under National Environmental Management: Waste Act will be generated during the construction phase. General waste may comprise concrete, rubble, glass, plastics and recyclable metals and hazardous waste could include used oils, oily rags, paint and chemicals containers etc. Domestic and hazardous waste generated by the project will be collected, handled and temporarily stored on site before being removed on a regular basis for disposal at appropriately licenced facilities.

Sewage Management

Sewage will be managed with a septic tank system which will be emptied regularly by a suitable service provider and disposed at an off-site sewage treatment facility.

Construction phase employment and housing

Limited employment opportunities will be available during the construction phase. Temporary housing will be provided on site in the form of a contractor's camp.

Power Supply

During the construction phase, power will be sourced from diesel generators. Diesel powered construction infrastructure will also be used during this phase. The capacity of power generation and distribution infrastructure will be provided in the EIR.

Construction phase timing

Provided the required authorisations are obtained, the development will commence in 2017 or 2018. Construction is expected to take one year..

OPERATIONAL PHASE

Surface infrastructure

Surface infrastructure is envisaged to include:

- An open pit
- Topsoil stockpiles
- Waste rock dump
- Run of mine (ROM) stockpile
- Product stockpile
- Crushing/screening plant
- Haul roads
- Weighbridge
- Change house and ablution facilities
- Fire detection and fighting facilities
- Water storage facilities and surface water control measures: in compliance with Regulation 704
- Lighting and communication infrastructure
- Ore, fuel, chemical, material and explosive storage facilities
- Waste handling station
- A medical first aid facility
- Administration office block
- Parking areas
- A washbay and workshop.

Mining Method

Mining from the open pit will be undertaken by means of truck and shovel. It is estimated that the pit will reach a depth of 80 -100 m below surface. Should mining activities reach the groundwater table, dewatering activities may be required to allow for safe mining operations. Mining will involve the following activities:

- Site clearance which will comprise the removal of vegetation (indigenous and alien) within the mine footprint area of approximately 175 ha
- Removal of available soils and stockpiling at designated areas for rehabilitation purposes
- Drilling and blasting of overburden material

- Loading and haulage of overburden to the waste rock dump site within the mine infrastructure areas
- Material containing iron ore will be mined out by means of truck and shovel and taken to the crushing and screening plant.

Processing

It is expected that processing will involve crushing, screening, and blending on site. The processing infrastructure will be located adjacent to the pit. Crushed ore will then be blended prior to transport off-site. No tailings facilities will be required.

Transportation and Access Roads

The existing gravel access roads linking to the R325 will be upgraded to cater for operational phase traffic. Upgrading activities will include widening and lengthening of gravel roads. Ore will be further transported by 34 ton trucks via the R325 to existing mines for further processing. A number of possible processing sites are located within a 30 km radius of the proposed mine site. The project's trip generation and traffic loads will be determined during the pre-feasibility phase of the project and included in the EIR.

Processed ore will then be transported via the existing rail network to AMSA's steel plants in South Africa.

Water Supply

Water requirements for the operation phase for the mine are still being determined. Water for mining activities will be sourced either from the Vaal Gamagara Water Scheme, boreholes or from pit dewatering (if required). Potable and raw water will be required for domestic purposes, mine construction and mine operations activities such as dust suppression and washing of mine machinery and vehicles at the wash bay. An environmental water balance will be developed for the proposed mining operations and presented in the EIR report.

Operational phase employment and housing

The total staff requirement at full production for is estimated at 82 persons. It should be noted that contractors will be appointed for the operation of the mine. During the operational phase, staff are expected to be accommodated within existing areas in Postmasburg or Kathu residential areas.

Water Management Infrastructure

Water management infrastructure will be required for the management of clean and dirty water at the mine during all project phases. Water management infrastructure will include water storage facilities for clean and dirty water, pipelines, canals and berms. Conceptual stormwater management plans will be developed for the mine operations and included in the EIA. The capacities of the water management infrastructure will also be included in the EIR report.

Mineralised Waste Management

Mine waste (overburden) will be discarded at the waste rock dump associated with the open pit. The footprint and size of the waste rock dump will be provided in the EIA process. The waste rock will be used to backfill the open pit upon closure and is therefore a temporary residue facility.

General and Hazardous Waste (Non-mineralised) Management

General and hazardous waste as defined under National Environmental Management: Waste Act will be generated at the proposed mine operation. General waste will comprise concrete, rubble, glass, plastics and recyclable metals and hazardous waste will include used oils, oily rags, paint and chemicals containers etc. Temporary waste storage facilities will be constructed for hazardous and general waste within the mine infrastructure area. A facility for the bailing and sorting of waste will be provided for within the temporary storage areas. No disposal of general or hazardous waste will take place at the mine; such waste will be transported off-site for disposal at suitably licenced facilities.

Sewage Management

A sewage treatment plant (STP) will be required at Driehoekspan for the treatment of domestic effluent produced at the workshop and administration areas during the construction, operation and decommissioning phases. The STP will be located within the mine infrastructure area and will be a packaged plant, which will involve the biological treatment of sewage using aerobic and anaerobic methods with final chemical treatment of effluent. Treated effluent will be reused on site and will not be discharged into the environment. The capacity and operations of the plant will be included in the EIR report.

Storage of Dangerous Goods

Fuel will be required for machinery and mine vehicles at Driehoekspan. Facilities for the storage of diesel, petrol and oil will be constructed at the mine. These facilities will be provided with the necessary management measures such as bunding and concrete flooring to prevent spillage and fire management equipment. The quantities of fuel required at the mine are not known at this stage and will be included in the EIR report.

An explosive magazine will also be constructed at the mine for the storage of explosives and chemicals to be used during blasting activities. The storage and fencing of the magazine will be in line with the legal requirements in terms of legislative requirements.

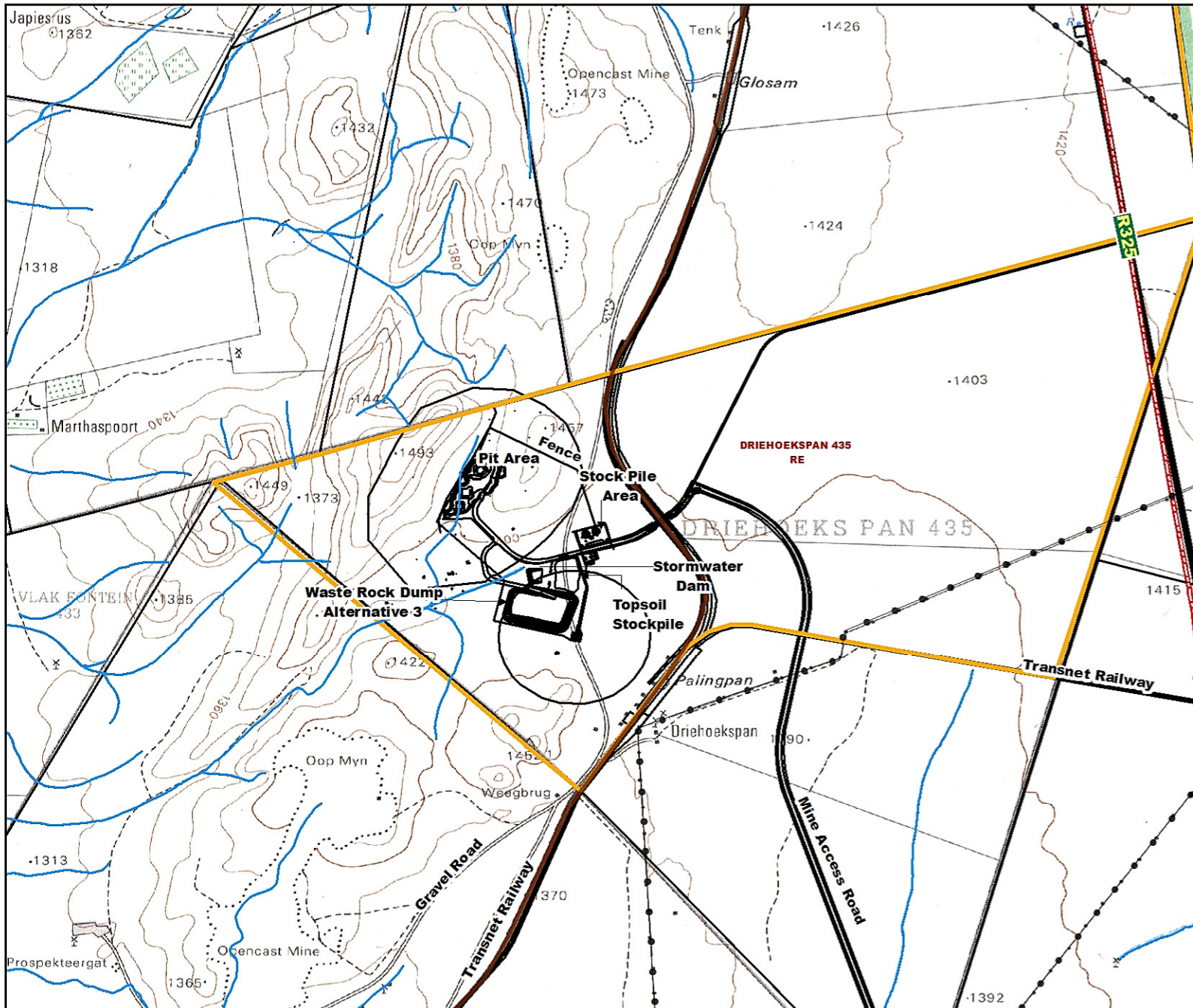
Power Supply

Eskom will be approached to supply power to the mine during the operational phase. Distribution powerlines will be constructed to connect to the Eskom grid. The development of infrastructure for the Eskom supply will fall under a separate authorization process. Back-up diesel generators will also be

used during the operation phase. The capacity of power generation and distribution infrastructure will be provided in the EIA.

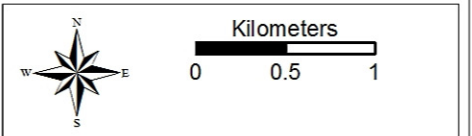
DECOMMISSIONING AND CLOSURE

The conceptual plan at this stage is to remove surface infrastructure and rehabilitate the disturbed areas. The open pit will be backfilled to approximately resemble the pre-mining landscape. The closure objective will be to return the land to pre-mining potential.



Legend

- Drainage
- Proposed Infrastructure
- Main Road
- Access Road - Gravel Roads
- Railway
- Existing Power Lines
- Property Boundaries - Project Areas



Synergistics
 Environmental Services

Synergistics is a SLR group company

Figure 4-1: Preliminary Site Layout

SO707

Coordinate System	
Spheroid WGS84	DMS Central Meridian LO

5 POLICY AND LEGISLATIVE CONTEXT

This document has been prepared strictly in accordance with the DMR Scoping Report template format. This is in accordance with the requirements of the MPRDA. In addition, this report complies with the requirements of the National NEMA and the 2014 EIA Regulations. The relevant criteria are indicated in Table 5-1.

TABLE 5-1: LEGAL FRAMEWORK

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
Mineral and Petroleum Resources Development Act (MPRDA) of 2008 and Regulations	As outlined in Table 5-2
National Environmental Management Act (NEMA) of 1998	As outlined in Table 5-2
Regulations 982-985 in terms of NEMA	As outlined in Table 5-2
National Environment Management: Waste Act (NEMWA)	Section 4.1
Regulation 921 in terms of NEMWA	Section 4.1
National Water Act (NWA) of 1998	Section 8.4.1.6
Regulation 704 in terms of the NWA	Section 8.4.1.6 Section 9.9
Gauteng Conservation Plan version 3	Section 8.4.1.5
Mining and Biodiversity Guideline (DEA <i>et al</i> , 2013)	Section 8.4.1.5
National Freshwater Ecosystem Priority Areas (NFEPA) (2011)	Section 8.4.1.5
SANBI Wetland Inventory (2006)	Section 8.4.1.5
Tsantsabane Local Municipality Spatial Development Framework.	Sections 8.4.2, 8.7.4
Northern Cape Nature Conservation Act 9 of 2009	Section 8.4.1.5
Subdivision of Agricultural Land Act 70 of 1970	Section 8.4.1.5
National Forest Act 84 of 1998	Section 8.4.1.5

TABLE 5-2: SCOPING REPORT REQUIREMENTS

Scoping Report Requirements (Appendix 2 of 2014 EIA Regs)		Cross reference to Report Section
2	A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process.	
2 (a) i	Details of the EAP who prepared the report.	Section 1.1
2 (a) ii	Details of the expertise of the EAP, including a curriculum vitae.	Appendix 2
2 (b) i	The location of the activity, including - the 21 digit Surveyor General code of each cadastral land parcel.	Table 2-1
2 (b) ii	Where available the physical address and farm name.	Table 2-1
2 (b) iii	Where the required information in items b (i) and b (ii) is not available, the coordinates of the boundary of the property or properties.	Table 2-1
2 (c) i	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken.	Figure 8-1
2 (c) ii	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Figure 8-1
2 (d) i	A description of the scope of the proposed activity, including all listed and specified activities triggered.	Section 4
2 (d) ii	A description of the scope of the proposed activity, including a description of the activities to be undertaken, including associated structures and infrastructure.	Section 4
2 (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
2 (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
2 (h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including	
2 (h) i	details of all the alternatives considered.	Section 8
2 (h) ii	details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Section 8
2 (h) 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.	Section 8.2.2
2 (h) iv	the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 0

Scoping Report Requirements (Appendix 2 of 2014 EIA Regs)		Cross reference to Report Section
2 (h) v. aa	the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed.	Section 8.7
2 (h) v. bb	the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts may cause irreplaceable loss of resources.	Section 8.7
2 (h) v. cc	the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be avoided, managed or mitigated.	Section 8.7
2 (h) vi	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Section 8.6
2 (h) vii	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Section 8.7
2 (h) viii	The possible mitigation measures that could be applied and level of residual risk.	Section 8.8
2 (h) ix	The outcome of the site selection matrix.	Section 8.9
2 (h) x	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.	n/a
2 (h) xi	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 8.9
2 (i)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including	Section 9
2 (i) i	a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.	Section 9.1
2 (i) ii	a description of the aspects to be assessed as part of the environmental impact assessment process.	Section 9.2
2 (i) iii	aspects to be assessed by specialists.	Section 9.3
2 (i) iv	a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists.	Section 9.4
2 (i) v	a description of the proposed method of assessing duration and significance.	Section 9.5
2 (i) vi	an indication of the stages at which the competent authority will be consulted.	Section 9.6

Scoping Report Requirements (Appendix 2 of 2014 EIA Regs)		Cross reference to Report Section
2 (i) vii	particulars of the public participation process that will be conducted during the environmental impact assessment process.	Section 9.7
2 (i) viii	a description of the tasks that will be undertaken as part of the environmental impact assessment process.	Section 9.8
2 (i) 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.	Section 9.9
2 (j) i	An undertaking under oath or affirmation by the EAP in relation to	Section 11
2 (j) i	the correctness of the information provided in the report.	Section 11
2 (j) ii	the inclusion of comments and inputs from stakeholders and interested and affected parties.	Section 11
2 (j) 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.	Appendix 5
2 (k)	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.	Section 11
2 (l)	Where applicable, any specific information required by the competent authority.	n/a
2 (m)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	n/a

6 NEED AND DESIRABILITY OF THE PROPOSED PROJECT

The project site has been selected on the basis of the presence of a mineable resource. The project plan and site layout has been based on limiting the project area footprint and trying to avoid sensitive areas where possible from an environmental and social perspective, while still considering engineering feasibility and financial considerations.

The proposed project will benefit society and the surrounding communities both directly and indirectly by generating additional employment at the proposed operation and through the extraction and beneficiation of mineral resources. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees. Through employment, persons at the mine will also gain skills involved in the construction and operation of a mine. The proposed development will also ensure local economic development through the implementation of projects identified in the Social and Labour Plan. COZA Mining is fully committed to implementing development plans and projects that will facilitate local community and rural

development in the area surrounding the COZA Iron Ore Project in line with the provisions of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry.

7 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The life of mine is currently expected to be up to 7 years.

8 DESCRIPTION OF PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE

8.1 DETAILS OF ALL ALTERNATIVES CONSIDERED

This section describes land use or development alternatives, alternative means of carrying out the operation, and the consequences of not proceeding with the proposed operation

The main project alternatives to be considered include:

- The “no-go” alternative
- Alternative land use
- Project infrastructure alternatives
- Water supply alternatives.

8.1.1 THE “NO-GO” ALTERNATIVE

If the COZA Iron Ore Project is not undertaken, the potential negative impacts on the environment and socio-economic environment will be avoided. However this would also mean that the positive economic benefits for local communities and society in general will not be realised. These positive economic benefits include the creation of direct employment opportunities during the construction and operation phase of the mine. Employed individuals, and their dependants, will benefit economically from the employment. Through employment, persons at the mine will also gain skills involved in the construction and operation of a mine. Persons from the local area employed at the mine will be spending their income in these communities therefore contributing to the local economy. The design, construction and operation of the mine could make use of local consulting and manufacturing companies. The proposed development will also ensure local economic development through the implementation of projects identified in the Social and Labour Plan. COZA Mining is fully committed to implementing development plans and projects that will facilitate local community and rural development in the area surrounding the COZA Iron Ore Project in line with the provisions of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry. These potential benefits will not be realised if the proposed operation does not proceed.

8.1.2 LAND USE ALTERNATIVES

In accordance with the current land use in the vicinity of the proposed project area, an alternative to the project would be livestock grazing (goats and sheep). The current land use will be considered and assessed in the EIA as a possibility for the final land use after mining. When considering the post rehabilitation land use alternatives, the only option considered to date is rehabilitation back to the current land use capability.

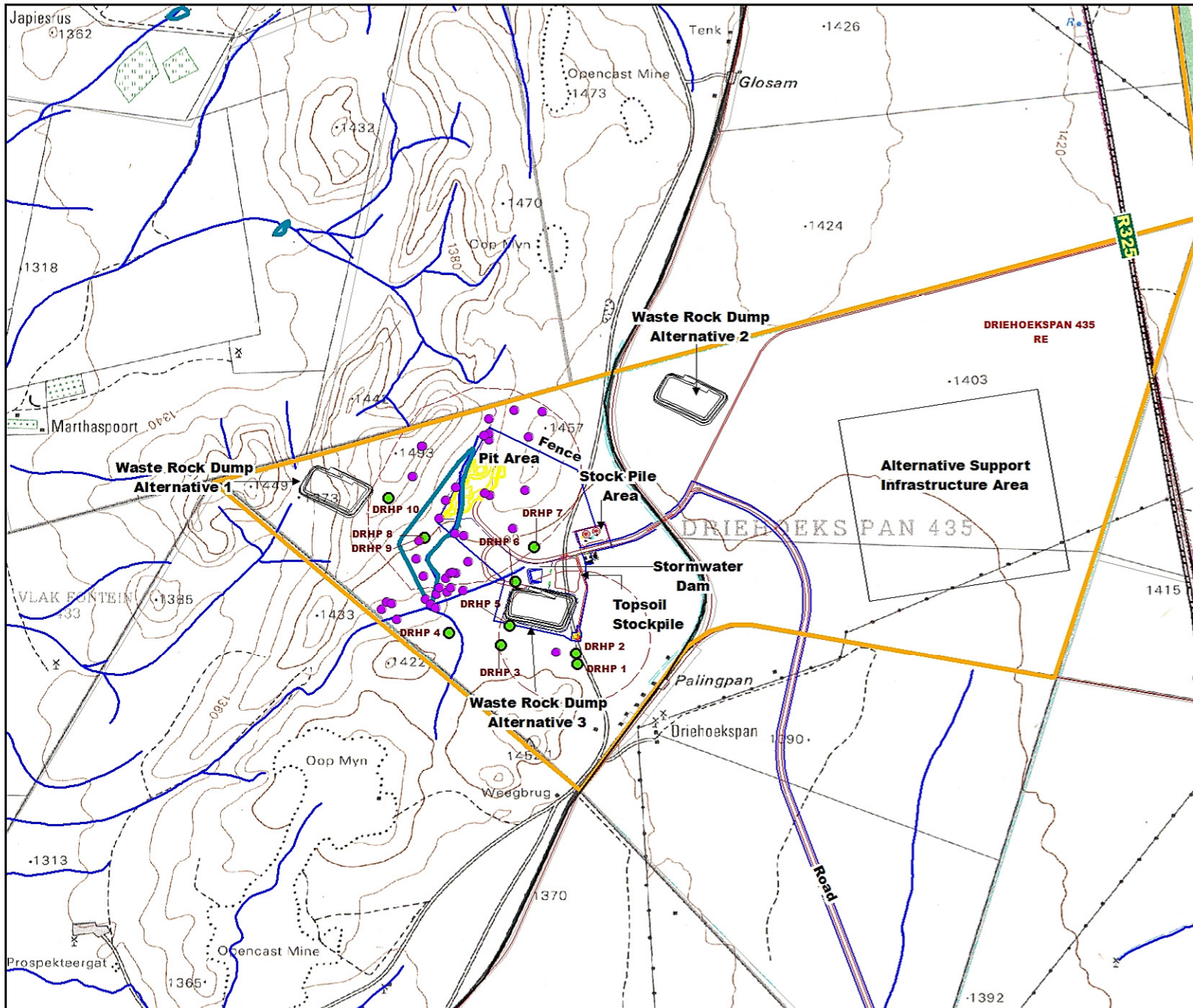
8.1.3 SITE LAYOUT ALTERNATIVES

The position of the open pit is determined by the ore body. However, three alternatives for the waste rock dump position were considered – refer to Figure 8-1. No significant differences are expected with respect to the waste rock dump alternatives, with the exception of topography and distance to the open pit. Alternative 3 is preferred due to favourable topography and proximity to the open pit (refer to Table 8-10).

An overall eastern alternative area was also considered on available land within the property boundary for all support infrastructure including the crushing and stockpile area - refer to Figure 8-1. However no significant difference is expected between this eastern alternative; except that it lies further away from the open pit, which would increase energy use haulage costs. In addition, the eastern infrastructure alternative would result in two areas of disturbance, namely the open pit with associated topsoil stockpile on the western side of the Transnet railway line, and the eastern support infrastructure area. Therefore the preferred site layout is the western alternative, which concentrates the infrastructure, and thus the area of disturbance, close to the open pit.

8.1.4 WATER SUPPLY ALTERNATIVES

Two alternatives are being considered for water supply at the mine. These include abstraction from site boreholes and pit dewatering or linking to Sedibeng Water's Vaal Gamagara Pipeline located east of the study area. These two alternatives will be investigated further during the EIA where the best environmentally and economically feasible option will be selected. The results will be presented in the EIR report.



Legend

- Heritage Sites
- TreesProtected
- *NFEPA Wetlands
- Property Boundaries - Project Areas

*NFEPA = National Fresh Water Ecosystems Priority Areas

Kilometers

Synergistics
Environmental Services

Synergistics is a SLR group company

Figure 8-1: Site Layout Alternatives

SO707

Coordinate System	
DMS	
Spheroid WGS84	Central Meridian LO

8.2 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

This section describes the information provided to the community, landowners and interested and affected parties (IAPs) to inform them in sufficient detail of what the proposed project will entail on the land, in order for them to assess what impact the operation will have on them or the use of the land.

8.2.1 INITIAL SCOPING PHASE CONSULTATION

The initial scoping public consultation process for the proposed developments on Doornpan and Driehoekspan and was carried out between May and June 2013. At that stage Thaakwaneng was not part of the project planning.

Notification of IAPs

As part of the scoping phase consultation process, IAPs were notified of the proposed development via letters, distribution of a background information document (BID), site notices and advertising. Notifications to IAPs were provided in English, Afrikaans and Setswana where required (see Appendix 5 for evidence of notification).

Direct letter to the landowners:

A letter was sent to Mr More Matsididi as a representative of the Maremane Community. Mr Matsididi signed the acknowledgment of receipt on the 8th of March 2013 and signed consent to undertake the waste management listed activities in terms of NEM: WA on portion 1 of Doornpan 445 and the remaining extent of Driehoekspan 435.

Distribution of a Background Information Document:

BIDs were circulated by hand between the 9th and 10th of May 2013 to all adjacent landowner, mines and communities. Other IAPs received the BID via email. The BID was also provided at the information sharing meeting on 23 May 2013.

Press and site notification:

Press adverts were placed in the following newspapers:

- Kathu Gazette in English on the 18th of May 2013
- Volksblad in Afrikaans on the 15 May 2013.

Site notices (A2 and A3) were placed on the 9 and 10th of May 2013 at the following areas:

- Main entrance to Farms Driehoekspan and Doornpan (English and Afrikaans)

- Tsantsabane Local Municipality's notice board (English, Afrikaans and Setswana)
- Maremane Community at the local shop (Setswana)

The press and site notification was undertaken to elicit interest from other IAPs that might not have been identified during the stakeholder identification process. The advert and site notice are included in Appendix 5.

Public Information Sharing meetings

Information sharing meetings were held on the 23rd of May 2013. Meetings were held at the following areas:

- Postmasburg Town Hall at 10h00-12h00
- Maremane Community Hall at 13h30-15h30

The purpose of the meetings was to introduce the COZA Iron Project to IAPs as well as to advise them of the EIA process that is currently being undertaken by Synergistics. The meeting also afforded IAPs the opportunity to raise any issues of concern regarding the project and the EIA process. The meeting in Postmasburg was held in English whilst the Maremane Community meeting was held in Setswana. The list of attendees and minutes of the meeting are attached as Appendix 5.

8.2.2 SUBSEQUENT SCOPING PHASE CONSULTATION

A subsequent public participation process was initiated in 2015 as described below in support of the NEMA and NEM:WA application lodged in January 2015.

Notification of IAPs

IAPs were notified of the proposed development via site notices and advertising. Notifications letters of the project and availability of the Scoping Report were provided to registered IAPs (see Appendix 5 for notification letter). It was not deemed necessary to hold additional scoping phase public meetings because the information presented on the plans for Driehoekspan in 2013 remains unchanged and no surface infrastructure is planned for Thaakwaneng. As such the issues and concerns from the 2013 and the 2015 public process have been included in the issues report for this application process.

Direct letter to the landowners:

A letter was sent with the notification of the scoping report to Mr More Matsididi and Mr Tswaro Motlabedi on 9 June 2015 as a representative of the Maremane Community indicating that the current application now includes the farm Thaakwaneng (see Appendix 5 for proof).

Press and site notification:

Press adverts were placed in the following newspapers:

- Kathu Gazette in English on 8 May 2015
- Volksblad in Afrikaans on 7 May 2015

Site notices (A2 and A3) were placed on the 8 May at the following areas:

- R325, entrance to Farm Thakwaaneng (English and Afrikaans)
- R325, entrance to Farm Driehoekspan (English and Afrikaans)
- Entrance to Farm Driehoekspan (RE) (English and Afrikaans)
- Tsantsabane Local Municipality's Library (English, Afrikaans and Setswana)
- Maremane Community at the local shop (Setswana).
- R325, Manganore off-turn (Afrikaans, English and Setswana)

The press and site notification was undertaken to elicit interest from other IAPs that might not have been identified during the earlier stakeholder identification process. The advert and site notice are included in Appendix 5.

Public review of the draft scoping report

The scoping report was made available for public review from 12 June 2015 to 17 July 2015. Notification letters were sent to registered IAPs on the availability of the Scoping Report. The following was undertaken to make the report available for public review:

Placed at the Postmasburg Library for review

- Hard copy reports were circulated to the Northern Cape Department of Environment and Nature Conservation, Department of Water and Sanitation and the Department of Agriculture, Forestry and Fisheries.
- CD copies were circulated to other authorities and upon request by other IAPs
- Copy of the scoping reports without appendices was circulated to all IAPs with email access.
- Summaries of the report were circulated to the Maremane Community for review.

Two written comments were received and one telephonic comment was received following the scoping report review process, which are captured in Table 8-1 below.

8.2.3 CURRENT PUBLIC CONSULTATION

Due to change in legislation which requires this revision of the application, additional consultation is being undertaken in support of a revised application submitted to DMR on 8 February 2016.

Notification of IAPs

Notifications letters were distributed to registered IAPs informing them about the additional activity to be authorized as well as providing the opportunity for review of the scoping report in February 2016.

Notification of the landowners

The Maremane CPA will personally be informed about the additional activity to be authorized and be provided with a copy of the scoping report in February 2016.

Public review of the draft scoping report

The scoping report will be available for public review in February 2015 for a period of 30 days. The report will be made available via email, in hard copy at the Postmasburg Library and at the SLR offices in Johannesburg.

EIA phase public consultation

The EIR and EMPr report will be made available for public review and feedback meetings may be held with the public and the Maremane CPA. Once a decision is made by the DMR, registered IAPs will be informed accordingly.

8.3 SUMMARY OF ISSUES RAISED BY IAPS

The issues and concerns report is provided in Table 8-1 below and includes all issues and concerns raised by IAPs during the scoping phase conducted in 2013 which addressed both Doornpan and Driehoekspan. This issues report will continue to be updated as new comments are received on the proposed project.

TABLE 8-1: ISSUES AND CONCERNS RAISED BY IAPS DURING THE SCOPING PHASE

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
AFFECTED PARTIES			
Landowner/s and lawful occupiers (Maremane Community)			
Mr Boniface Masiame Maremane Community	23 May 2013	<ul style="list-style-type: none"> • Asked if any people from the communities are required for the process in terms of labour (specialist studies). • Raised the issue that the information of the meeting was not appropriately marketed toward the Maremane Community. 	<ul style="list-style-type: none"> • Specialist studies are conducted by qualified specialists who go to site to scope the area to gather data. They are usually only there for approximately 1 day. The specialist work does not require labour as they do the work themselves. As such, specialist studies do not provide opportunities to the people from the community in terms of labour. • The community were identified through the distribution of BIDs. Synergistics also consulted Mpho Mashila, the ward councillor, and Joseph Madupe, who are representatives of the Maremane community. The

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<ul style="list-style-type: none"> • Asked if the Department of Rural Development and Land Reform (RDLR). Was consulted as they were key in the Maremane Community land claim process • Indicated that there are people that are not in the area but who at a later stage will be relocated to the land and will be affected by this development. He asked how these people would be accommodated. • Raised the issue that some of the people from the Maremane Community are from the Kuruman area and this meeting and the 	<p>Maremane community said they knew of the Postmasburg meeting but it was too far, thus another meeting was organised for them at the Maremane Community Hall. It would be appreciated if the community would advise Synergistics on how best to involve communities.</p> <ul style="list-style-type: none"> • Regarding the Department of Rural Development and Land Reform, this department has been notified of the project, received BIDs and have been notified of the EIA process. The Department of Mineral Resources (DMR), in their report, also wants to find out if the department of RDLR has been consulted. • It will be appreciated if the community would advise us of the various community leaders that should be registered in the IAP database. The identified representatives will be informed of the project developments and then in turn they can report back to the other members of the Maremane Community. • It would not be possible to have meetings with people from all over the area like

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>project is very far from Kuruman. As such the people will not know what is happening</p> <ul style="list-style-type: none"> • Asked whether meetings can be held in Kuruman • Raised a concern that Maremane community members from Kuruman are being excluded from the public participation process and problems may arise if people come to Maremane from Kuruman. • Referring to a DMR document from 2010, the IAP asked about the prospecting and mining right and why COZA are not mining in all the areas. 	<p>Kuruman. We are dealing with people that are most likely to be directly impacted by the project. People from Kuruman are not being excluded however, it would be ideal to have leaders of the various communities to come to the scheduled meetings.</p> <ul style="list-style-type: none"> • Kuruman is too far for the people from Maremane and Kuruman is not an area that will be directly affected by the project. The ideal option would be for the leaders of the Kuruman communities to come to the Maremane meetings and give feedback to the people of the community. • People who register will be kept informed throughout the process. Synergistics would like the leaders to get involved to inform the other communities. • COZA were granted prospecting rights for various farms but only plan to mine on the Portion 1 of Doornpan and Remaining Extent of Driehoekspan at this stage.

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
Mr Ephraim Sibanda Maremane Community	23 May 2013	<ul style="list-style-type: none"> • Questioned whether the people from the Maremane Community would benefit in terms of employment if the processing will be undertaken elsewhere. He indicated that he believes processing creates more employment opportunities than mining. • Requested an organogram for COZA Mining • Queried if COZA Mining has a mining licence. 	<ul style="list-style-type: none"> • The resource at Driehoekspan and Doornpan does not warrant the location of a processing plant within the mine areas. There is another area of interest for COZA that may have sufficient resource to support a processing plant. In terms of job opportunities, COZA's Social and Labour Plan (SLP) would have to consider the people at the three mining areas i.e. Driehoekspan, Doornpan and the other area of interest. • COZA Mining is still a new company and an organogram is not yet available. The community should liaise with Synergistics and the Coza project manager Mr Tabi Kowet. • COZA does not have a mining right but have a prospecting right. The current EIA process is undertaken to apply for a mining right. The mining right application was submitted in 2013.
Lebogang Kunere Maremane Community	23 May 2013	<ul style="list-style-type: none"> • Asked what would be done for the community once they start to mine and they gain profit. He indicated that the community needs to get an idea of what benefits they will receive from the project. 	<ul style="list-style-type: none"> • A social and labour plan is currently being developed as part of the mining right application. The community will be consulted on community development

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<ul style="list-style-type: none"> • Queried if there would be a survey of the resource before mining commences. • Enquired what income was received from prospecting and where was the money spent 	<p>projects that will form part of the SLP. Because the SLP is currently in the process of being developed, COZA is not as yet in a position to communicate the community benefits. This information will be communicated once the SLP has been finalised.</p> <ul style="list-style-type: none"> • Prospecting activities have already been undertaken for the project and the project team is currently at the resource estimation process. • No money was obtained from prospecting
Mathapelo Kgotsaekae Maremane Community	23 May 2013	<ul style="list-style-type: none"> • Indicated that the community is fearful that once COZA is granted a mining right, there will be no benefits for the community. • Requested that the community must be consulted when preparing the SLP 	<ul style="list-style-type: none"> • The SLP is still being drafted. This document will present the plans for community involvement. These will be communicated with the community once the plans have been drafted • The SLP is still being drafted and COZA believe that there has been some community interaction. COZA will confirm if there has been community interaction and establish who was consulted when drafting the SLP and provide a response. Post meeting note: the SLP consultants consulted with the authorities i.e. the DMR and local municipality.)

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
<p>Hilda Sibanda Maremane Community</p>	<p>23 May 2013</p>	<ul style="list-style-type: none"> • Indicated that she is reluctant to believe independent environmental consultants. She indicated that the community was previously consulted by independent consultants for the Sedibeng Mine, however they were not notified when the mine started. She indicated that the community was fearful that the same process would occur with the COZA project. • Asked why the application for environmental authorisation to the Northern Department of Environment and Nature Conservation was submitted before consultation with communities? 	<ul style="list-style-type: none"> • As consultants Synergistics are bound by law to notify IAPs of authority decisions in terms of the National Environmental Management Act (No 107 of 1998) (NEMA). As such the Maremane community will be notified via post or sms of the decision from authorities. She indicated that members of the community will be kept informed of progress throughout the EIA process. She explained that the Public Participation Process (PPP) allows for the involvement of communities. Post meeting note: a condition will be included in the EMPr that COZA should notify registered IAPs of commencement with construction and mining activities at least one (1) week prior to commencement. • The NEMA application was submitted as it was required by law. She advised that the application serves to notify the Department of the intention to commence with the EIA process
<p>Mathapelo Kgotlaekae Maremane Community</p>	<p>23 May 2013</p>	<p>Indicated that the Maremane Community are sceptical that Synergistics will return to meet with the community</p>	<p>There will be a feedback meeting, where Synergistics presents the findings of the EIA. She indicated that the community would also be</p>

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
			notified of the availability of the environment reports for review as well as the authority decisions.
Hilda Sibanda	18 June 2015	Is the application for mining right also now on Farm Thakwaaneng.	Yes, COZA has also applied for farm Thakwaaneng but please note that no infrastructure or mining is currently planned on this farm.
Landowners or lawful occupiers on adjacent properties			
None received			
Municipal councillors			
Mpho Mashile	Estimated 22 April 2013 (telephonic conversation)	<ul style="list-style-type: none"> Please hold a meeting at the Maremane community as well 	A feedback meeting will be held at the Maremane Community as well in due course.
Municipalities			
None received			
Communities			
Graig Katz Posmasburg	23 May 2013	<ul style="list-style-type: none"> Asked how the community will benefit from the project in terms of employment. Asked how the project will be able to decrease the high unemployment. 	<ul style="list-style-type: none"> The proposed development will require approximately 150 workers during construction and 86 workers during the operational phase. COZA Mining will endeavour to employ local persons as much as possible but this will be dependent on the type of skills required and availability of required skills locally. It should also be noted that as part of the mining right application, COZA Mining will

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
			<p>be required to prepare a Social and Labour Plan which details a plan for socio-economic upliftment for the area hosting the COZA Iron Ore Project. The details of the plan are still being developed in consultation with the relevant authorities and community representatives.</p>
Rowena Jacobs Posmasburg	23 May 2013	Requested that they be kept up to date with the project and asked how the community will benefit from the project.	IAPs registered on the IAP database will receive project communication information throughout the EIA process. As part of the mining right application, COZA Mining will be required to prepare a Social and Labour Plan which details a plan for socio-economic upliftment for area hosting the COZA Iron Ore Project. The details of the plan are still being developed in consultation with the relevant authorities and community representatives.
Itumeleng Moss Posmasburg	23 May 2013	<ul style="list-style-type: none"> • Enquired as to how the project and mining will benefit local communities. • Queried whether the municipality was consulted 	<ul style="list-style-type: none"> • A Social and Labour Plan will be developed for the mine which will identify local economic development projects. • Invitations were sent to the Municipal Mayor, Manager and Environmental Manager as well as the local Economic Development Officer. The ward councillor, was phoned

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
			to be invited and during the telephonic conversation advised Synergistics to also hold a meeting with the Maremane community
Mimi Swart Posmasburg	23 May 2013	<ul style="list-style-type: none"> • Raised a concern regarding the prominence of mining in the area and the many problems that are not being appropriately dealt with. Indicated that there are problems related to groundwater and dust due to mining in the area. She raised a concern regarding the potential cumulative impacts of the mining in the area. • Asked what stage the process is at currently. 	<ul style="list-style-type: none"> • The impacts of the proposed mining on the area will be assessed in the context of what the project will add to the current baseline condition which includes any existing impacts. Groundwater and air related impacts will be assessed in the EIA. • The process is at its initial phase the scoping phase where initial consultation with IAPs takes place, potential issues are identified and terms of reference for specialist studies are developed.
Mr Brandon Adams	5 June 2013	<ul style="list-style-type: none"> • An information sharing meeting was held on 23 May 2013, however no prior notice was given to Interested and Affected parties. The meeting should have been communicated in the local newspaper (The Ghaap, Diamond Field Advertiser). • When projects of this magnitude are taken, the locals are generally excluded to participate in the development and wealth of their minerals mined. Lack of excess to this wealth creation opportunity is hampered by “red tape” rules 	<ul style="list-style-type: none"> • The information sharing meeting was advertised in the Kalahari Bulletin and Kathu Gazette. These newspapers circulate in the study area and its surroundings. Please refer to Section 3.5 on the IAP notification process. • COZA are fully committed to implementing development plans and projects that will facilitate local community and rural development as part of

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>and regulations, that make it impossible to participate and once the investors are making their riches, they vanish and left the local residents high & dry.</p> <ul style="list-style-type: none"> • • My objection purely relates to the following issues Environmental Impact – pollution will affect all the communities around your operations and what remedies is available to alleviate this 	<p>their Social and Labour Plan (SLP). However, the project is still in its initial stages and COZA are still formulating their SLP. At this stage no specific information can be provided on the different community development initiatives that will be implemented by COZA. As part of the Environmental Impact Assessment for the COZA Iron Ore Project however, a social impact assessment will be conducted which will provide information on the benefits the project is likely to have for local communities. This information will be made available in the Environmental Impact Report, a draft version of which will be made available for public review.</p> <ul style="list-style-type: none"> • An Environmental Impact Assessment (EIA) for the COZA Iron Ore Project will be undertaken to identify the project’s environmental and socio-economic impacts and identify management and mitigation measures for identified impacts. As part of the first phase of the EIA process, Synergistics has prepared a Scoping Report

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
			<p>which provides a preliminary list of potential environmental and social impacts. The plan of study providing information on the specialist investigations to be undertaken as part of the study is also included in the Scoping Report. The Scoping Report will be circulated to IAPs for review. As a registered IAP, you will be notified of the availability of the report. Please note that this Scoping Report is in support of mining activities to be undertaken on Farm Driehoekspan and Thaakwaneng only. An EIA and EMPr will be prepared for this new application and the associated environmental and social impacts associated with the development will be communicated in that report.</p>
Alfred Pegram Kimberley	23 May 2013	<ul style="list-style-type: none"> • Asked how far the project will be from Portion 3 of the Farm 445. 	The mining area will be approximately 3 km from Portion 3 of the Farm 445.
Mr Jim Bredenkamp Posmasburg	9 July 2013	<ul style="list-style-type: none"> • Requested the electronic copy of the report in CD-ROM 	A copy of the Draft Scoping report was posted on 15 July 2013.
Organs of State, Department of Land Affairs, Department of Environmental Affairs and Other Competent Authorities affected			
Ms Jacoline Mans Department of Agriculture, Forestry and Fisheries	15 May 2013	<ul style="list-style-type: none"> • The BID stated that the affected areas of the proposed open pit iron ore and associated infrastructure will be approximately 25 	<ul style="list-style-type: none"> • Applications will be submitted to the relevant authorities for the removal of protected plant

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>hectares on the farm Doornpan and 80 ha on farm Driehoekspan. Since vegetation clearance will be required, you may need a Forest Act Licence (from DAFF) and a Flora Permit (from Nature Conservation)</p> <ul style="list-style-type: none"> The BID listed the most important environmental legislation applicable to the project. The Northern Cape Nature Conservation Act (Act 9 of 2009) (NCNCA should also be consulted Kindly supply this office with copies of the relevant documental for comments, especially the specialist biodiversity/ecological assessment and EMPR (once available). Please note that the office cannot download such documentation from the internet and it should be provided on a CD or in hardcopy format Please ensure that the anticipated impacts on protected trees are assessed and try to design the mine in such a manner as to minimise the impact (if any) on such slow growing tree species. Where impacts cannot be avoided, appropriate mitigation may be required. 	<p>and tress species.</p> <ul style="list-style-type: none"> The act has been considered and applications for the removal of protected plants will be submitted prior to removal. A CD copy of the EIA and EMPR report together with specialist studies will be submitted to your department Impacts on flora will be assessed in the EIA report. A floral (vegetation) impact assessment will be undertaken to determine impacts on vegetation. Where required, mitigation measures will be identified and a vegetation management plan will be developed. This information will be included in the EIA and EMPR that will be circulated for public and authority review.
Jacoline Mans	23 July 2015	<ul style="list-style-type: none"> The report confirms the presence of NFA listed protected tree species on the site and stated that applications will be submitted to the 	<ul style="list-style-type: none"> Your comment is noted. One of the key considerations during the preliminary

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>relevant authorities for removal of such trees. The developer should note that a licence is not automatically issued. The DAFF can and has refused licenses in the past. It is therefore of utmost importance to try and minimise impacts on slow growing protected trees by placing infrastructure in areas where it will have the least impact on such trees.</p> <ul style="list-style-type: none"> • The report indicated that the open pit will be on Farm Driehoekspan and that the total development footprint will be approximately 175 ha. It also stated that vegetation will be cleared in accordance to the biodiversity management plan to be developed (page 4-7). At what stage of the development and/or EIA process will this biodiversity plan be developed and will it be made available for comments. • Page 5-14 of the report refers to the applicable legislation. Kindly note that the NFA (already confirmed applicable) was not mentioned; neither was the Northern Cape Nature Conservation Act, 9 of 2009 (NCNCA) which will also be applicable if 175 ha of indigenous vegetation needs to be cleared. • What is the current zoning of the affected properties: mining or agriculture? If it is zoned as Agriculture, then other legislation may also 	<p>assessment of alternative mine layouts was the disturbance of protected plant and tree species. COZA moved infrastructure (where possible) outside of areas where protected plant and tree species are located. There will however be disturbances to protected tree species within the pit area due to the location of the resource.</p> <ul style="list-style-type: none"> • The biodiversity management plan will be made available for review when the draft EIA has been completed. All stakeholders will be notified on the availability of the EIA report as per legislative requirements. • Table 5-1 in this report has been updated to include the two acts mentioned. • The properties are currently zoned for agriculture and therefore Table 5-1 has been updated to include the

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>be applicable such as the subdivision of Agricultural Land Act, act 70 of 1950 (SALA).</p> <ul style="list-style-type: none"> The report emphasised that the affected vegetation types, as classified by Mucina & Rutherford, is rated as “least concern”. Kindly note the vegetation map is a very broad scale classification system and there might be a lot of variation on a local level. Hence it is crucial to get a specialist to assess the potential impacts on plants of special concern, since the site falls within the Griqualand West Centre of Endemism. The report mentioned that a total of 116 plants species may be present in the study area, which is quite rich in terms of biodiversity if compared to other study sites where the average number of plant species found was in the order of 35 to 45. The study site is also in close proximity to Ghaap Plateau vegetation type, which is regarded as sensitive and not protected at all. The report indicated that two to three NFA listed protected tree species occur in the project area. In some places it stated two species and in others three. Kindly provide a list of all plant species encountered on site. Page 8-68 of the report stated that only one (1) large Acacia (<i>Vachellia erioloba</i>) tree and about 220 Boscia Albitrunca trees and about 220 Boscia albitrunca trees were observed in the project area. Kindly note that Boscia albitrunca is dually protected in terms of the NFA and the NCNCA and hence a Forest Act 	<p>Agricultural Land Act, act 70 of 1950.</p> <ul style="list-style-type: none"> A vegetation specialist has been appointed to conduct an vegetation impact assessment due to the proposed project. The results and findings of the specialist will be presented in the EIA report. The list of species encountered on site is included in Appendix 6 of this report. Thank you for the information. The relevant applications will be submitted in due course.

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		Licence as well as a Flora Permit will be required prior to disturbance of any such species.	
Traditional Leaders			
None received			
OTHER AFFECTED PARTIES			
Mr. S.E Fiff Transnet Limited	20 May 2013	Requested to be registered as an IAP	Mr Fiff has been registered in the IAP database.
Islay Jane Sparks Kumba Iron Ore's Kolumela Mine	23 May 2013	<ul style="list-style-type: none"> • Asked how much the mine will produce • Enquired about the possibility for further expansion and whether exploration is still continuing. 	<ul style="list-style-type: none"> • Since the project is still in the concept phase it is difficult to estimate, but the quantity will be approximately 500,000 million tons of ore per annum during the operational phase. Post meeting note: production of iron ore is expected to be 869 366 tonnes • There are opportunities for further expansion. COZA is currently working on their resource estimation. There are also other areas of mining interest for COZA Mining in the Northern Cape.
INTERESTED PARTIES			
Mr Tumisang Tugane Afribits	22 May 2013	Requested to be registered as an IAP	Mr Tugane and Mrs Erasmus have been registered in the IAP database
Mrs Alretha Erasmus Postmasburg Landbou Unie	24 June 2013	Requested to be registered as an IAP	
Mr Albertus Viljoen	19 June 2015	<p>In reply to the Draft Scoping Report, the following comments:</p> <ul style="list-style-type: none"> • Monitor third party boreholes to determine if 	<ul style="list-style-type: none"> • Monitoring of third party boreholes will be a

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		<p>the water level is being affected.</p> <ul style="list-style-type: none"> • If dewatering causes a loss of water supply to third parties, an alternative equivalent water supply will be provided by Coza until such time as the dewatering impacts cease. <ul style="list-style-type: none"> a) Monitoring water levels alone is not sufficient to establish a baseline on water supply. b) I suggest that pump tests are considered to establish the true potential of possible impacted water sources • Objective: prevent unacceptable negative impacts on surrounding land uses. Conceptual mitigation measures include: <ul style="list-style-type: none"> a) Effectively manage noise, dust, surface and groundwater quality, blasting hazards, social impacts and visual impacts. b) Water quality is not the only impact to mitigate, quantity is part of that equation. • HYDROGEOLOGY <ul style="list-style-type: none"> a) The groundwater detailed investigation will address dewatering and pollution aspects. The investigation will include the following tasks b) I suggest a complete baseline document is compiled on water availability, quality, etc. c) This document to be finalised with associated IAP and possible impacted land owners. 	<p>commitment included in the EIR.</p> <ul style="list-style-type: none"> • Final mitigation and management measures will be presented in the EIA which will be circulated for public review. During the hydrocensus pump tests were undertaken on 5 boreholes located within the proposed mine area. • Noted, a numerical model will be undertaken as part of the groundwater impact assessment to determine the impact of dewatering activities on water levels for third party users. • The groundwater baseline data is presented in this report. This report has been circulated to IAPs for commenting. No comments have been received to date from surrounding landowners on groundwater impacts. IAPs will still be afforded opportunity to comment on

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues (adapted for the current scoping process)
		d) Final baseline document to be approved by these parties involved.	the draft EIA which will contain groundwater baseline data as well as the actual groundwater specialist report.

8.4 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE PROJECT SITES

This section has been compiled using various specialist studies conducted for the proposed Coza project. This baseline information is aimed at giving the reader perspective on the existing status of the cultural, socio-economic and biophysical environment. More detailed information will be provided in the EIA and EMP report.

8.4.1 TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

8.4.1.1 Geology

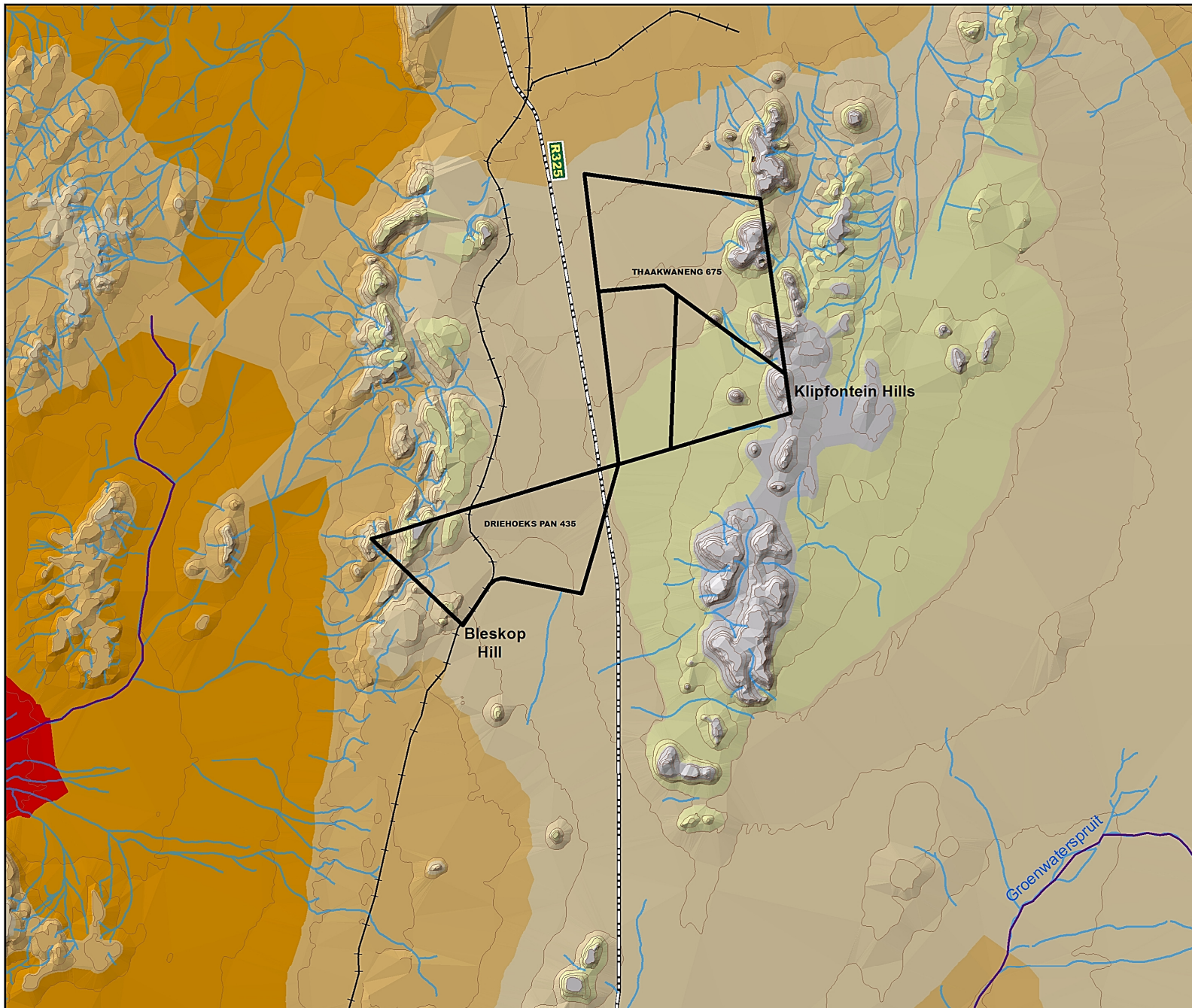
The majority of the area is underlain by the Campbellrand Group which contains carbonate rocks. These carbonate rocks are overlain by the Asbestos Hills Subgroup which comprises the Wolhaarkop Breccia (chert-rich breccia) which grades upwards into the Manganore Iron Formation. A series of uplift, weathering and deformational events lead to the enrichment of iron formation to form the high grade hematite deposit (> 60 % Fe) as well as its distribution (COZA Mining, 2013).

According to Moen (as cited in PGS Heritage ,2013) the farm Driehoekspan is underlain by rocks of the Gamagara Formation of the Postmasburg Group as well as rocks of the Lime Acres Member of the Ghaap Plato Formation of the Campbell Group. The rocks of the Gamagara Formation underlie the Western Corner of the farm. This formation consists of quartzites, conglomerates, flagstones and shales and constitutes the base of the Postmasburg Group. The formation lies upon the Ghaap Plateau and Asbesberge Formations. Lenticular basal conglomerates contain pebbles of jasper and banded iron stone and are completely ferruginised in places. The shales contain lenses of conglomerate and are also locally ferruginised or manganised. Ferruginous flagstone and white, purple and brown quartzites form the top of the formation. Rocks of the Lime Acres Member of the Ghaap Plateau Formation of the Campbell Group consist of dolomitic limestone with subordinate coarsely crystalline dolomite and chert with lenses of limestone. Stromatolitic puckered limestone consisting of alternating dark and light bands can be found. Lenticular bodies of limestone occurring in the dolomite are probably the result of irregular dolomitisation of the original limestone.

8.4.1.2 Topography

The study area is flanked by hills to the west and east (Figure 8-2). The Klipfontein range of hills to the east of the study area runs in a north to south direction. According to available topographic maps, the general topography within the study area is flat to undulating with an average surface elevation of approximately 1 370 m above mean sea level (mamsl).

On the western edge of Farm Driehoekspan is a hill with an elevation of approximately 1 445 mamsl. Mining activities are proposed to occur east of this hill. There are ephemeral drainage lines on the west of the property (see Figure 8-2).



Legend

Topography (Pre-mining)

- Elevation
- 1527.333 - 1580
 - 1474.667 - 1527.333
 - 1422 - 1474.667
 - 1369.333 - 1422
 - 1316.667 - 1369.333
 - 1264 - 1316.667
 - 1211.333 - 1264

- Rivers
- Drainage
- 20m Contour lines
- Main Road
- Railway
- Property Boundaries - Project Area

Source : 20m Elevation Data - Surveyor General



Figure 8-2: Topography for the Project Area

SO707

Coordinate System
DMS
Spheroid
WGS84
Central Meridian
LO

8.4.1.3 Climate

The COZA Iron Ore Project falls in an area with a regional climate that is semi-arid with a mean annual precipitation of 318 mm.

Ambient Temperatures

Temperature data for the area of the project site were obtained from the South African Weather Service (SAWS) station 0321141 W. This station is located approximately 20 km south of the project area. The average monthly temperatures for the project site, calculated from the weather station are presented in Table 8-2. The maximum temperature recorded at this weather station is 46.5 °C and the minimum is - 8.4 °C.

TABLE 8-2: LONG-TERM MINIMUM AND MAXIMUM AVERAGE MONTHLY TEMPERATURES FOR THE STUDY AREA FOR THE PERIOD 2008-2010 (JEFFARES &GREEN, 2013).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min Temp (°C)	16.2	15.1	13.8	10.3	6.0	2.1	1.9	4.4	6.9	10.0	13.4	15.6
Max Temp (°C)	32.0	29.3	28.6	25.0	22.3	17.1	18.0	20.7	24.4	27.0	29.7	31.2

Precipitation and Evaporation

Rainfall data for the area of the COZA Iron Ore Project site were obtained from the SAWS rainfall station 0320828 W. This rainfall station is located approximately 14 km southwest of the project site. The mean monthly rainfall over the period 1950 to 2000 is presented in Figure 8-3. It is evident that the precipitation tends to fall in summer and autumn (November to April). It is also noted that small amounts of rainfall are recorded over the winter and spring months (May to October).

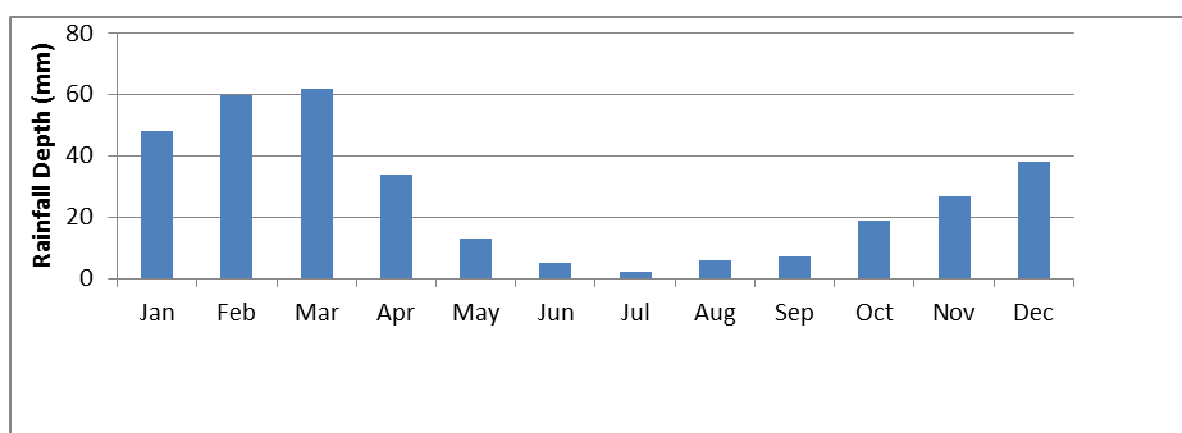


FIGURE 8-3: LONG-TERM AVERAGE MONTHLY RAINFALL FOR THE STUDY AREA FOR THE PERIOD 1950 TO 2000 (JEFFARES &GREEN, 2013)

The annual potential evaporation rate for the COZA Iron Ore study area is 2 450 mm. From Table 8-3, the highest evaporation rates occur during the hotter summer months of October to March. The mean

annual evaporation is higher than mean annual precipitation (318 mm) which results in a net moisture deficit of 2 132 mm over the year.

TABLE 8-3: CALCULATED MONTHLY MEAN EVAPORATION RATES FOR THE STUDY AREA (JEFFARES & GREEN , 2013)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Evaporation Rate (mm)	333	256	221	154	111	85	98	133	184	247	292	336	2450

Wind direction and speed

Wind direction data obtained from the Postmasburg Weather Station. Daytime and night-time wind roses is provided in Figure 8-4. The prevailing wind direction is from the north (14% of the time) in the day and the northeast (25% of the time) during the night-time. These are generally associated with weak winds. The less frequent south-westerly winds have higher velocities. Similarly, infrequent strong winds are indicated from the north and north northwest. Stronger winds occur during the daytime with weaker winds associated with night-time.

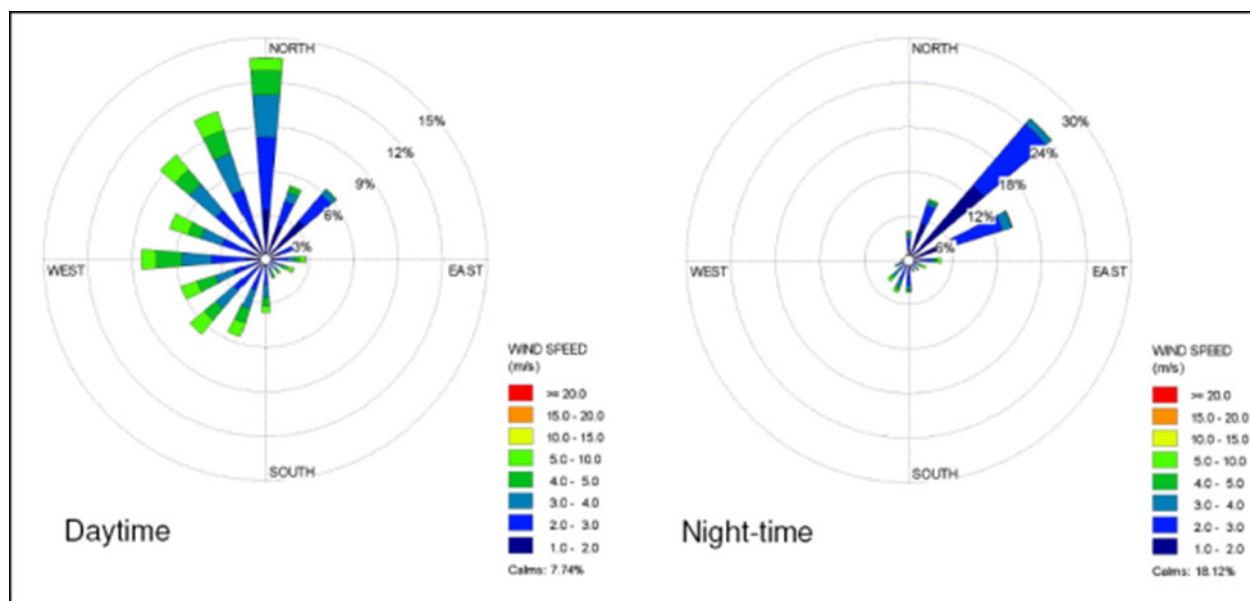


FIGURE 8-4: DAY AND NIGHT TIME WIND ROSES FROM 2002 -2006 (AIRSHED 2010).

8.4.1.4 Soil and land capability

The soils in the region are generally shallow, normally not exceeding more than 300 mm in depth (PGS Consulting, 2013). The predominant soil types are those of Glenrosa and Mispah. The Glenrosa type soil is characterised by an Orthic A horizon over a Lithocutanic B horizon, whereas the Mispah type soil is characterised by an Orthic A horizon over bedrock. The majority of the project area is non-arable (low potential grazing land) with small areas of wilderness capability.

8.4.1.5 Biodiversity

National and Regional Guidelines

The DEA, DMR, Chamber of Mines, South African Mining and Biodiversity Forum, and SANBI published the Mining and Biodiversity Guideline in 2013. This guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects and where biodiversity may limit the potential for mining. The guideline distinguishes between four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view, as well as the implications for mining. These categories include (DEA *et al*, 2013):

- Legally Protected Areas
- Highest Biodiversity Importance
- High Biodiversity Importance
- Moderate Biodiversity Importance.

The project area does not fall within any biodiversity priority area identified by the Mining and Biodiversity Guideline.

A National Protected Area Expansion Strategy (NPAES) has been developed by the South African National Botanical Institute (SANBI) and aims to achieve cost effective protected area expansion for ecological sustainability and adaptation to climate change. The NPAES sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion. According to the NPAES database, the project area does not fall within an area earmarked for expansion of a National Protected Area.

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing of threatened or protected ecosystems. Threatened ecosystems are listed in order to reduce the rate of ecosystem and species extinction by preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value. The project area falls within Kuruman Mountain Bushveld and Kuruman Thornveld which are not listed as threatened or protected ecosystems.

SANBI also developed the national freshwater ecosystem priority (NFEPA) database to define the aquatic ecology of the rivers systems of ecological importance in the country. According to the database, there is a FEPA wetland on the farm Driehoekspan (An additional wetland has been identified based on Google Earth imagery to the south of Driehoekspan, refer to Figure 8-5).

Flora (Natural plant life)

The study area falls within the Eastern Kalahari Bushveld Bioregion of the Savanna Biome (Mucina & Rutherford, 2006). The vegetation of the southern Kalahari in general is relatively species-poor and less than 2.5% of the total species list of the southern Kalahari is regarded as endemic, while less than 6% of the plant species is regarded as near-endemic species (Van Rooyen & Van Rooyen 1998).

The proposed project does however fall within the Griqualand West Centre of Endemism (GWC) as defined by van Wyk & Smith (2001). According to van Wyk and Smith (2001), the GWC is considered a priority area for conservation in the Northern Cape, as the number of threats to the area is increasing rapidly, little research has been done and it is poorly understood.

According to the vegetation classification of South Africa by Mucina & Rutherford (2006, Biodiversity GIS vegetation map), there are two vegetation types present in the study areas – Kuruman Thornveld and Kuruman Mountain Bushveld. The two vegetation types are described in more detail below. The vegetation units will however be verified during the field survey for the EIA.

The Kuruman Thornveld occurs on flats from the vicinity of Postmasburg and Danielskuil (west of the Kuruman Hills) in the south extending via Kuruman to Tsineng and Dewar in the north (Mucina & Rutherford 2006). This thornveld is typified by flat rocky plains and some sloping hills with a very well developed, closed shrub layer and well developed open tree stratum consisting of camel thorn (*Acacia erioloba*). Smaller trees in this vegetation unit include Blackthorn (*Acacia mellifera* subsp. *Detinens*) and Shepherd's tree (*Boscia albitrunca*). Taller shrubs are Velvet Brandybush (*Grewia flava*), River Honeythorn (*Lycium hirsutum*), Camphor Bush (*Tarchonanthus camphoratus*) and Common Spike-Thorn (*Gymnosporia buxifolia*). Small shrubs present are Besembossie (*Gnidia polycephala*), *Helichrysum* species (e.g. Golden Everlasting), *Hermannia* species (e.g. Doll's Rose) and *Plinthus sericeus*. Common grasses are Arrowfeather Threewawn (*Aristida meridionalis*), *A. stipitata* and Lehmann Lovegrass (*Eragrostis lehmanniana*).

The Kuruman Mountain Bushveld covers the hills with generally gentle to moderate slopes and hill pediment areas, with an open to closed shrubveld. The grass layer is fairly well developed. Common large shrubs include Blackthorn (*Acacia mellifera* ssp. *Detinens*), common *Guarri*, *Euclea* undulate, Bloubos *Diospyros lycioides*, *Searsia tridactyla*, Yellow Pomegranate (*Rhigozum obovatum*) and Vaalbos (*Tarchonanthus camphoratus* and *T. obovatus*). Shepherd's trees (*Boscia albitrunca*) are occasional. Several rock figs (*Ficus cordata*) grow on the peaks of the hills where large boulders or sheer rock outcrops are a feature. Common grasses include Black Spear Grass (*Heteropogon contortus*, *Enneapogon* sp., *Eragrostis* sp.), Koperdraadgras (*Aristida diffusa*) and Oxtail Buffalo Grass (*Cenchrus ciliaris*). Dwarf shrubs and herbaceous species include (*Hermannia* species, *Eriosephalus* sp., *Helichrysum*) species and a variety of small legume species such as *Indigofera* sp.

A floral specialist, Tania Anderson, was commissioned to compile a list of floral species of conservation concern that could occur in the project area and immediate surrounds. It was found that a total of 116 plant species may be present in the study area, of which 61 species were recorded during a field survey of the area. Of these, 18 species of conservation concern could potentially be present in the study area, of which 8 have been confirmed to occur in the area. Three tree species protected under the National Forests Act (NFA 1998) are found in this region. These include the Camel Thorn Tree (*Acacia erioloba*), the Grey Camel Thorn (*Acacia haematoxylon*), and the Shepherd's Tree (*Boscia albitrunca*) (Seymour & Milton 2003). The camel thorn tree has been confirmed to occur within the proposed mining area. Protected trees have been mapped as part of the 2013 EIA process, and this information has been used in an effort to limit biodiversity impacts caused by the placement of surface infrastructure – refer to Figure 8-1.

Fauna (Natural animal life)

Faunal species diversity and numbers in the region is relatively low as is typical of semi-desert areas (Wilson, 2013). The project area proposed for development and its immediate surrounds is largely undeveloped. However, considerable degradation of the natural habitat has occurred in the region due mainly to mining, especially on the iron and manganese ore hills and outcrops between Kathu and Postmasburg. Game farms are also located in the region; most notably a game farm on the farm Thaakwaneng 675.

A faunal specialist, Beryl Wilson, was commissioned to compile a list of any fauna of conservation concern that could be in the development areas and immediate surrounds (Wilson, 2013 – See Faunal Specialist Study, Appendix D). Current literature, museum records and various past surveys in the region by the specialist indicated an approximate total of 56 mammal, 265 bird, 45 reptile and 11 amphibian and uncalculated arachnid naturally-occurring species to have been recorded in the region (Wilson, 2013). Of these, 14 mammal, 14 bird, two reptile, one amphibian and five arachnid species of conservation significance are thought to potentially occur in the general area of which only 6 are predicted as having a high chance of occurrence (Wilson, 2013). The 6 that have a high chance of occurrence include the Bushveld Sengi (*Elephantulus intufi*), the African Wild Cat (*Felis silvestris lybica*), Rock Monitor *Varanus albigularis*, two species of Burrowing Scorpion, and a species of Creeping Scorpion. The presence of these species will be confirmed in the EIA phase.

8.4.1.6 Hydrology (Surface water)

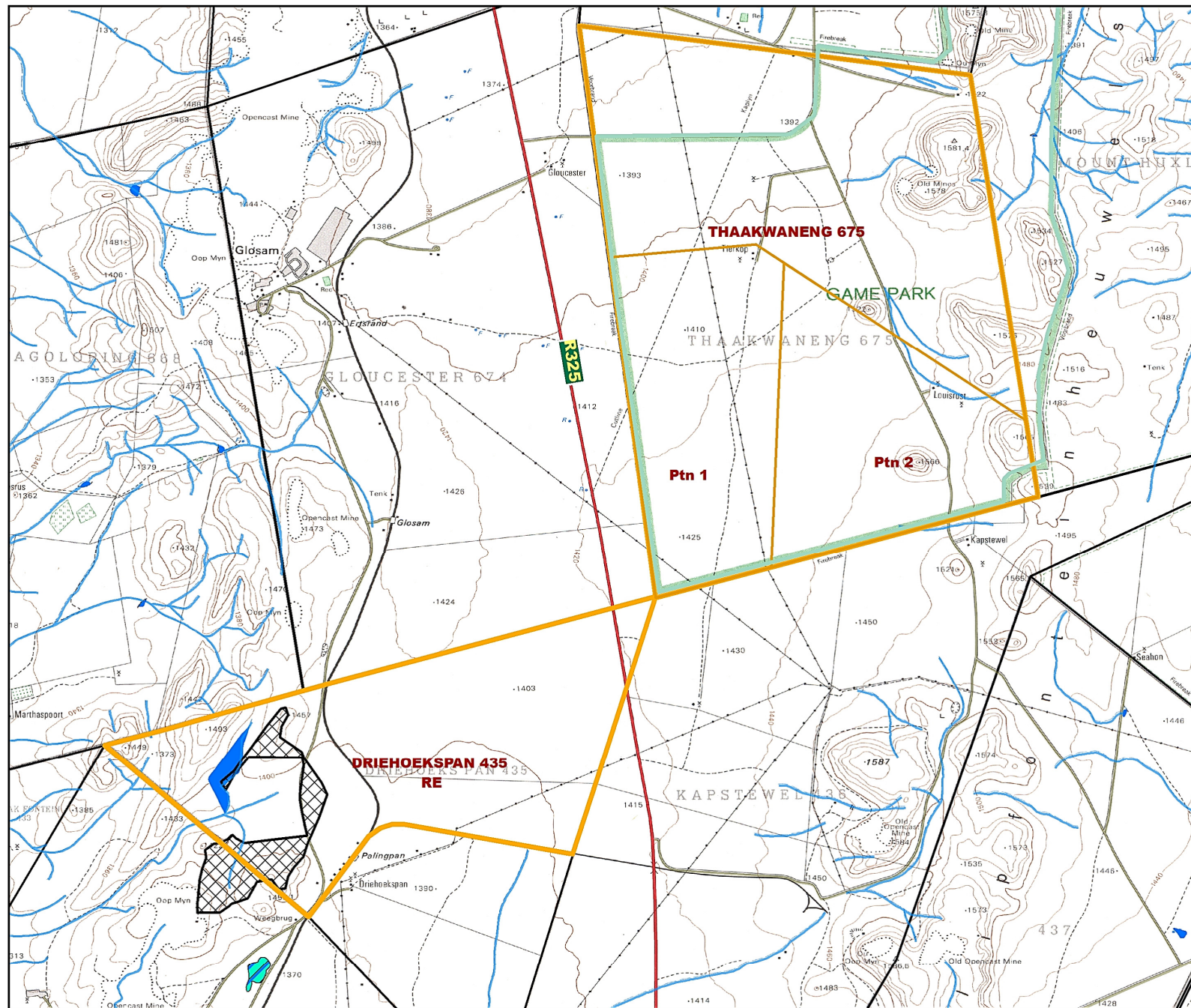
Catchment

The project site is located within quaternary catchment D73A of the Lower Vaal Management Area which falls within the Orange River Basin. According to the Water Resources of South Africa 2005 study (WR2005), quaternary catchment D73A is classified as an endorheic system. Rainfall in this system does not exit the catchment as surface flow, but may only leave as evaporation and seepage. The area is in a

semi-arid environment with annual precipitation of 323 mm. The mean annual runoff is zero due to the endorheic nature of the catchment even though the MAR depth is 14.7 mm (Jeffares & Green, 2013).


Surface Water Features

Jeffares & Green conducted a desktop analysis to determine the surface water features on site. The desktop analysis was conducted using information from the National Freshwater Priority Areas (NFPEA, 2011) and the Environmental Potential Atlas (ENPAT, 2000 & 2002). Wetlands were identified within the study area and its surrounds and are illustrated in Figure 8-5. According to the NFPEA database, there is a wetland on the farm Driehoekspan. An additional wetland has been identified based on Google Earth imagery to the south of Driehoekspan (see Figure 8-5). The presence of additional drainage channels within the study area will be confirmed during the EIA phase.

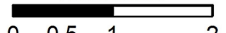


Legend


- Main Road
- Other Access Roads
- Drainage
- NFEPA Wetlands
- Google Earth Identified Pan
- Catchment Area
- Game Park
- Property Boundaries - Project Area




Kilometers



0 0.5 1 2



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Figure 8-5: Surface Water Features and Catchment Areas for the COZA Iron Ore Project

SO707

Coordinate System	
Spheroid WGS84	DMS Central Meridian LO

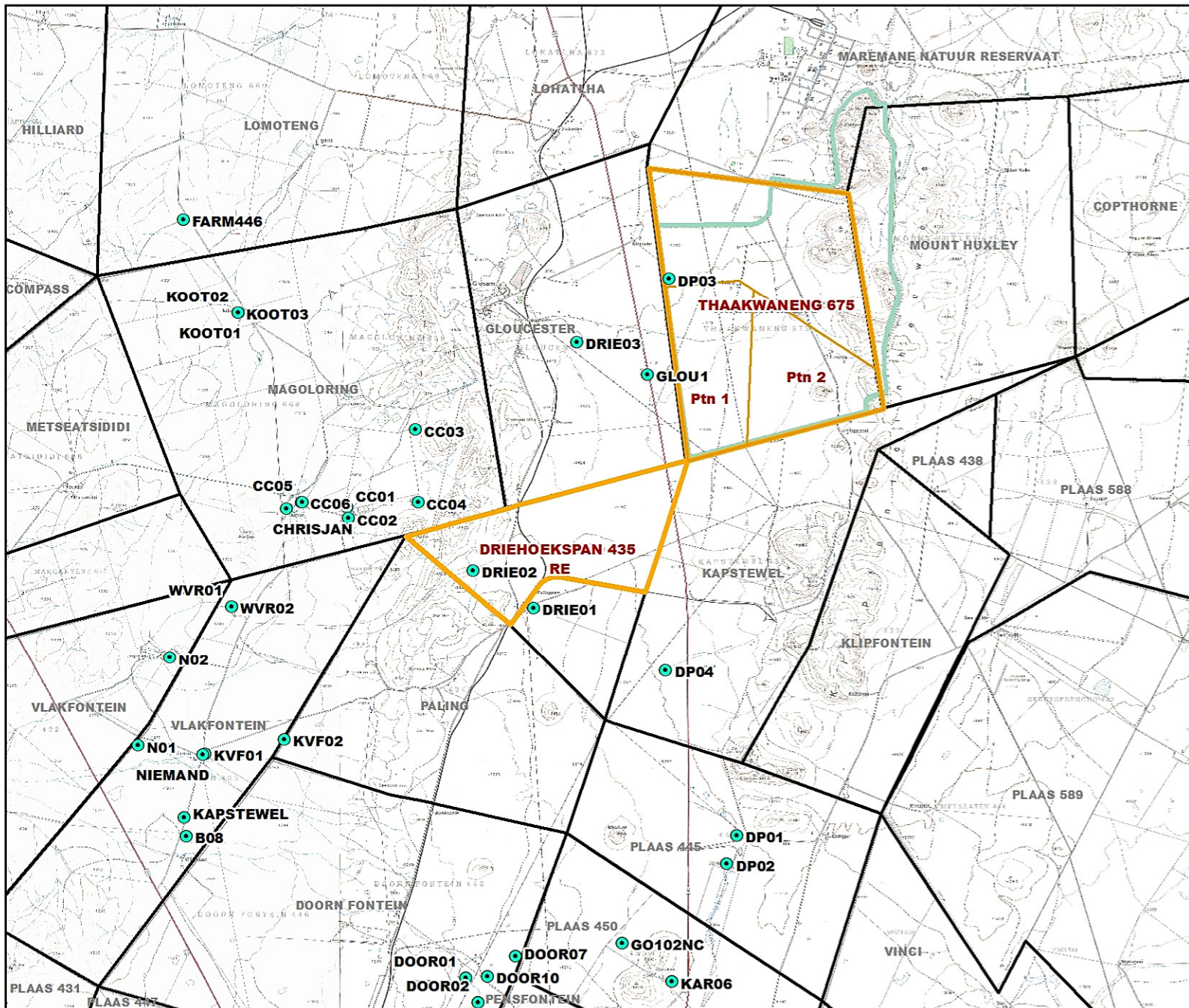
8.4.1.7 Groundwater

Presence of groundwater

The general geohydrological regime in the area is made up of two aquifer systems. The first, upper, semi-confined to unconfined aquifer occurs in the calcrete underlain by a clayey layer. This aquifer has been a reliable source of water supply for many decades to the farming community. The second, deeper aquifer is associated with the fractures, fissures and joints and other discontinuities within the older Transvaal Supergroup rocks (Synergistics, 2011).

Groundwater quality, levels and use

A hydro-census was conducted on the 13-17 May 2013 by Aquatico to determine groundwater use, levels, and qualities as well as to conduct pump testing for the purposes of defining the aquifers on site. Boreholes that were included in the hydro-census are illustrated in Figure 8-6. The water users in the area are farmers, mines and communities. The farmers rely heavily on groundwater for domestic and agricultural activities. The information collated during the hydro-census is given in Tables 2.3 and 2.4. The groundwater levels range between 7-37m on a surface elevation of between 1270-1480 (mamsl). The groundwater quality is generally within the SANS 241 (2011) drinking water standards for most boreholes. Of the 37 boreholes sampled, there were few boreholes where the water quality exceeds drinking water standards for nitrates (8 samples), ammonia (1 sample) and iron (1 sample). The high nitrates and ammonia may be attributed to congregation of livestock at watering points which has been found to be typical in the area and the high iron could be attributed to the geology of the area.



Legend

- Hydrocensus Boreholes
- Farm Boundaries
- Property Boundaries - Project Area
- Game Park

Kilometers

Synergistics
Environmental Services

Synergistics is an SLR group company

Figure 8-6: Location of Hydrocensus Boreholes

SO707

Coordinate System	
DMS	Central Meridian
Spheroid WGS84	LO

TABLE 8-4: RESULTS OF THE HYDRO-CENSUS

Borehole Description	Borehole Location		Farm Name	Owner	Elevation	Water level	Water Use	Sampled
	South (WGS84)	East (WGS84)						
DRIE01	28.15453	23.04500	Driehoekspan	More Matsididi & Basil Louw	1385	-	-	Yes
DRIE02	28.14572	23.03075	Driehoekspan	More Matsididi & Basil Louw	1380	-	-	Yes
DRIE03	28.09194	23.05519	Gloucester	More Matsididi & Basil Louw	1390	-	-	Yes
DP04	28.16928	23.07611	Kapstewel	More Matsididi & Onkemetse Gill	1385	-	-	Yes
B08	28.20831	22.96312	Vlakfontein	Adam Wahl & Mark Oosthuizen & Christiaan Claasens	1480	7.0	-	Yes
DP01	28.20814	23.09285	Doornpan	More Matsididi & Onkemetse Gill	1390	15.8	-	Yes
DP02	28.21489	23.09053	Doornpan	More Matsididi & Onkemetse Gill	1390	14.9	-	Yes
DP03	28.07689	23.07689	Thaakwameng	More Matsididi & Onkemetse Gill	1385	-	-	Yes
GO102NC	28.23340	23.06590	Plaas 450	Mark Oosthuizen	1385	-	-	Yes
KAR06	28.24250	23.07760	Plaas 450	More Matsididi & Onkemetse Gill	1435	36.0	-	Yes
DOOR01	28.24170	23.02900	Doornfontein	Mark Oosthuizen	1348	13.9	-	Yes
DOOR02	28.24740	23.03190	Doornfontein	Mark Oosthuizen	1356	7.4	-	Yes
DOOR07	28.23660	23.04070	Doornfontein	Mark Oosthuizen	1355	-	-	-
DOOR10	28.24120	23.03410	Doornfontein	Mark Oosthuizen	1353	3.1	-	Yes
CC01	28.13076	23.00103	Morolong	Christiaan Claasens & Louis Claasens	1315	-	Irrigation, Livestock	Yes
CC02	28.13341	23.00146	Morolong	Christiaan Claasens & Louis Claasens	1319	11.3	Irrigation, Livestock	Yes
CC03	28.11254	23.01716	Morolong	Christiaan Claasens & Louis Claasens	1340	32.9	Irrigation, Livestock	Yes

Borehole Description	Borehole Location		Farm Name	Owner	Elevation	Water level	Water Use	Sampled
	South (WGS84)	East (WGS84)						
CC04	- 28.12964	- 23.01777	Morolong	Christiaan Claasens & Louis Claasens	1343	36.3	Irrigation, Livestock	Yes
CC05	- 28.12955	- 22.99029	Morolong	Christiaan Claasens & Louis Claasens	1311	6.0	-	-
CC06	- 28.12958	- 22.99044	Morolong	Christiaan Claasens & Louis Claasens	1310	17.4	-	Yes
KVF01	- 28.18895	- 22.96762	Vlakfontein	Christiaan Claasens	1278	-	Irrigation, Livestock	Yes
KVF02	- 28.18558	- 22.98623	Vlakfontein	Christiaan Claasens	1296	-	-	Yes
FARM446	- 28.06285	- 22.96258	Lomoteng	Assmang	1338	12.0	-	Yes
GLOU_COMM	- 28.07956	- 22.37280		Gloucester mining area	1412	-	-	Yes
GLOU1	- 28.09951	- 23.07181	Gloucester	Gloucester	1416	-	-	Yes
KAPSTEWEL	- 28.20391	- 22.96276	Vlakfontein	Kapstewel	1416	7.0	-	Yes
FARM437	- 28.20382	- 23.96301		Farm437	1279	-	-	Yes
N01	- 28.18706	- 22.95180	Vlakfontein	No Farmer	1276	-	Irrigation, livestock	Yes
N02	- 28.16630	- 22.95929	Vlakfontein	No Farmer	1276	-	Irrigation, livestock	Yes
NIEMAND	- 28.18911	- 22.96706	Vlakfontein	No Farmer	1281	-	Irrigation, livestock	Yes
CHRISJAN	- 28.13119	- 22.98676	Morolong	Chrisjan Claasen	1310	12.1	Irrigation, livestock, domestic	Yes
CC02	- 28.12869	- 22.90909	Morolong	Chrisjan Claasen	1306	-	Irrigation, livestock, domestic	Yes
WVR01	- 28.15420	- 22.97397	Vlakfontein	Willem van Rensburg	1297	-	Irrigation, livestock, domestic	Yes
WVR02	- 28.15420	- 22.97397	Vlakfontein	Willem van Rensburg	1297	-	Irrigation, livestock, domestic	Yes
KOOT01	- 28.08497	- 22.97538	Magoloring	Koot Claasen	1416	-	Irrigation, livestock, domestic	Yes
KOOT02	- 28.08497	- 22.97538	Magoloring	Koot Claasen	1416	-	Irrigation, livestock, domestic	Yes
KOOT03	- 28.08497	- 22.97538	Magoloring	Koot Claasen	1416	12.0	Irrigation, livestock,	Yes

Table 8-5: Results of Chemical Analysis

Borehole Description	Date Meas.	pH	EC mS/m	TDS mg/l	Malk mg/l	Cl mg/l	SO4 mg/l
SANS 241 (2011)	Drinking Water	≥5 - ≥9.7	≤170	≤1200		≤300	≤500 (acute health) ≤250 (aesthetic)
Risk Type		Operational	Aesthetic	Aesthetic		Aesthetic	Acute Health -1 and Aesthetic
B08	2013/05/24	8.45	11.30	49.00	48.00	<0.423	<0.04
CC01	2013/05/24	8.25	59.20	346.00	255.00	7.03	60.70
CC02	2013/05/24	8.19	55.50	324.00	228.00	3.66	70.60
CC03	2013/05/24	7.75	73.50	423.00	325.00	19.90	54.10
CC04	2013/05/24	7.91	56.50	309.00	248.00	12.40	35.70
CC06	2013/05/24	7.92	96.50	436.00	295.00	97.60	<0.04
DOOR01	2013/05/24	7.75	106.00	567.00	560.00	12.10	20.90
DOOR02	2013/05/24	7.77	86.70	460.00	452.00	12.50	12.90
DOOR10	2013/05/24	8.09	95.90	513.00	488.00	13.00	21.00
DP01	2013/05/24	7.78	77.50	397.00	386.00	14.40	4.81
DP02	2013/05/24	9.07	74.30	409.00	373.00	38.30	15.00
DP03	2013/05/24	8.33	111.00	655.00	646.00	18.80	35.60
DP04	2013/05/24	7.78	110.00	593.00	526.00	41.00	26.70
DRIE01	2013/05/24	7.66	104.00	580.00	576.00	12.80	24.50
GO102NC	2013/05/24	8.01	114.00	665.00	619.00	22.40	43.20
KVF01	2013/05/24	8.52	76.20	429.00	341.00	21.80	36.20
KVF02	2013/05/24	8.44	83.80	484.00	476.00	9.87	9.82
KOOT01	2013/05/24	8.42	91.40	463.00	254.00	66.10	29.50
KOOT02	2013/05/24	8.30	91.60	453.00	256.00	66.30	30.20
KOOT03	2013/05/24	8.47	92.70	462.00	264.00	66.80	30.50
CHRISJAN01	2013/05/24	8.04	77.30	432.00	334.00	27.30	33.50
CHRISJAN02	2013/05/24	8.44	51.10	281.00	245.00	9.40	20.90
WVR01	2013/05/24	7.77	73.10	382.00	172.00	46.10	57.90
WVR02	2013/05/24	7.73	72.90	380.00	172.00	45.90	57.80

Borehole Description	Date Meas.	pH	EC mS/m	TDS mg/l	Malk mg/l	Cl mg/l	SO4 mg/l
SANS 241 (2011)	Drinking Water	≥5 - ≥9.7	≤170	≤1200		≤300	≤500 (acute health) ≤250 (aesthetic)
Risk Type		Operational	Aesthetic	Aesthetic		Aesthetic	Acute Health -1 and Aesthetic
NIEMAND01	2013/05/24	8.10	65.90	359.00	243.00	25.20	31.10
NIEMAND02	2013/05/24	8.55	75.30	417.00	327.00	24.50	33.60
FARM446	2013/05/24	8.70	60.60	355.00	279.00	12.40	43.30
GLOU_COMM	2013/05/24	8.50	88.00	552.00	340.00	63.40	78.80
GLOU1	2013/05/24	8.47	116.00	689.00	395.00	83.70	127.00
KAPSTEWEL	2013/05/24	8.59	77.00	420.00	398.00	15.60	5.91
FARM437	2013/05/24	8.28	90.50	549.00	426.00	54.30	36.70
DRP20	2013/05/24	8.04	17.80	76.00	47.80	3.35	11.80
WATER_HOLE	2013/05/24	8.32	91.80	560.00	484.00	26.20	44.30
SWART_MODDER01	2013/05/24	8.67	82.10	429.00	379.00	21.90	12.30
FARM434	2013/05/24	8.54	63.50	297.00	219.00	17.50	16.30
W02	2013/05/24	8.57	76.60	430.00	300.00	33.30	43.50

Note: Red concentrations show exceedance of the SANS 241 guideline

Table continued:

Borehole Description	Date Meas.	NO3-N mg/l	NH4 mg/l	PO4 mg/l	F mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Al mg/l	Fe mg/l
SANS 241 (2011)	Drinking Water	≤11	≤1.5		≤1.5			≤200		≤0.3	≤2 (chronic health) ≤0.3 (aesthetic)
Risk Type		Acute health -1	Aesthetic		Chronic health			Aesthetic		Operational	Chronic health and aesthetic
B08	2013/05/24	0.15	0.26	0.08	0.19	16.10	2.82	<0.013	0.34	<0.003	<0.003
CC01	2013/05/24	0.09	0.10	0.05	0.66	76.50	31.20	14.30	2.25	<0.003	<0.003
CC02	2013/05/24	0.10	0.10	0.03	0.81	71.70	26.80	11.60	1.86	<0.003	<0.003
CC03	2013/05/24	0.65	0.12	0.05	0.36	89.30	39.60	21.60	2.93	<0.003	<0.003
CC04	2013/05/24	0.34	0.18	0.03	0.28	55.50	20.20	33.00	2.37	<0.003	<0.003
CC06	2013/05/24	0.16	49.40	<0.008	0.22	35.10	31.70	17.70	26.60	<0.003	1.71

Borehole Description	Date Meas.	NO3-N mg/l	NH4 mg/l	PO4 mg/l	F mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Al mg/l	Fe mg/l
SANS 241 (2011)	Drinking Water	≤11	≤1.5		≤1.5			≤200		≤0.3	≤2 (chronic health) ≤0.3 (aesthetic)
Risk Type		Acute health -1	Aesthetic		Chronic health			Aesthetic		Operational	Chronic health and aesthetic
DOOR01	2013/05/24	9.20	0.61	0.03	0.33	95.80	82.40	5.19	4.34	<0.003	<0.003
DOOR02	2013/05/24	4.27	0.14	0.06	0.31	88.50	64.60	4.49	0.94	<0.003	<0.003
DOOR10	2013/05/24	8.81	0.09	0.05	0.30	97.50	74.00	4.71	0.73	<0.003	<0.003
DP01	2013/05/24	5.13	0.13	0.03	0.26	77.80	56.70	4.75	1.08	<0.003	<0.003
DP02	2013/05/24	1.80	0.64	0.01	0.24	6.39	103.00	17.30	3.24	<0.003	<0.003
DP03	2013/05/24	2.92	0.14	0.15	0.34	97.90	96.80	10.10	5.42	<0.003	<0.003
DP04	2013/05/24	14.90	0.07	0.04	0.26	92.60	83.20	15.20	3.47	<0.003	<0.003
DRIE01	2013/05/24	5.34	0.06	0.04	0.26	109.00	80.40	1.92	<0.018	<0.003	<0.003
GO102NC	2013/05/24	5.75	0.11	0.04	0.31	124.00	89.30	8.08	0.19	<0.003	<0.003
KVF01	2013/05/24	8.42	0.09	0.04	0.31	87.80	58.90	10.10	1.06	<0.003	<0.003
KVF02	2013/05/24	2.05	0.07	0.04	0.31	100.00	69.70	4.75	1.23	<0.003	<0.003
KOOT01	2013/05/24	33.20	0.05	0.04	0.25	89.20	63.50	25.80	2.91	<0.003	<0.003
KOOT02	2013/05/24	32.80	0.06	0.05	0.27	82.00	59.50	25.60	2.63	<0.003	<0.003
KOOT03	2013/05/24	32.30	0.06	0.04	0.30	86.10	59.40	25.40	2.69	<0.003	<0.003
CHRISJAN01	2013/05/24	6.00	0.05	0.04	0.37	99.10	40.30	22.30	2.41	<0.003	<0.003
CHRISJAN02	2013/05/24	1.76	0.21	0.21	0.34	54.10	38.90	8.04	0.97	<0.003	<0.003
WVR01	2013/05/24	26.70	0.06	0.04	0.24	90.90	41.50	15.70	0.30	<0.003	<0.003
WVR02	2013/05/24	26.20	0.05	0.04	2.45	91.10	39.40	14.40	0.19	<0.003	<0.003
NIEMAND01	2013/05/24	15.80	0.27	0.04	0.32	87.00	35.90	18.10	0.16	<0.003	<0.003
NIEMAND02	2013/05/24	8.66	0.06	0.04	0.32	90.60	53.20	9.51	0.77	<0.003	<0.003
FARM446	2013/05/24	0.30	0.75	0.04	0.95	47.10	40.80	40.70	0.75	<0.003	<0.003
GLOU_COMM	2013/05/24	1.94	0.01	0.04	0.42	88.80	55.40	53.10	5.64	<0.003	<0.003
GLOU1	2013/05/24	1.23	0.09	0.04	0.25	91.80	85.00	62.50	0.47	<0.003	<0.003
KAPSTEWEL	2013/05/24	4.91	0.09	0.04	0.26	83.10	64.10	6.03	1.04	<0.003	<0.003
FARM437	2013/05/24	7.97	0.09	0.04	0.35	94.40	88.70	10.20	0.70	<0.003	<0.003
DRP20	2013/05/24	2.89	0.10	0.04	0.26	13.60	9.10	2.66	3.15	<0.003	<0.003

Borehole Description	Date Meas.	NO3-N mg/l	NH4 mg/l	PO4 mg/l	F mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Al mg/l	Fe mg/l
SANS 241 (2011)	Drinking Water	≤11	≤1.5		≤1.5			≤200		≤0.3	≤2 (chronic health) ≤0.3 (aesthetic)
Risk Type		Acute health -1	Aesthetic		Chronic health			Aesthetic		Operational	Chronic health and aesthetic
WATER_HOLE	2013/05/24	2.63	0.11	0.05	0.32	90.70	92.50	12.00	1.19	<0.003	<0.003
SWART_MODDER01	2013/05/24	9.43	0.14	0.04	0.35	75.80	71.70	8.71	0.99	<0.003	<0.003
FARM434	2013/05/24	13.40	0.14	0.04	0.33	65.40	32.90	19.00	0.76	<0.003	<0.003
W02	2013/05/24	9.72	0.09	0.03	0.42	99.80	42.00	18.70	2.61	<0.003	<0.003

Note: Red concentrations show exceedance of the SANS 241 guideline

8.4.1.8 Air quality

Current potential air emissions sources within the study area include mining activities, blasting activities from the nearby military base and mines, dust emissions from the use of gravel access roads, vehicle exhaust emissions and farming activities. Dust levels are expected to be relatively high due to sparse vegetation cover and naturally exposed areas. Available baseline air quality data will be provided in the EIR report.

8.4.1.9 Noise

The baseline noise level in the area is expected to be typical of a rural area. It is however likely that the R325, the Postmasburg railway line and existing mining activities have increased the ambient noise levels. Baseline noise levels will be provided in the EIA report.

8.4.1.10 Heritage/cultural and paleontological resources

Cultural and Heritage and Resources

In 2010 a Heritage Impact Assessment was undertaken by Lita Webley and David Halkett in terms of proposed prospecting activities on the farms Driehoekspan and Doornpan (Webley & Halkett, 2010a & b). A total of three sites were identified on Driehoekspan, which included one findspot comprising a Quartzite Early Stone Age core, a historic structure of unknown function as well as a possible Later Stone Age knapping site.

PGS Heritage & Grave Relocation Consultants undertook a scoping level heritage impact study in May 2013. Archival and historical research has revealed a long and significant history in terms of the surroundings of the study area (PGS Heritage, 2013). The surroundings of Postmasburg and the study area also contain a number of well-known pre-colonial mining sites, rock art sites as well as Stone Age sites, most notably Blinklopkop, a pre-colonial specularite mine located approximately 10km southeast of the study area.

Based on archival and historical maps of the study area, three farmsteads, two located on the farm Driehoekspan and one on the farm Doornpan, could be at least 85 years old (PGS Heritage, 2013). As such, these farmsteads could constitute significant heritage resources. These farmsteads are however not located near the proposed mining activities and will not likely be disturbed by the proposed development. In addition, various low significance heritage resources, as well as a medium significance resource are located within the project area and the project team has used this information to avoid these resources where possible (refer to Figure 8-1). It should however be noted that a heritage study is required to verify these sites which have been found in literature.

TABLE 8-6: HERITAGE RESOURCES WITHIN THE PROJECT AREA (PGS, 2013)

Number	Description	Heritage significance
DRHP 1	Ox Wagon and associated historic site	Still to be established
DRHP 2	Later Stone Age findspot	Low
DRHP 3	Middle / Later Stone Age site	Low
DRHP 4	Early Stone Age findspot	Low
DRHP 5	Middle Stone Age site	Low
DRHP 6	Low	Later Stone Age site
DRHP 7	Later Stone Age site	Medium
DRHP 8	Structure	Low
DRHP 9	Early Stone Age findspot	Low
DRHP 10	Later Stone Age site	Low
DRNP 1	Later Stone Age site	Low
DRNP 2	Specularite "Mine" of Unknown Age	Falls outside project area
DRNP 3	Middle Stone Age findspot	Low
DRNP 4	Early Stone Age findspot	Low

Paleontological Resources

With respect to paleontological resources, the study areas are underlain by chemical and clastic sedimentary sequences of the Campbell and Postmasburg Groups of the Transvaal Supergroup. These sedimentary sequences are associated with banded iron formations in the Postmasburg region where mining is envisaged. The dolomite sequences can contain good examples of stromatolite structures that are of medium paleontological significance. It must be noted however that the presence (or absence) of these sites can only be confirmed during fieldwork to be conducted during the EIA phase of the project.

8.4.1.11 Socio-economic

Nearest Community

Members of the Maremane community were dispossessed of their land for the purposes of establishing the Lohatla Military Base in the 1970s. The displaced people were taken to places such as Laxey, Pepsi and the surrounding areas of Kuruman (The New Age, 24 April 2012). According to the Rural Development and Land Reform's former deputy minister in 2010 Mr Thulas Nxesi, the Maremane community lost land (South African Government Information, 4 December 2010). Post 1994 the community lodged a claim to have their land returned and in 2010 the community was handed over 11 200 ha of land on properties surrounding the military base. The majority of the people are currently residing in an informal settlement located on Farm Lohatla. This settlement area is currently referred to as "Lohatla" by its inhabitants. There are little economic activities occurring in the area except for a local shop and a crèche. During the public meeting held with the community, it was evident that the unemployment rate is in fact low. There is also a small group of people living on the Farm Driehoekspan who are involved in agricultural activities (goat and sheep farming).

The current areas where the Maremane community are residing are not included in the local municipality's town planning scheme and therefore there are some challenges with service delivery.

Regional Demographic Information

Demacon Market Studies conducted a baseline socio-economic baseline assessment in a 50 km radius of the project area. The area has an estimated population of 63 243 or 17 931 households in 2013. The average household size amounts to approximately 3.5 members per household. The population growth is averaged at 1.4% per annum (Demacon, 2013). This is summarised below:

- **Demographics:** The study area is characterised by a relatively large percentage of young adults between the ages of 20-34 years (30.5%). This can be attributed to the employment opportunities due to mining developments in the area.
- **Regional and local economic structure:** Tsantsabane's local economy contributes to approximately 17% of the district's economy and it is the third largest economy in the district. The municipality hosts one of the country's largest iron ore reserves, and as such, mining is an important sector within the municipality contributing approximately 39% of the local economy in 2011.
- **Level of Economic Diversity:** The level of economic diversity of a region can be measured using the tress index. A tress index of zero represents a totally diversified economy and the higher the tress index (closer to 100), the more concentrated or vulnerable the region's economy. Tsantsabane local economy dependence on its driving sectors decreased from 64.1 in 2001 to 60.2 in 2011. The growth in transport and communications sector over the past few years has led to the decrease in dependency on the mining sector.
- **Education Profile:** The area has moderate figures of illiteracy with 9.3% having had no schooling. 27.6% of the population has at least Grade 12 or obtained higher education. The education profile of the surrounding communities will be determined during the EIA phase
- **Employment Profile:** The majority of the population is economically active (88.6%) while 11.4% are not economically active. Of the 88.6% that are economically active, 84.4% are employed while 15.6% are unemployed. The low level of unemployment can be ascribed to the rural nature of the study area, with people only moving in the area for employment purposes to work in the mining or government sectors as the major employment sectors.

8.4.2 DESCRIPTION OF THE CURRENT LAND USES

Current land use in the project area

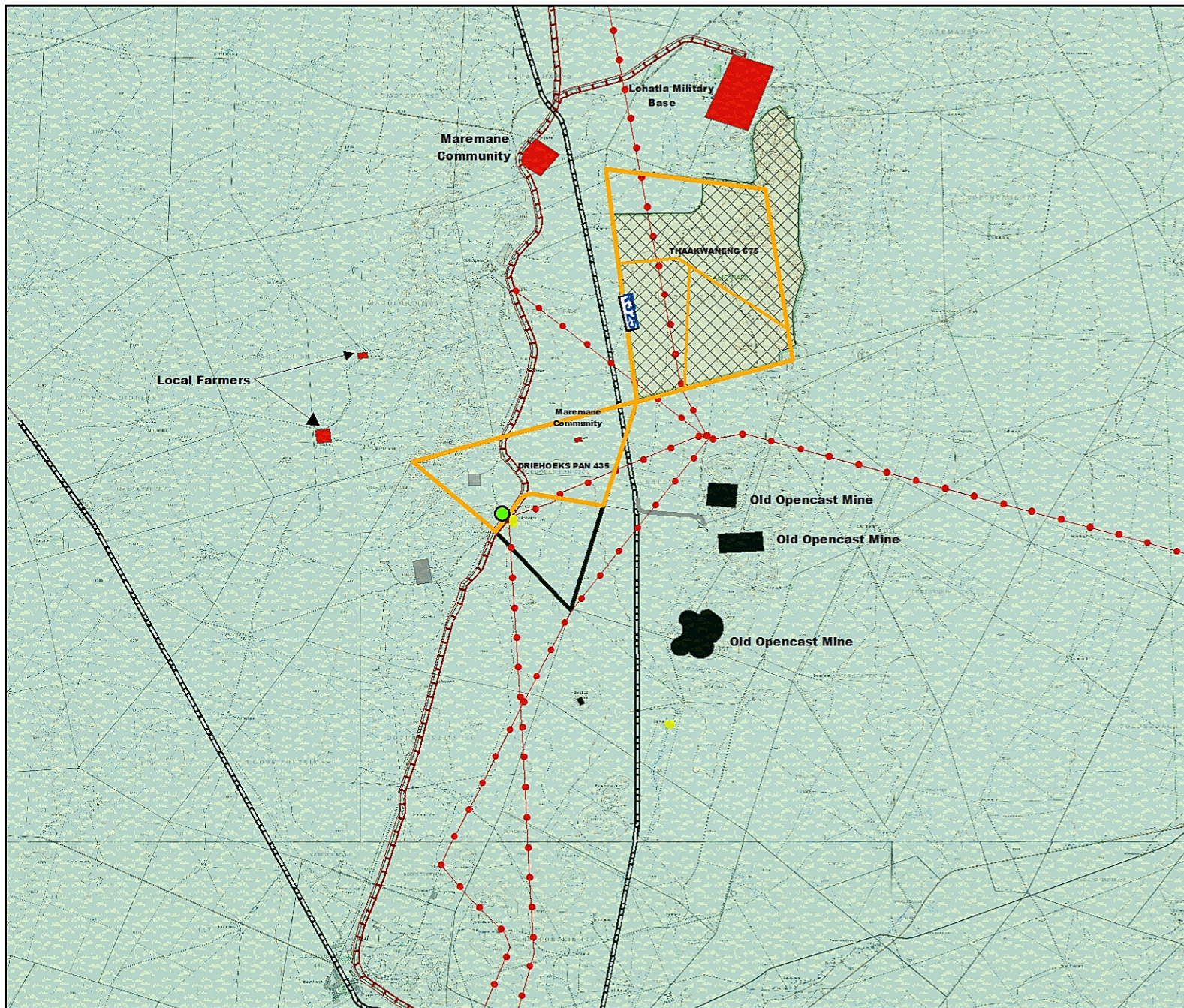
The study area is within a rural district zoned for agricultural use. The dominant land use in the study area and the area surrounding the COZA Iron Ore Project is livestock farming. Due to the arid nature of the climate, intensive commercial agriculture is not possible. A possible human settlement consisting of a few buildings believed to belong to the Maremane community occur on the farm Driehoekspan, to the

east of proposed infrastructure, however these buildings appear to be abandoned and the use of these buildings will need to be verified during the EIA phase (refer to Figure 8-7). There are also human settlements to the east and north of the study areas, these include the residents of two local farmers and the Maremane Community which are more than 9 km away from the project area (refer to Figure 8-7). Mining activities and the infrastructure associated with mining activities (powerlines and railway) are also prevalent in the area, due to the presence of iron ore in this region. Eskom powerlines traverse both Driehoekspan and Thaakwaneng and the R325 to Kathu crosses Driehoekspan as shown in Figure 8-7. A Transnet Railway Line crosses the north-eastern corner of Driehoekspan and links Beeshoek Mine to Sishen Mine and ultimately to the Sishen Saldanha export line. There is a gravel road associated with this transnet railway line. There are a number of abandoned buildings associated with the railway line on farm Driehoekspan.

Surrounding land uses and infrastructure

Two local farmers who are involved in low intensity stock farming (cattle and sheep) also surround the study area. The location of these farmers is shown in Figure 8-7 There is a game farm on the farm Thaakwaneng 675, however no mine related surface infrastructure or activities are planned on this farm at this stage.

Approximately 10 km north-east of the project area is the Lohatla Military Base, which is used as a training area for the South African National Defence Force. The military base is located in an area that was proclaimed as a nature reserve (Ga-Thlose Nature Reserve) in 1890. Part of the farm where the military base is located is now currently used as a game park.



Legend

Land Use

- Grazing (Light green background)
- Abandoned Buildings (Yellow square)
- Game Park (Cross-hatch pattern)
- Historical Mining (Grey square)
- Human Settlement (Red square)
- Mining (Black irregular shape)
- Substation - Eskom (Green circle)

— Access Road
 == Main Road
 - - - Railway
 . . . Power Lines
 [] Property Boundaries

N
W E S

Kilometers
0 2 4

SLR Synergistics is an SLR group company

Figure 8 -7: Current Land Use

SO707

Coordinate System
 DMS
 Spheroid WGS84 Central Meridian LO

8.4.3 DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON THE SITE

The environmental features in the project area are described in Section 8.4.1 above. Notable are the wetlands features which are discussed in Section 8.4.1.6. Infrastructure within and close to the project area is discussed in Section 8.4.2 above.

8.4.4 ENVIRONMENT AND CURRENT LAND USE MAP

A conceptual map showing land uses on and immediately surrounding the project area is provided in Figure 8-7. This may be refined during the EIA Phase.

8.5 IMPACTS IDENTIFIED

This section identifies the potential impacts of the proposed project, which applies to all of the WRD alternatives. This table also provides an indication of which phase of the project the potential impact is relevant to. These are discussed in more detail in Section 8.7 below. The impact assessment will be informed by specialist studies and will be refined in the EIA Phase.

TABLE 8-7: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS IDENTIFIED FOR THE PROPOSED PROJECT

Impact	Project phase			
	Construction	Operations	Decommissioning	Post closure i.e. possible residual risk
Loss of mineral resources				
Hazardous excavations/structures				
Loss of soil resources and land capability through contamination				
Loss of soil resources and land capability through physical disturbance				
Physical destruction of biodiversity				
General disturbance of biodiversity				
Alteration of drainage patterns				
Pollution of surface water resources				
Dewatering				
Contamination of groundwater				
Air pollution				
Noise pollution				
Negative landscape and visual impacts				
Loss of current land uses				
Blasting hazards				

Impact	Project phase			
	Construction	Operations	Decommissioning	Post closure i.e. possible residual risk
Project-related road use and traffic				
Destruction and disturbance of heritage (including cultural) and paleontological resources				
Economic impact (positive impact)				
Inward migration impact				

8.6 METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

The proposed method for the assessment of environmental issues is set out in the Table 8-8. This assessment methodology enables the assessment of environmental issues including: cumulative impacts, the severity of impacts (including the nature of impacts and the degree to which impacts may cause irreplaceable loss of resources), the extent of the impacts, the duration and reversibility of impacts, the probability of the impact occurring, and the degree to which the impacts can be mitigated.

TABLE 8-8: CRITERIA FOR ASSESSING IMPACTS

Note: Part A provides the definition for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D.

PART A: DEFINITION AND CRITERIA*	
Definition of SIGNIFICANCE	Significance = consequence x probability
Definition of CONSEQUENCE	Consequence is a function of severity, spatial extent and duration
Criteria for ranking of the SEVERITY of environmental impacts	H Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action.
	M Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints.
	L Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	L+ Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+ Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+ Substantial improvement. Will be within or better than the recommended level. Favourable publicity.
Criteria for ranking the DURATION of impacts	L Quickly reversible. Less than the project life. Short term
	M Reversible over time. Life of the project. Medium term
	H Permanent. Beyond closure. Long term.
Criteria for ranking the SPATIAL SCALE of impacts	L Localised - Within the site boundary.
	M Fairly widespread – Beyond the site boundary. Local
	H Widespread – Far beyond site boundary. Regional/ national

PART B: DETERMINING CONSEQUENCE

SEVERITY = L

DURATION		H	Medium	Medium	Medium
	Long term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short term	L	Low	Low	Medium

SEVERITY = M

DURATION		H	Medium	High	High
	Long term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Low	Medium	Medium

SEVERITY = H

DURATION		H	High	High	High
	Long term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Medium	Medium	High
			L	M	H
			Localised	Fairly widespread	Widespread

			Within site boundary Site	Beyond site boundary Local	Far beyond site boundary Regional/ national
SPATIAL SCALE					
PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/ Continuous	H	Medium	Medium	High
	Possible/ frequent	M	Medium	Medium	High
	Unlikely/ seldom	L	Low	Low	Medium
			L	M	H
CONSEQUENCE					

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M= medium and L= low and + denotes a positive impact.

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

Potential impacts that were identified during the scoping process, in consultation with IAPs, are discussed under environmental component headings in this section. These discussions should be read with the corresponding descriptions of the baseline environment in Section 8.4.1 of the scoping report.

The potential impacts associated with all the phases (construction, operations, decommissioning and closure) have been conceptually identified and described and reference has been made to the studies/investigations that are required to provide the necessary additional information. This includes a discussion on alternatives, where appropriate.

It must be noted that the conceptual discussion and characterisation of the potential impacts has been completed within the context of available information. These assessments will be adjusted if needed in the EIA Phase with specialist input, as appropriate.

8.7.1 GEOLOGY

ISSUE: LOSS OF MINERAL RESOURCES

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The impact of the proposed project on the target ore body and the overburden and rock above this ore body is necessary for the project and unavoidable. The impact is expected to be of long-term duration and low spatial scale, the probability is definite and the severity is expected moderate. This assessment will apply to all three WRD and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.2.1 of the scoping report.

ISSUE: STERILISATION OF MINERAL RESOURCESProject phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

By the nature of mining projects the geology is exploited for the target minerals therefore the impact on the geology in the open pit area will be high in all project phases. It is important, however, that no potential future resources be sterilised as it may become feasible to mine them in the future. Significantly, there will be no sterilisation of third party minerals either by mining activities or by the placement of surface infrastructure. This assessment will apply to all three WRD alternatives and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.2.1 of the scoping report.

8.7.2 TOPOGRAPHY**ISSUE: CHANGES IN TOPOGRAPHY**Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The topography in the project area will be changed by project related activities. The topography of the site could be altered through:

- Hazardous excavations and the dangers they present to animals and humans
- Alteration of drainage patterns (discussed further under Section 8.7.8)
- The presence of infrastructure (visual-related impacts discussed further under Section 8.7.12).

The construction of surface infrastructure and establishment of the open pit will present hazardous excavations and infrastructure which pose a danger to humans and animals. During the construction phase this could include foundations and trenching, as well as the establishment of scaffolding and

cranes. The waste rock dump and open pit will remain for the duration on the operational phase and will present a potential hazardous structure during this phase.

The actual process of infrastructure removal during decommissioning could also require temporary hazardous structures such as scaffolding, and some excavations. The open pit will be fully backfilled upon closure and depending on material settlement subsidence could be an issue. No residue facilities are expected to remain on site upon closure.

In the event of injury to third parties or humans, the potential health impact could be severe and long-term in nature. The spatial scale may extend beyond the project site to the communities to which the injured people or animals belong. The overall severity in the unmitigated scenario is expected to be high and reduce to moderate in the mitigated scenario by a reduction in probability. This assessment will apply to all three WRD alternatives and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.2.2 of the scoping report.

8.7.3 SOILS AND LAND CAPABILITY

ISSUE: LOSS OF SOIL AND CHANGE IN LAND CAPABILITY THROUGH STERILISATION, EROSION AND CONTAMINATION

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Topsoil is generally a resource of high value containing a gene bank of seeds of indigenous species. A loss of topsoil (through sterilisation, erosion or contamination) would generally result in a decrease in the rehabilitation and future land use potential of any land that is disturbed by the construction of the proposed infrastructure and mining activities. Topsoil and subsoil will be disturbed during the construction phase when the footprint areas for surface infrastructure will be stripped. The topsoil and subsoil will be stockpiled for use during rehabilitation upon closure of the mine.

Progressive topsoil stripping will occur during the operational phase as the open pit advances. This topsoil stripping and stockpiling will need to be carefully managed. In addition, improper management of topsoil stockpiles during this phase and accidental spills could also result in a loss of topsoil through contamination, erosion and compaction.

At decommissioning, the topsoil and subsoil will be used to rehabilitate the various sites after the infrastructure has been removed. However, the actual process of infrastructure removal during decommissioning could cause soil erosion and contamination.

No residual impacts are expected after closure in the mitigated scenario if the rehabilitation is well managed and implemented correctly.

Little information is currently available of the land capability within the project area; however the land is currently used for grazing, which suggests that it has low cropping potential. The potential impact is expected to be of medium severity, medium-term duration and reversible with proper management of topsoil stockpiles and rehabilitation. The potential impact on soil and land use is expected to be moderate in the unmitigated scenario and reduced to low in the mitigated scenario. This assessment will apply to all three WRD alternatives and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.7 of the scoping report.

8.7.4 LAND USE

Issue: Impact on existing land uses

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The land use and capability will be changed from agriculture to mining during the construction, operational and decommissioning phases of the proposed project. Adjacent land uses, such as agriculture, mining, and the transnet railway that traverses the project area, could potentially be affected by the mining activities during the all project phases.

At this stage it is anticipated that the surface infrastructure would be removed upon decommissioning, and the open pit will be fully backfilled. Most of the project area would be returned to an agricultural land use after mine closure.

The incremental impact of changing land use to mining for the medium-term is expected to be moderate and reversible with proper rehabilitation. The significance of the impact is expected to be high/moderate in the unmitigated scenario and reduce to low in the mitigated scenario. This assessment will apply to all three WRD alternatives and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.2.3 of the scoping report.

8.7.5 TRAFFIC

Issue: Disturbance of roads by project-related traffic

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The R325 is currently used by heavy vehicles from surrounding mines. Traffic from the Driehoekspan operation, which will include heavy machinery and trucks, will also make use of the R325 and will increase traffic volumes on the road during the construction and operation phase. This increase in traffic will potentially result in an increased cumulative impact on motorists and pedestrians using the R325 and potentially increase safety risks and maintenance requirements on the road. There is likely to be an increase in traffic on local roads during the construction, operation and decommissioning phases. The severity is expected to be moderate and the spatial scale limited. The traffic impact is fully reversible and will cease upon closure of the mine. The significance of the impact is expected to be moderate in the unmitigated scenario and reduce to low in the mitigated scenario. This assessment will apply to all three WRD and support infrastructure alternatives since the access point will remain unchanged. The additional work required to address this issue is described in 9.3.9?? of the scoping report.

8.7.6 BLASTING

Issue: Blasting-related impacts

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Blasting is required for the proposed open pit mining. Blasting activities have the potential to impact on people, animals and structures located in the vicinity of the operation. Blast hazards include ground vibration, airblast, fly rock, blast fumes and dust. Ground vibrations travel directly through the ground and have the potential to cause damage to surrounding structures. Airblasts result from the pressure released during the blast resulting in an air pressure pulse (wave), which travels away from the source and has the potential to damage surrounding structures. Fly rock is the release of pieces of rock over a distance and can be harmful to people and animals and damage structures and property. Blast fumes and dust, caused by the explosion, can be considered air emissions.

The potential impact could have a high severity in the case of serious injury or death and this would be long-term or permanent. The spatial scale may extend beyond the mine boundaries. The probability of injury to third party or damage to third party infrastructure is considered to be moderate in the unmitigated scenario. The overall significance is expected to be high in the unmitigated scenario and moderate in the mitigated scenario. This assessment will apply to all three WRD alternatives and support infrastructure alternatives since blasting will only occur at the open pit. The additional work required to address this issue is described in Section9.2.5 of the scoping report.

8.7.7 BIODIVERSITY

Issue: Loss or disturbance of natural vegetation and animal life

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The proposed activities associated with the project have the potential to damage or disturb natural flora, fauna and related ecosystem functionality. The proposed development area falls within the Griqualand West Centre of Endemism (GWC) as defined by van Wyk and Smith (2001). According to van Wyk and Smith (2001), the GWC is considered a priority area for conservation in the Northern Cape, as the number of threats to the area is increasing rapidly, little research has been conducted on the GWC and the GWC is poorly understood.

The ecosystem status of vegetation types in the project area is considered to be least threatened, as more than 80 % of their original extent is untransformed (Anderson, 2014). In general, the habitat is not predicted to be critical to the survival, in terms of breeding, roosting or foraging of any of the locally occurring conservation-worthy faunal species (Wilson, 2014). In addition, the area is fairly significantly degraded due to historical over-utilisation.

The project area does not fall within any biodiversity priority area identified by the Mining and Biodiversity Guideline, nor any areas earmarked for expansion of a National Protected Area.

According to the NFEPA database, there is a FEPA wetland on the farm Driehoekspan. The proposed open pit mining could impact on this FEPA wetland through dewatering activities.

Two tree species protected under the National Forests Act (NFA 1998) were found to occur in the project area. These include the Camel Thorn Tree (*Acacia erioloba*) (1 large tree observed) and the shepherd's tree (*Boscia albitrunca*) (\pm 220 trees observed) (Anderson, 2014). Faunal species diversity and numbers in the region is relatively low as is typical of semi-desert areas (Wilson, 2014). A potential indirect impact that could affect protected tree species is dewatering. The camel thorn (*Acacia erioloba*) is a species which is sensitive to changes in depth to the water table. An upper perched aquifer may be affected by the cone of depression, and if so, this effect may also extend away from the proposed open pit mine.

The area proposed for development and its immediate surrounds is largely undeveloped. However, considerable degradation of the natural habitat has occurred in the region due mainly to mining, especially on the iron and manganese ore hills and outcrops between Kathu and Postmasburg. A number of game farms are found in the region; most notably a game farm on the farm Thaakwaneng.

In terms of fauna, the site has a low sensitivity based on the fact that only Least Concerned, Data Deficient and Near Threatened species are routinely recorded in the area and veld type in general. In addition, it is unlikely that the area constitutes critically important habitat or resources of the species of conservation concern. Any pans or streams in the area are however considered to have a medium sensitivity, due to the use of them by Giant Bullfrogs in the area, which are a Near Threatened and a Protected Species.

The potential impact is therefore rated as having a high/moderate severity, medium spatial scale and moderate probability. Impacts on biodiversity should be largely reversible with effective rehabilitation. The overall significance of the potential impact is expected to be high/moderate in the unmitigated scenario and moderate in the mitigated scenario. This assessment will apply to all three WRD alternatives and support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.2 of the scoping report.

8.7.8 HYDROLOGY (SURFACE WATER)

Issue: Altering drainage patterns

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The proposed open pit mining activities will encroach on an ephemeral drainage line which according to the NFEPA database is a FEPA on the farm Driehoekspan, however this drainage line does not flow regularly. Additional impacts could include the reduction of runoff through the placement of infrastructure and collection of dirty water runoff as required by legislation. The severity of the impact could be high/moderate and depends on the amount of runoff lost from the catchment and if the ephemeral drainage line and associated wetland is diverted. The spatial scale would extend beyond the mine area and probability is definite. The impact would be for the life of the mine and proper rehabilitation should reverse most drainage pattern impacts. The overall significance is expected to be high/moderate in the unmitigated phase and this could only be reduced after closure if the drainage line and associated wetland is reinstated. This assessment will apply to all three WRD alternatives. The additional work required to address this issue is described in Section 9.2.5 of the scoping report.

Issue: Contamination of Surface Water

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Projects of this nature will generally present a number of pollution sources that can have a negative impact on surface water quality if unmanaged. The following pollution sources may exist: fuel and

lubricants, sewage, mine residue (waste rock, screenings, stockpiles), dirty water circuit, chemicals, non-mineralised waste (hazardous, general), and erosion of particles from exposed soils in the form of suspended solids. If the backfilled open pit decants it could contaminate surface water resources after closure. The potential impact is expected to have a high severity, medium spatial scale in the event pollution leaves the mine boundaries and the probability is moderate. The overall significance is expected to be high/moderate in the unmitigated scenario and reduce to moderate/low in the mitigated scenario. This assessment will apply to all three WRD alternatives. The additional work required to address this issue is described in Section 9.2.5 of the scoping report.

8.7.9 GROUNDWATER

Issue: Reducing groundwater levels and availability

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Groundwater levels could be reduced by dewatering at the proposed open pit during the operational phase. Dewatering will cease once the open pit has been mined out and backfilled and the groundwater table should recover to its pre-mining level over a period of time. If there are groundwater users within the predicted cone of depression this could have a high severity, medium duration and probability. The overall significance of this potential impact is expected to be high/moderate in the unmitigated scenario and low in the mitigated scenario. This assessment will apply to all three WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.1 of the scoping report.

Issue: Contamination of groundwater

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Groundwater could become contaminated through the incorrect stockpiling of potentially polluting waste materials on the site during the construction and decommissioning of infrastructure. Possible sources of groundwater contamination are fuel and lubricants, sewage, mine residue (waste rock, screenings, stockpiles), dirty water circuit, chemicals, non-mineralised waste (hazardous, general), and erosion of particles from exposed soils in the form of suspended solids. The backfilled pit may also present a pollution source. The severity is expected to be high/moderate with a medium spatial scale and moderate probability. The overall significance of the impact is expected to be high/moderate in the unmitigated scenario and moderate/low in the mitigated scenario. This assessment will apply to all three

WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.1 of the scoping report.

8.7.10 AIR QUALITY

Issue: Pollution from emissions to air

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Mining and mineral processing projects present a number of air pollution sources that can have a negative impact on ambient air quality and surrounding land uses. Site establishment with the removal of vegetation and topsoil as well as open pit mining may generate dust (both nuisance dust and inhalable dust) and mining vehicles and equipment will emit exhaust fumes. This could have a negative impact on ambient air quality and receiving communities/land uses and could result in health impacts for receptors if unmanaged. A number of other dust generating activities occur in close proximity proposed operation. These activities are mainly mining related and include blasting and the transport and handling of iron and manganese ore at Sedibeng Mine, approximately 5km north of the proposed development site, as well as Beeshoek Mine, approximately 15 km south west of the proposed development site. The generation of dust at the proposed mine site and surrounding mines may present a cumulative impact to receptors surrounding the proposed mine sites. The proposed operation is likely to increase the level of dust and could result in an impact of high severity, medium duration and limited spatial scale. The overall significance is expected to be moderate due to the nearest human receptors being located far enough away for most dust to settle and low in the mitigated scenario where dust is effectively suppressed. This assessment will apply to all three WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.3 of the scoping report.

8.7.11 NOISE

Issue: Increase in disturbing noise levels

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Site clearing activities, vehicle movements and blasting on site will increase the ambient noise levels in the immediate vicinity during the construction phase. Blasting and general mining activities will also increase ambient noise levels during the operational phase, as will rehabilitation activities due to vehicle movement and other activities during decommissioning. Other nearby noise sources include the R325 and the Sedibeng Mine. The generation of noise at the proposed mine site and surrounding noise

sources may present a cumulative impact to surrounding sensitive receptors. The severity could be high/moderate, the duration will be limited to the life of mine and the impact is fully reversible. The overall significance is expected to be high/moderate in the unmitigated scenario and moderate/low in the mitigated scenario. This assessment will apply to all three WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.4 of the scoping report.

8.7.12 VISUAL ASPECTS

Issue: Negative visual impacts

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The construction, operation and decommissioning of the open pit and associated surface infrastructure will alter the visual character of the project area. There are however other mining operations within the vicinity that have already degraded the visual character of the area. The visual impact severity of the proposed operation is expected to be high/moderate. The duration will be long term however with effective mitigation the visual impacts can be minimised. The overall significance is expected to be high/moderate in the unmitigated scenario and moderate/low in the mitigated scenario. This assessment will apply to all three WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.3.5 of the scoping report.

8.7.13 HERITAGE RESOURCES

Issue: Loss of or damage to heritage and/or paleontological resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Site clearance, deposition of overburden, waste and earth moving activities to allow for the construction of mine infrastructure and the development of the mine could impact on potential heritage and paleontological resources. There are sites of archaeological importance that have been identified in the project area. In addition, the dolomite deposits in the study area might contain stromatolite structures which are considered to be of medium paleontological importance.

The severity of potential impacts on paleontological resources is expected to be moderate/high and permanent, with little mitigation possible. With regard to heritage resources on surface, most of the heritage sites have low or moderate significance. The project team has considered the presence of heritage resources in developing the site layout, therefore the probability of damaging these resources

especially with mitigation is considered to be low. The overall significance of the potential impacts on heritage resources is regarded as moderate in the unmitigated scenario and low in the mitigated scenario. These assessments will apply to all three WRD alternatives and the support infrastructure alternatives. The additional work required to address this issue is described in Section 9.2.4 (paleontological) and Section 9.3.6 (heritage) of the scoping report.

8.7.14 SOCIO-ECONOMIC ISSUES

Issue: Positive and negative impacts

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The proposed project could have positive and/or negative impacts on the following:

- Employment for local communities
- Stimulation of the local and national economy
- Increase in traffic on the local roads
- Influx of people into the area in search of work, leading to informal settlements and associated problems of crime, disease, and social disruption
- Increased pressure on housing and related services (water, power, sanitation, rubbish removal, schooling)
- Reduced quality of life for surrounding landowners
- Possible reduced property values.

The positive and negative impacts may be of high/moderate severity, moderate spatial scale and moderate probability. The overall significance is expected to be high/moderate in the unmitigated scenario and moderate/low in the mitigated scenario for negative impacts. The positive economic impacts may remain moderate with mitigation measures designed to enhance these positive impacts. This assessment will apply to all three WRD alternatives 1 and 3 and the eastern support infrastructure alternative. The additional work required to address this issue is described in Section 9.3.8 (social) and Section 9.3.9 (economic) of the scoping report.

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

The table below provides a list of the potential impacts and conceptual management and mitigation measures. The level of residual risk after closure is also estimated. This assumes that the open pit will be fully backfilled and the overall site is rehabilitated to as close to the pre-mining state as possible. This will be refined during the EIA Phase with specialist input as appropriate.

TABLE 8-9: POSSIBLE MITIGATION MEASURES AND ANTICIPATED LEVEL OF RESIDUAL RISK

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
Mining of ore body	Loss of mineral resources	No mitigation possible	High
Earthworks Civil works Site management Mineralised waste management Open pit mining Decommissioning Rehabilitation	Hazardous excavations/structures	Objective: prevent physical harm to third parties and animals from hazardous excavations and infrastructure. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Access control, barriers and warning signs at hazardous areas • Design, operate and rehabilitate the residue facility in a manner to address stability related safety risks to third parties and animals • Operate the open pit in a manner to address stability related safety risks to third parties and animals • Full backfilling of the open pit • Monitoring and maintenance post closure to observe whether the relevant long-term safety objectives have been achieved and to identify the need for additional intervention where the objectives have not been met • Where Coza has caused injury or death to third parties and/or animals, 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
		appropriate compensation will be provided.	
Site preparation Earthworks Civil works Site management Use of transport systems Non-mineralised waste management Mineralised waste management Use of support services and amenities	Loss of soil resources and land capability through contamination	Objective: prevent pollution of soils through accidental spills and/or leaks from equipment. Conceptual mitigation measures to prevent pollution include: <ul style="list-style-type: none"> • Basic infrastructure design that is adequate to contain polluting substances • Training of workers to prevent pollution • Equipment and vehicle maintenance • Fast and effective clean-up of spills • Effective waste management. 	Low
Open pit mining Use of power supply infrastructure Decommissioning Rehabilitation	Loss of soil resources and land capability through physical disturbance	Objective: minimise the loss of soil resources and related functionality through physical disturbance, erosion and compaction. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Limit site clearance • Develop and implement a soil management plan that addresses soil stripping, stockpiling and use for rehabilitation. 	Low
Site preparation Earthworks Site management Use of transport systems Non-mineralised waste management Mineralised waste	Physical destruction of biodiversity	Objective: prevent the unacceptable loss of biodiversity and related ecosystem functionality through physical destruction. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Limit site clearance • Develop a site clearance plan which addresses delineation of the area to be cleared, relocation of any protected species or species of concern with 	Medium

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
management Use of support services and amenities Open pit mining Use of power supply infrastructure Decommissioning Rehabilitation	General disturbance of biodiversity	relevant approvals and rehabilitation of areas no longer in use <ul style="list-style-type: none"> • Avoid sensitive areas as far as practically possible • Effective rehabilitation to as close to pre-mining conditions as practically possible. Objective: prevent unacceptable disturbance of biodiversity and related ecosystem functionality. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Worker training on the value of biodiversity • Zero tolerance for harming and harvesting fauna and flora • Limit light and noise disturbance as far as practically possible • Effective waste management and pollution prevention • Effective rehabilitation to as close to pre-mining conditions as practically possible. 	Low
Earthworks Civil works Mineralised waste management Open pit mining Stormwater management Decommissioning Rehabilitation	Alteration of drainage patterns	Objective: minimise the disturbance of streams and surface drainage patterns and a reduction in flow to downstream users. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Careful design of ephemeral stream diversion that minimises impacts on the downstream environment • Limit activities and infrastructure within wetland and watercourses and their floodlines • Develop and implement a stormwater management plan to divert clean 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
		water away from the site and manage dirty water runoff. Contain all contaminated water in accordance with R704 <ul style="list-style-type: none"> • Effective rehabilitation to as close to pre-mining conditions as practically possible. 	
Earthworks Civil works Site management Use of transport systems Non-mineralised waste management Mineralised waste management Use of support services and amenities Open pit mining Use of power supply infrastructure Decommissioning Rehabilitation	Pollution of surface and groundwater resources	Objective: prevent pollution of surface water resources and impacts on other surface water users. Conceptual mitigation measures to prevent pollution include: <ul style="list-style-type: none"> • Operate the mine as a zero point source discharge facility i.e. contain and re-use contaminated water • Basic infrastructure design that is adequate to contain polluting substances • Training of workers to prevent pollution • Equipment and vehicle maintenance • Fast and effective clean-up of spills • Effective waste management • Manage clean and dirty water in accordance with R704 • Conduct water monitoring and implement remedial actions as required • Effective rehabilitation to as close to pre-mining conditions as practically possible. 	Low
Dewatering	Loss of water supply to third party users	Objective: prevent water losses to third party water users. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Monitor third party boreholes to determine if the water level is being 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
		affected <ul style="list-style-type: none"> • If dewatering causes a loss of water supply to third parties, an alternative equivalent water supply will be provided by Coza until such time as the dewatering impacts cease. 	
Earthworks Civil works Site management Use of transport systems Open pit mining Use of power supply infrastructure Decommissioning Rehabilitation	Air pollution	Objective: reduce dust and gaseous impacts during all project phases. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Limit disturbed areas • Suppress dust effectively on unpaved roads and at material transfer points as required • Monitor dust fallout and implement additional mitigation as required • Maintain vehicles and equipment in good working order. 	Low
Earthworks Civil works Site management Use of transport systems Mineralised waste management Use of support services and amenities Open pit mining Use of power supply infrastructure Decommissioning	Noise pollution	Objective: prevent an unacceptable increase in disturbing noise and limit nuisance noise at sensitive receptors as far as practically possible. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Maintain vehicles and equipment in good working order • Limit blasting frequency and conduct blasting during daylight hours • Conduct noise monitoring in the event of receiving a complaint and implement remedial action to reduce impact if necessary. 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
Rehabilitation			
Site preparation Earthworks Civil works Mineralised waste management Open pit mining Decommissioning	Negative landscape and visual impacts	Objective: limit negative visual impact. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Limit disturbed areas • Suppress dust to prevent a visual dust cloud • Rehabilitate areas no longer in use • Effective waste management • Implement effective use of lighting which reduces light spill • Effective rehabilitation to as close to pre-mining conditions as practically possible. 	Low
Site preparation Earthworks Civil works Site management Use of transport systems Non-mineralised waste management Mineralised waste management Use of support services and amenities Open pit mining Use of power supply infrastructure Decommissioning	<ul style="list-style-type: none"> • Loss of current land uses • Reduced quality of life for surrounding landowners and land users • Possible reduced property values 	Objective: prevent unacceptable negative impacts on surrounding land uses. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Effectively manage noise, dust, surface and groundwater quality, blasting hazards, social impacts and visual impacts • Effective rehabilitation to as close to pre-mining conditions as practically possible. 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
Rehabilitation			
Site preparation Earthworks Blasting during open pit mining	Blasting hazards	<p>Objective: prevent injury to third parties and damage to third party infrastructure through blasting.</p> <p>Conceptual mitigation measures include:</p> <ul style="list-style-type: none"> • Develop and implement a blast management plan which addresses blast design criteria to limit air blast, ground vibration and fly rock; pre-blast warning and evacuation and auditing of the blasts to check compliance to applicable requirements • If a person or animal is injured by blasting activities this will be handled in accordance with the Coza emergency response procedure to be developed. • Remediation of all impacts caused by blasting. 	Low
Use of transport systems	Project-related road use and traffic	<p>Objective: prevent injury to third parties or animals as a result of traffic accidents.</p> <p>Conceptual mitigation measures include:</p> <ul style="list-style-type: none"> • Educate employees (temporary and permanent) about road safety • Enforce strict vehicle speeds along the linear services corridors • If a person or animal is injured by transport activities this will be handled in accordance with the Coza emergency response procedure to be developed. 	Low
Site preparation Earthworks	Destruction and disturbance of heritage (including cultural) and	Objective: prevent the loss of heritage (including cultural) resources that may be caused by the proposed mining activities.	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
Civil works Site management Mineralised waste management Open pit mining Decommissioning	paleontological resources	Conceptual mitigation measures include: <ul style="list-style-type: none"> • Limit the area of disturbance and avoid heritage resources as far as practically possible • If avoidance cannot be achieved then conduct a Phase II heritage assessment study as required and obtain relevant permits for removal or destruction • Training of workers about the heritage and cultural sites that may be encountered and about the need to conserve these. • Develop and implement a chance find emergency procedure. 	
Employment of people. Procurement of goods and services.	Economic impact (positive impact)	Objective: enhance positive and minimise negative economic impacts. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Employ local people and procure goods and services locally as far as practically possible • Ensure that closure planning considerations address the re-skilling of employees for the downscaling, early closure and long-term closure scenarios. 	Low
Employment of people. Procurement of goods and services.	Inward migration impact and associated secondary impacts: increased pressure on basic services and housing, problems of crime, disease, and social disruption	Objective: minimise inward migration and the associated secondary impacts. Conceptual mitigation measures include: <ul style="list-style-type: none"> • Effective communication with local communities to manage expectations with regard to employment and other opportunities • Working with the local municipality to investigate ways to address basic 	Low

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
		service provision <ul style="list-style-type: none"> • Implement mechanisms to ensure workers find formalised accommodation that is adequately serviced • Worker training on health and safety related issues • Implementation of a voluntary worker health management programme. 	

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	POSSIBLE MITIGATION	POTENTIAL FOR RESIDUAL RISK (POST CLOSURE)
Transport of goods, material and people	Increase in traffic on the local roads	<p>Objective: Minimise traffic and road safety impacts.</p> <p>Conceptual mitigation measures include:</p> <ul style="list-style-type: none"> • Improve basic road safety behaviour for all employees through training and awareness programs. • All persons working on the mine site are expected to conform to the site and national traffic rules • Ensure drivers have valid driver's licenses. • All vehicles should be roadworthy and are regularly services. • Zero tolerance for drinking and driving. • Drive with lights on when on site. • No additional passengers other than driver's assistants or approved project personal will be permitted to travel with the driver onto site. • All persons travelling in a vehicle must have properly fitted seats and seat belts. • Liaise with the relevant authority with respect to maintenance of public roads to be used by the mine. • Any mine related road accident must be handled in accordance with the emergency response procedure. 	

8.9 THE OUTCOME OF THE SITE SELECTION MATRIX

The position of the open pit is determined by the ore body. However, three alternatives for the waste rock dump position were considered – refer to Figure 8-1. No significant differences are expected with respect to the waste rock dump alternatives, with the exception of topography and distance to the open pit. A heritage scoping study which was based on literature review shows low significance resources within two of the alternatives, however this will need to be verified with fieldwork in the EIA phase, and these resources are not likely to be destroyed by the disposal of waste rock close to these resources if they are protected with the use of fencing. Alternative 3 is preferred due to favourable topography and proximity to the open pit (refer to Table 8-10).

An overall eastern alternative area was also considered on available land within the property boundary for all support infrastructure including the crushing and stockpile area (refer to Figure 8-1). However no significant difference is expected between this eastern alternative; except that it lies further away from the open pit, which would increase energy use and haulage costs. In addition, the eastern infrastructure alternative would result in two areas of disturbance, namely the open pit with associated topsoil stockpile on the western side of the Transnet railway line, and the eastern support infrastructure area. Therefore the preferred site layout is the western alternative, which concentrates the infrastructure, and thus the area of disturbance, close to the open pit.

TABLE 8-10: SITE LAYOUT ALTERNATIVE MATRIX

CRITERIA	WRD ALTERNATIVE 1	WRD ALTERNATIVE 2	WRD ALTERNATIVE 3	PREFERRED ALTERNATIVE
The potential for groundwater pollution	Depth to groundwater ranges between 7-37m and is expected to be the same for all alternatives. No significant geological features that could act as preferential flow paths are known to occur at any alternative at this stage. Therefore no significant difference is expected between alternatives.			n/a
The potential for surface water pollution	Alternative is located more than 100m from watercourse and wetland.	Alternative is located more than 100m from watercourse and wetland.	Alternative is located more than 100m from watercourse and wetland.	n/a
Proximity to people (dust, noise and visual impacts)	No significant difference between alternatives - human settlements lie to the east and north of the study areas, these include the residents of two local farmers, the game farm on Thaakwaneng and the Maremane Community which are more than 5km away from all alternatives. All three alternatives are likely to be visible from the R325. There are abandoned buildings in close proximity to WRD alternative 2, however these do not seem to be inhabited by people currently.			n/a
Soil and land capability	Although no soil study has yet been conducted, no significant difference is expected between alternatives. The soils are expected to have a non-arable or wilderness land capability.			n/a
Biodiversity	No significant difference is expected between alternatives as all three sites lie within least threatened ecosystems, although there is potential for protected tree species to occur. Protected trees have been mapped in a previous biodiversity survey and all three alternatives will not encroach on the trees that have been mapped to date. The property is utilised for grazing, with very little natural biodiversity remaining.			n/a
Heritage resources	Alternative situated relatively close to a low significance heritage resource identified in literature. A heritage survey is needed to verify this resource.	No heritage mapping has been conducted in this area to date therefore it is unknown whether any heritage sites occur here.	Alternative situated in close proximity to two low significance heritage sites identified in literature, however a heritage survey is needed to verify these resources. In addition, these resources should be protected from damage with appropriate fencing.	n/a
Capital development	Capital development is expected to be higher due	No significant difference expected between these alternatives.		2 and 3

CRITERIA	WRD ALTERNATIVE 1	WRD ALTERNATIVE 2	WRD ALTERNATIVE 3	PREFERRED ALTERNATIVE
	to the unfavourable topography of this alternative.			
Operating costs	This alternative is situated in close proximity to the open pit however on a slope which could result in increased energy use and haulage costs.	This alternative is situated further away from the open pit on the other side of the Transnet Railway Line linking Beeshoek Mine to Sishen Mine and therefore energy use haulage costs will be significantly higher than the other alternatives.	This alternative is situated in close proximity to the open pit which minimises energy use and haulage costs.	3
Technical feasibility	The topography is unsuitable in this location.	The topography is flat and there is no known reason why this alternative is not technically feasible.	The topography is flat and there is no known reason why this alternative is not technically feasible.	2 and 3

8.10 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

Not applicable.

8.11 STATEMENT MOTIVATING THE PREFERRED SITE

As discussed above, WRD alternative 3 is preferred due to favourable topography and proximity to the open pit. Furthermore the preferred support infrastructure alternative is the western alternative, which concentrates the infrastructure, and thus the area of disturbance, close to the open pit.

9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The main objectives of the EIA phase are to:

- Assess the potential cultural, heritage, socio-economic and biophysical impacts of the project
- Identify and describe procedures and measures that will mitigate potential negative impacts and enhance potential positive impacts
- Liaise with IAPs including relevant government departments on issues relating to the proposed development to ensure compliance with existing guidelines and regulations
- Undertake consultations with IAPs and provide them with an opportunity to review and comment on the outcomes of the environmental assessment process and acceptability of mitigation measures
- Develop an environmental management programme (EMPr) and a conceptual closure/decommissioning plan
- Provide measures for ongoing monitoring (including environmental audits) to ensure that the project plan and proposed mitigation measures are implemented as outlined in the detailed EIR/EMPr report.

This chapter describes the nature and extent of further investigations to be conducted by SLR in the Environmental Impact Assessment, and sets out the proposed approach to the EIA and EMPr phase.

9.1 DESCRIPTION OF ALTERNATIVES TO BE CONSIDERED INCLUDING THE OPTION OF NOT GOING AHEAD WITH THE ACTIVITY

The alternatives considered and the preferred site layout alternatives are provided in Section 8.1.3.

9.2 DESCRIPTION OF THE ASPECTS TO BE ASSESSED AS PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

This section describes the nature and extent of further investigations to be conducted by Synergistics in the Environmental Impact Assessment.

9.2.1 GEOLOGY

It is proposed that no specialist investigations are required. The assessment and detailed management measures will be provided in the EIR and EMPr report by Synergistics.

9.2.2 TOPOGRAPHY

It is proposed that no specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by Synergistics.

9.2.3 LAND USE

It is proposed that no specialist investigations are required. The assessment and detailed management measures will be provided in the EIR and EMPr report by Synergistics.

9.2.4 PALEONTOLOGICAL RESOURCES

It is proposed that no further investigations are required. The assessment and detailed management measures will be provided in the EIA/EMP report by Synergistics and will make use of information in the specialist report produced by Professional Grave Solutions in 2014.

9.2.5 BLASTING

It is proposed that no further investigations are required because there are no third parties located in close proximity to the open pit. The assessment and detailed management measures will be provided in the EIR/EMPr report by Synergistics.

9.2.6 SURFACE WATER

Synergistics will conduct the surface water study in house. The investigation will include the following tasks:

- Develop a detailed baseline hydrological description of the selected site and immediate surrounds. This will include surface water quality sampling
- Determine the rainfall intensities per month (1hr, 24hr, 24hr 1:50, 24hr 1:100)
- Determine the mean monthly rainfall and evaporation
- Determine the mean annual runoff from the mine
- Determine flood peaks and volumes for recurrence intervals of 1:20, 1:50 and 1:100 years and the regional maximum flood (RMF)
- Determine the drainage density of areas to be disturbed
- Delineate the 1:100 year floodlines where relevant
- Identification and assessment of potential impacts of the development on surface water (quantity and quality)
- Development of relevant management and mitigation measures including a detailed stormwater management plan.

- Provide input, together with Synergistics and the technical project team into project alternatives and surface water management measures going forward.

9.3 DESCRIPTION OF ASPECTS TO BE ASSESSED BY SPECIALISTS AND SYNERGISTICS

This section describes the nature and extent of specialist investigations required in the Environmental Impact Assessment, and sets out the proposed approach to the EIA and EMP phase.

9.3.1 HYDROGEOLOGY

The groundwater detailed investigation will address dewatering and pollution aspects. The investigation will include the following tasks:

- Conduct a hydrocensus
- Develop a conceptual model
- Model the dewatering impacts of the proposed open pit mining
- Model the potential pollution of the proposed open pit mining and associated infrastructure and activities
- Assess the significance of dewatering and contamination impacts
- Provide input, together with Synergistics and the technical project team into groundwater management measures going forward

9.3.2 BIODIVERSITY

This study will include the following tasks:

- Identify and map terrestrial and aquatic habitat types in the project area in the wet season
- Rank each habitat type based on conservation importance and ecological sensitivity
- Assess the significance of biodiversity impacts
- Provide input, together with Synergistics and the technical project team into biodiversity management measures going forward

9.3.3 AIR QUALITY

This study will include the following tasks:

- Develop a dust emissions inventory
- Develop a dust dispersion model to simulate dust emissions from the proposed operation
- Assess the significance of air quality impacts

- Provide input, together with Synergistics and the technical project team into air quality management measures going forward

9.3.4 NOISE

This study will include the following tasks:

- Conduct measurements to determine baseline ambient noise levels at selected reference points
- Develop a model to simulate the emission and atmospheric propagation of noise from the proposed operation
- Evaluate the noise impact in terms of the criteria and guidelines of SANS 10103 and the applicable noise regulations
- Provide input, together with Synergistics and the technical project team into noise management measures going forward

9.3.5 VISUAL

This study will include the following tasks:

- Define the visual resource and sense of place of the greater area
- Identify the receptors/ lines of site
- Assess the visual impact
- Provide input, together with Synergistics, into the visual management measures going forward

9.3.6 HERITAGE

This study will include the following tasks:

- Identify and map (through literature review and field work) all archaeological, cultural and heritage resources in the proposed project area
- Assess the significance of the identified resources
- Assess the impact of the proposed project on the heritage resources
- Provide input, together with Synergistics and the technical project team into heritage resources management measures going forward

9.3.7 SOIL AND LAND CAPABILITY

This study will include the following tasks:

- Identify and map (through literature review and field work) soil types in the proposed project area

- Determine the land capability
- Assess the impact of the proposed project on soils and land capability
- Provide input, together with Synergistics and the technical project team into soil resources management measures going forward

9.3.8 SOCIAL IMPACT ASSESSMENT

This study will include the following tasks:

- Characterisation of the baseline social environment and identification of receptors
- Assess the impact of the proposed project on the social environment
- Provide input, together with Synergistics and the technical project team into social management measures going forward.

9.3.9 TRAFFIC ASSESSMENT

This study will include the following tasks:

- Characterisation of the baseline traffic conditions
- Assess the impact of the proposed project on the traffic levels, road condition and road safety
- Provide input, together with Synergistics and the technical project team into traffic and road use management measures going forward.

9.3.10 ECONOMIC ASSESSMENT

An economic study will be conducted to evaluate the economic benefits and/or impacts of the proposed development. The following activities will form part of the socio-economic impact assessment:

- Base Profiling and Trend Analysis of the study area
- Identification of economic indicators to reflect the state of the market
- Develop and analyse community demographics and profiles at regional level
- Assess the economic benefits of mining vs. agriculture
- Estimate value of impacts to the local economy due to project investment
- Model Development and Impact Assessment
- Development of recommendations and Mitigation Plan.

9.4 PROPOSED METHOD OF ASSESSING THE ENVIRONMENTAL ASPECTS INCLUDING THE PROPOSED METHOD OF ASSESSING ALTERNATIVES

A description of the method that will be used during the EIA phase to assess the duration and significance of the identified impacts is provided in Section 8.6.

9.5 THE PROPOSED METHOD OF ASSESSING DURATION AND SIGNIFICANCE

A description of the method that will be used during the EIA phase to assess the duration and significance of the identified impacts is provided in Section 8.6.

9.6 THE STAGES AT WHICH THE COMPETENT AUTHORITY WILL BE CONSULTED

The draft and final EIR and EMPr reports will be submitted to the DMR for review. A site visit and meeting shall be held, if requested.

9.7 PARTICULARS OF THE PUBLIC PARTICIPATION PROCESS WITH REGARD TO THE IMPACT ASSESSMENT PROCESS THAT WILL BE CONDUCTED

9.7.1 STEPS TO BE TAKEN TO NOTIFY INTERESTED AND AFFECTED PARTIES

IAPs on the project database will be provided with information in the form of summary documents and will be notified when the EIR and EMPr reports are available for public review via electronic mail, post and bulk SMS. IAPs will similarly be invited to attend a public feedback meeting during the EIA phase.

9.7.2 DETAILS OF THE ENGAGEMENT PROCESS TO BE FOLLOWED

The stakeholder engagement process in the EIA Phase will include the following:

- Public and/or stakeholder meeting/s to give feedback on the findings of the EIA
- Additional focus group meetings may be arranged as and when required.
- Collation of issues and concerns into a report for submission to the DMR
- Circulation of the EIR and EMPr report (draft and final if there are material changes made to the draft report) for public review and collation of comments
- Notification of IAPs on the database on the relevant DMR decisions.

9.7.3 DESCRIPTION OF THE INFORMATION TO BE PROVIDED TO INTERESTED AND AFFECTED PARTIES

During the EIA Phase a summary of the findings of the EIA will be provided to registered IAPs in appropriate languages. In addition, the EIR and EMPr report will be subjected to public review. Once the DMR has issued decisions on the applications, IAPs on the project database will be informed accordingly.

9.8 DESCRIPTION OF THE TASKS THAT WILL BE UNDERTAKEN DURING THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The description of the tasks that will be undertaken during the EIA phase is provided below in Table 9-1.

TABLE 9-1: EIA AND EMP ACTIVITIES AND TIMING

Objectives	Corresponding activities and estimated dates
<i>Further investigations/specialist studies (Jan/Feb 2016)</i>	
<ul style="list-style-type: none"> Describe the affected environment Define potential impacts Give management and monitoring recommendations 	<ul style="list-style-type: none"> Investigations by technical project team and Synergistics of issues identified during the scoping stage including investigations into alternatives.
<i>EIA and EMP phase (March-April 2016)</i>	
<ul style="list-style-type: none"> Assessment of potential environmental impacts Design requirements and management and mitigation measures Receive feedback on applications 	<ul style="list-style-type: none"> Compilation of draft EIR and EMPr report Distribute draft EIR and EMPr report to IAPs, DMR and other regulatory authorities for review Public and focussed feedback meetings with IAPs (if required) Record comments Submit final report to DMR Notify IAPs of the availability of the final EIR and EMPr report (if there have been material changes to the draft report) Circulate record of decision to all registered IAPs.

9.9 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

Table 8-9 lists the project activities with the potential impact associated with these activities. The table further provides information on the type of mitigation and level of residual risk envisaged (post closure). It should be noted that this table has been compiled with the information in hand and may be refined during the EIA phase.

9.10 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional requests for information have been received to date.

9.10.1 IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

The potential socio-economic impacts are discussed in section 8.7.14 and will be investigated further during the EIA Phase as outlined in Section 9.

9.10.2 IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

A heritage study will be conducted to identify potential impacts on heritage resources. The results of this study will be provided in the EIA and EMP.

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

None.

11 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I, Linda Munro, 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 has 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.



Date: 9/02/2016

Signature of the EAP

12 REFERENCES

SANS 241:2011. Drinking Water Specification, Edition 6.1.

SANS 10103. The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication.

APPENDIX 1: PROOF OF EAP REGISTRATION

APPENDIX 2: CURRICULUM VITAE

APPENDIX 3: LOCAL AND REGIONAL SETTING

APPENDIX 4: SITE PLAN

APPENDIX 5: STAKEHOLDER ENGAGEMENT DOCUMENTS

Landowner notifications and consent letter

Background Information Document

Press and site notifications

Minutes of scoping meetings and attendance registers

IAP Database

Correspondence to and from IAPS

Issues and Response Report

Notification of Draft Scoping Report which addressed Doornpan and Driehoekspan and proof of distribution

Notification of Draft Scoping Report which addressed Drneihoekspan and Thakwaaneng (2015)

Summary of Draft Scoping Report which addressed Doornpan and Driehoekspan

APPENDIX 6: LIST OF PLANT SPECIES ENCOUNTERED ON SITE



RECORD OF REPORT DISTRIBUTION

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Report Number:	1
Proponent:	Coza Mining (Ltd) Pty.

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