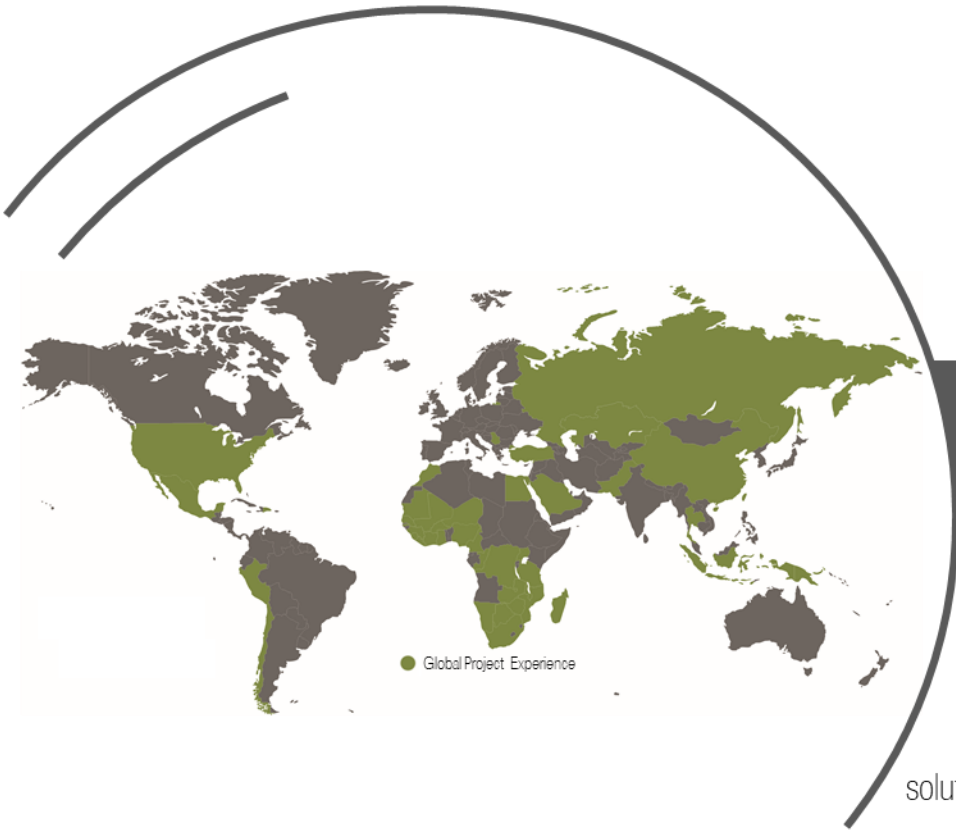

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Proposed Copper Sunset Mining Right Extension Project, situated near Vereeniging, Free State Province

Draft Scoping Report

Public Review

Prepared for:
Copper Sunset Sand (Pty) Ltd

Project Number:
COP6679

January 2021

Digby Wells and Associates
(South Africa) (Pty) Ltd
Company Registration: 2010/008577/07

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This document has been prepared by Digby Wells Environmental.

Report Type:	Draft Scoping Report
Project Name:	Proposed Copper Sunset Mining Right Extension Project, situated near Vereeniging, Free State Province
Project Code:	COP6679

Name	Responsibility	Signature	Date
Modiegi Monaledi	Report Compiler		December 2020
Claire Wannenburgh	1st Reviewer		December 2020
Barbara Wessels	2nd Reviewer		December 2020

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

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

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

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

OBJECTIVE OF THE SCOPING PROCESS

The objective of the scoping process is, through a consultative process, to: -

- identify the relevant policies and legislation relevant to the activity;
- motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- identify the key issues to be addressed in the assessment phase;
- agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

EXECUTIVE SUMMARY

Introduction

Copper Sunset (Pty) Ltd (Copper Sunset) has an approved Mining Right (MR) (DMRE Ref. No. FS30/5/1/1/2/164 MR) and Environmental Management Programme (EMPr), in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), for the mining of sand on the Farm Bankfontein No. 1849. The MR was approved in 2009 and amended in 2011, 2016 and 2017 to incorporate additional areas into the Mining Right Area (MRA).

The Applicant now wishes to extend the MRA to incorporate adjacent properties to extend the Life of Mine (LoM) by approximately 20 years. The intent is to expand the current mining operations to include additional portions of the Remaining Extent (RE) of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. The proposed extension of the MRA amounts to approximately 1642 ha (Bankfontein) and 1179 ha (Zandfontein), for the mining of sand. Digby Wells Environmental (Digby Wells) has been appointed by Copper Sunset to conduct the required environmental authorisation process in support of the proposed Project.

Project Applicant

The details of the Project Applicant are included in the table below.

Company name:	Copper Sunset Sand (Pty) Ltd
Contact person:	Trudie Vosloo
Physical address:	67 Van Buuren Road, Bedfordview, Germiston, 2008
Telephone:	011 622 1785
Email:	trudie@tvosloo.com

Project Overview

The proposed Copper Sunset Mining Right Extension Area (MREA) falls within an existing MRA of the New Vaal Colliery. Seriti Resources (Seriti) is the holder of the MR. The MR permits the mining and extraction of coal. Copper Sunset entered into an agreement with Seriti to mine sand within the MRA. The sand deposit lies between 0.4 – 1.5 m below the surface. Strip mining will be utilised to recover the resource, with the sand mined in strips of 30 – 35 m in width and 0.4 - 2 m in depth. The length of the strips is dependent on the area to be mined but approximate lengths are in the region of 180 – 600 m. The type of sand present at the mining area includes building sand and plaster sand. In addition, Copper Sunset wish to add clay to the material they wish to mine. The mining method to be applied includes:

- Stripping and stockpiling of topsoil;
- Construction of a temporary haul road (20 m wide and length will be approximately 10 km);

- Mining of the sand resource including screening of sand;
- Backfilling of the mined excavations with stockpiled topsoil; and
- Concurrent rehabilitation.

No permanent infrastructure will be constructed on site for the sand mining operation. All machinery will be mobile and brought in by Copper Sunset. Mobile offices will be placed at the entrance to the new mining areas and space will be available to park mining equipment not in use. Portable toilets, a hydrocarbon storage tank and water bowser will also be utilised.

A screening process will be utilised where required should sand become contaminated with unusable particles. The screening process will include the use of Mobile Terex 3-Screening Machine or similar equipment. The screening machines will be moved from one area to the next within the MRA, as required. The use of the machine will not disturb any additional areas and will be placed on top of areas which will or have already been disturbed by the sand mining operations.

The extension of the existing MRA triggers activities incorporated in Listing Notice 1 and Listing Notice 2 of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982 of 04 December 2014 as amended), promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The Listed Activities requires a Scoping and Environmental Impact Reporting (S&EIR) process to be carried out as part of the authorisation process.

Purpose of this Report

A Scoping Report forms part of the S&EIR process and aims to identify those biophysical and socio-economic issues or concerns that require investigation as well as determine feasible alternatives. This information is then used to determine the scope of work for the EIA Phase. During the Scoping Phase, stakeholders interested or affected by the Project are informed of the proposed development as well as provided the opportunity to raise issues and concerns. Therefore, the purpose of this Draft Scoping Report is:

- To provide a description of the proposed Project and its activities;
- To provide a high-level description of the baseline environment;
- To predict potential impacts as a result of the Project and its activities;
- To provide a detailed plan of study for the EIA Phase; and
- To share Project information with Interested and Affected Parties (I&APs) and to record comments and issues raised.

Environmental Consultants

Digby Wells is the appointed independent Environmental Assessment Practitioner (EAP) to undertake the S&EIR Process, associated specialist studies and the required Public

Participation Process (PPP) for the proposed Copper Sunset Project. The details of the EAP are contained in the table below.

Company name:	Digby Wells and Associates (South Africa) (Pty) Ltd
Contact person:	Claire Wannenburgh
Physical address:	Digby Wells House, 48 Grosvenor Road, Bryanston, Johannesburg, 2191
Telephone:	011 789 9495
Email:	claire.wannenburgh@digbywells.com

Approach and Methodology for the Public Participation Process

A PPP as per the EIA Regulations, 2014 (as amended), has been initiated. The PPP is central to the investigation of environmental and social impacts, as any stakeholder who is affected by the Project is given an opportunity to comment, raise concerns and contribute to ensure that local knowledge, needs and values are understood and taken into consideration throughout the process.

This Draft Scoping Report is available for public comment for a period of 30 days and all comments or concerns raised will be recorded and responded to in the Comments and Responses Report (CRR). The 30-day comment period will commence from **11 January 2021 to 10 February 2021**.

The following activities were undertaken to announce the Project and initiate the Scoping Phase:

- A Background Information Document (BID) was distributed via email on **8 January 2021**;
- Newspaper advertisement will be placed in the Vaalweekblad on 8 January 2021;
- An announcement letter including a registration form was distributed to identified I&APs via email on **8 January 2021**;
- Site notices were placed around the site on **8 January 2021**; and
- An electronic copy can be accessed and downloaded from the Digby Wells website www.digbywells.com (Public Documents), and our data-free service portal http://view.datafree.co/PublicDocuments/. ***Due to COVID-19 Regulations, no hard copies were made available.***

Project Alternatives

A Project alternative is defined as a possible course of action, in place of another, that would meet the same purpose and need (DEAT, 2004). Section 9 of the report provides the details of the development footprint alternatives considered for this Project. The alternatives considered in this report include location, design or layout, mining method, and the “No-Go” alternative (the option of not proceeding with the Project).

Environmental Baseline

The proposed Copper Sunset MREA is characterized by warm-hot summers and cool-cold winters. The geology falls within the Vryheid Formation that forms part of the Ecca Group, which is part of the Karoo Supergroup. The dominant soil forms include Clovelly, Avalon, Katspruit, Mispah, Witbank, Arcadia, Glencoe, Pinedene, Dresden and Hutton.

The proposed Copper Sunset MREA falls dominantly within the Central Free State Grassland vegetation type, with a small section on the western side within the Andesite Mountain Bushveld vegetation type. This Grassland Biome is rich in flora and fauna diversity but is under threat due to rapid urbanisation and expansion of mining and industrial activities. The Central Free State Grassland is considered a 'Vulnerable' vegetation type with a conservation target of 24%, whereas the Andesite Mountain Bushveld is listed as 'Least Threatened' on the National List of Threatened Terrestrial Ecosystems. The present land use within the Project area mainly includes cultivated land and grasslands (for grazing). The MREA has been disturbed through anthropogenic activity, including farming. A large section of the eastern MREA has historically been impacted by agropastoral activities.

The western section of the proposed Copper Sunset MREA is predominantly classified as Degraded Land, with the remaining area classified as Ecological Support Areas (ESAs). The eastern section of the MREA is predominantly classified as ESAs. The catchment area is drained by the Vaal River. The Project area comprises National Freshwater Ecosystem Priority Areas (NFEPA) wetlands, which cover 2308.97 ha of the extension area. The eastern side of the MREA is close to the Vaal River, while the western portion traverses the Taaibosspruit River. Activities associated with the proposed Copper Sunset Project may have significant impacts on the receiving watercourses. The MREA will be further assessed during the EIA Phase.

Potential Impacts

Potential impacts of the proposed Copper Sunset MREA on the baseline environment have been identified and can be summarised as follows:

- Potential increase in ambient noise levels;
- Potential increase in ambient dust levels;
- Soil erosion and compaction;
- Potential soil contamination from hydrocarbon spillages;
- Habitat loss and impact on biodiversity;
- Potential impacts on fauna;
- Increased potential from the spread, and establishment of alien and invasive species;
- Possible contamination of surface water (due to sedimentation and siltation);
- Potential loss of wetland, habitat integrity and functionality; and
- Potential loss of or damage to heritage and cultural aspects.

Conclusions and Recommendations

The MREA has been disturbed through anthropogenic activity, including farming. Due to the occurrence of certain Species of Conservation Concern (SCC) and numerous wetlands within the MREA, the Project area will need to be further assessed due to potential impacts such as loss of wetlands, habitat loss, habitat fragmentation, alien invasive plants proliferation, soil erosion and compaction, and loss of faunal and floral SCC.

The significance of impacts identified during the preliminary assessment of the baseline environment can be greatly reduced with the implementation of mitigation and management measures. There are, however, several anticipated impacts that will require a more detailed investigation and assessment. Digby Wells will assess these impacts in more detail during the EIA Phase and present the findings in the EIA Report. Mitigation and management measures will also be identified during this Phase. The following specialist studies will be undertaken during the EIA Phase:

- Air Quality Impact Assessment;
- Noise Impact Assessment;
- Fauna and Flora Impact Assessment;
- Heritage and Palaeontology Impact Assessment;
- Surface water Impact Assessment;
- Soil, Land Use and Land Capability Impact Assessment including an agricultural component;
- Wetlands Impact Assessment
- Hydropedological Assessment;
- Traffic Impact Assessment;
- Social Impact Assessment; and
- Rehabilitation and Closure Assessment.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF PLANS

LIST OF ABBREVIATIONS

AIPs	Alien Invasive Plant Species
ASTM	American Standard Test Method
BGG	Burial Grounds and Graves
BID	Background Information Document
BRAHMS	Botanical Research and Herbarium Management Software
CARA	Conservation of Agricultural Resources
CBAs	Critical Biodiversity Areas
Copper Sunset	Copper Sunset (Pty) Ltd
CR	Critically Endangered
CRR	Comments and Response Report
DEA	Department of Environmental Affairs
Digby Wells	Digby Wells Environmental
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act, 1989 (Act No. 73 Of 1989)
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EN	Endangered
ESA	Early Stone Age
FEPAs	Freshwater Ecological Priority Areas
Ha	Hectares
HIA	Heritage Impact Assessment
HRQ	Haul Road from Quarry
I&APS	Interested and Affected Parties
IBA	Important Bird Areas
IDP	Integrated Development Plan

IWULA	Integrated Water Use Licence Application
Km	Kilometres
km²	Square Kilometres
LED	Local Economic Development
LoM	Life of Mine
LSA	Later Stone Age
mamsl	Metres Above Mean Sea Level
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 Of 2002)
MR	Mining Right
MRA	Mining Right Application
MREA	Mining Right Extension Area
MSA	Middle Stone Age
mya	million years ago
NAAQS	National Ambient Air Quality Standards
NCRs	National Noise-Control Regulations
NEMA	National Environmental Management Act, 1998 (Act No. 107 Of 1998)
NEMAQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 Of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 Of 2004)
NEWPOSA	New Plants of Southern Africa Website
NFEPA	National Freshwater Ecosystem Priority Areas
NT	Near Threatened
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PA	Protected Area
PES	Present Ecological Status
PHRA-G	Provincial Heritage Resources Authority of Gauteng
QDSs	Quarter Degree Squares
RE	Remaining Extent
S&EIR	Scoping and Environmental Impact Reporting
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Index

SANS	South African National Standards
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SLM	Sound Level Meters
SLP	Social and Labour Plan
SS	Suspended Solids
TDS	Total Dissolved Solids
Vu	Vulnerable
WML	Waste Management Licence
WUL	Water Use Licence
WULA	Water Use Licence Application

1 Introduction

Copper Sunset (Pty) Ltd (Copper Sunset) has an approved Mining Right (MR) (DMRE Ref. No. FS30/5/1/1/2/164 MR) and Environmental Management Programme (EMPr), in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), for the mining of sand on the Farm Bankfontein No. 1849. The MR was approved in 2009 and amended in 2011, 2016 and 2017 to incorporate additional areas into the Mining Right Area (MRA).

The existing operations are situated in the Free State Province on the following farms:

- Farm Bankfontein No. 1849;
- A portion of the Remaining Extent (RE) of the Farm Zandfontein No. 259;
- A portion of the RE of the Farm Bankfontein No. 9; and
- A portion of the RE of the Farm Rietfontein No. 152.

The Applicant now wishes to extend the MRA to incorporate adjacent properties to extend the Life of Mine (LoM) by approximately 20 years. The intent is to expand the current mining operations to include additional portions of the Remaining Extent (RE) of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. The proposed extension of the MRA amounts to approximately 1642 ha (Bankfontein) and 1179 ha (Zandfontein), for the mining of sand.

The extension of the existing MRA triggers activities incorporated in Listing Notice 1 and Listing Notice 2 of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982 of 04 December 2014 as amended), promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The Listed Activities require a Scoping and Environmental Impact Reporting (S&EIR) process to be carried out as part of the authorisation process.

Digby Wells Environmental (Digby Wells) has been appointed by Copper Sunset as the independent Environmental Assessment Practitioner (EAP) to conduct the required environmental authorisation process to expand their existing and approved MR for the mining of sand over the proposed areas. Wetlands have been identified within the expansion areas. A Water Use Licence Application (WULA) will be submitted to the Department of Water and Sanitation (DWS) to obtain the required permissions to mine the wetland areas.

Additionally, it is recommended that as part of this application all Environmental Authorisations (EAs) and EMPrs are consolidated into one EMPr that is applicable to the approved MR and the new areas being applied for. Therefore, the following processes will be conducted:

- A Section 102 amendment application process as per the MPRDA to amend the MR boundary;
- A S&EIR process to authorise the new Listed Activities as per the NEMA;

- An IWULA process in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) to mine the wetland areas found within the expansion area; and
- A Regulation 31 amendment process to consolidate the EAs and EMPrs into one consolidated report as per the NEMA.

This Scoping Report has been compiled in support of the NEMA and MPRDA applications and will also form the basis for the EIA and the EMPr.

2 Project Applicant

This section provides the details of the Project Applicant as well as the EAP.

2.1 Details of the Applicant

Table 2-1 provides the contact details of the Applicant.

Table 2-1: Contact Details of the Applicant

Name of Applicant:	Copper Sunset Sand (Pty) Ltd		
Registration number (if any):	2006/036057/07		
Trading name (if any):	Copper Sunset		
Responsible Person : ***(E.g. CEO, Director, etc.)***	Trudie Vosloo		
Contact person:	Trudie Vosloo		
Physical address:	67 Van Buuren Road, Bedfordview, Germiston, 2008		
Postal address:	P.O. Box 914, Bedfordview		
Postal code:	2008		
Telephone:	011 622 1785	**Fax:**	011 615 2226
Email:	trudie@tvosloo.com		

2.2 Item 2(a)(i): Details of EAP

Digby Wells has been appointed by Copper Sunset to undertake the environmental applications in support of the proposed Copper Sunset MREA. The EAP's contact details are provided in Table 2-2 below.

Table 2-2: Contact Details of the EAP

Name of EAP:	Claire Wannenburgh		
Professional affiliation/registration:	EAPASA Registration No. 2019/1013		
Contact person: ***(if different from EAP)***	Claire Wannenburgh		
Company:	Digby Wells and Associates (South Africa) (Pty) Ltd		
Physical address:	Digby Wells House, 48 Grosvenor Road, Bryanston, Johannesburg, 2191		
Postal address:	Private Bag X10046, Randburg, South Africa		
Postal code:	2125	**Cell phone:**	082 852 8482
Telephone:	011 789 9495	**Fax:**	011 789 9498
Email:	claire.wannenburgh@digbywells.com		

2.2.1 Item 2(a)(ii): Expertise of the EAP

This section provides the qualifications and experience of the EAP for the proposed Project. The EAP's Curriculum Vitae is attached in Appendix A.

2.2.1.1 *Qualifications of the EAP*

Mrs Claire Wannenburgh holds the following qualifications:

- Bachelor of Science (BSc) Honours (Environmental Analysis and Management) – University of Pretoria (2013); and
- BSc (Environmental Science) – University of Pretoria (2012).

2.2.1.2 *EAP Experience*

Claire Wannenburgh is an Environmental Consultant at Digby Wells. She holds a Bachelor of Science (BSc) in Environmental Science (2010-2012) and has completed her BSc (Honours) in Environmental Management and Analysis (2013-2013) from the University of Pretoria where she majored in Environmental Impact Assessment, Auditing and Environmental Law. Claire is a hard-working individual, a good team player and always strives to perform to the best of her abilities. She has seven years' experience and has managed various Performance Assessments and Water Use License Audits and has worked as an Environmental Control Officer. She has also managed high profile Environmental Impact Assessments; Basic Assessments; Water Use License and Permitting Applications; Environmental Management Programme Amendments; Green Star Environmental Management Programmes and Auditing. She was awarded Golden Key International Membership which recognises the top 15% of students per field of study in any undergraduate and post-graduate degree. Claire is

also ISO14001 certified as an internal lead auditor and is registered as an Environmental Assessment Practitioner (EAPASA Ref No. 2019/1013).

3 Item 2(b): Description of the Property

The proposed Mining Right Extension Area (MREA) is located within Viljoensdrif, near the Vaal River and Lethabo Power Station. The proposed Project is situated approximately 8 km south of the town of Vereeniging, 10 km south-east of Vanderbijlpark, and 13 km north-east of Sasolburg in the Free State Province of South Africa. Table 3-1 provides a summary of the proposed MREA to be incorporated into the approved Copper Sunset MRA as well as the properties which have already been approved as part of the Copper Sunset MR. The proposed MREA falls within an existing MRA of the New Vaal Colliery. Seriti Resources (Seriti) is the holder of the MR. The MR permits the mining and extraction of coal. Copper Sunset entered into an agreement with Seriti to mine sand within the MRA.

No permanent infrastructure will be constructed on the proposed expansion areas for the sand mining operation. All machinery will be mobile and brought in by Copper Sunset.

Refer to Figure 3-1 for the Land Tenure Map (also attached in Appendix B as Plan 1).

Table 3-1: Property Description

<table>
<tr><td>Farm Name:</td><td>
<table>
<tr><th>Farm Name</th><th>Farm Portion</th></tr>
<tr><td colspan="2">New Proposed Expansion Areas</td></tr>
<tr><td>Bankfontein No. 9</td><td>RE</td></tr>
<tr><td>Zandfontein No. 259</td><td>A portion of the RE</td></tr>
<tr><td colspan="2">Approved Copper Sunset MR Properties</td></tr>
<tr><td>Rietfontein No. 152</td><td>A portion of the RE</td></tr>
<tr><td>Zandfontein No. 259</td><td>A portion of the RE</td></tr>
<tr><td>Bankfontein No. 9</td><td>A portion of the RE</td></tr>
<tr><td>Bankfontein No. 1849</td><td>Entire Property</td></tr>
</table>
</td></tr>
<tr><td>Application Area (Ha):</td><td>The proposed Bankfontein expansion area = 1642.1 ha
The proposed Zandfontein expansion area = 1179.4 ha
The approved Copper Sunset MRA = 759.13 ha
Total area = 3580.63 ha</td></tr>
<tr><td>Magisterial District:</td><td>The MREA is located in the northern part of the Free State Province and falls under the Sasolburg Magisterial District.</td></tr>
<tr><td>Distance and direction from nearest town:</td><td>The MREA is located approximately 8 km south of the town of Vereeniging.</td></tr>
</table>

21-digit Surveyor General Code for each farm portion:	**Farm**	**Portion**	**21 Digit Code**
	New Proposed Expansion Areas		
	Bankfontein No. 9	RE	F01600000000000900000
	Zandfontein No. 259	A portion of the RE	F01600000000025900000
	Approved Copper Sunset MR Properties		
	Rietfontein No. 152	A portion of the RE	F01600000000015200000
	Zandfontein No. 259	A portion of the RE	F01600000000025900000
	Bankfontein No. 9	A portion of the RE	F01600000000000900000
	Bankfontein No. 1849		F01600000000184900000

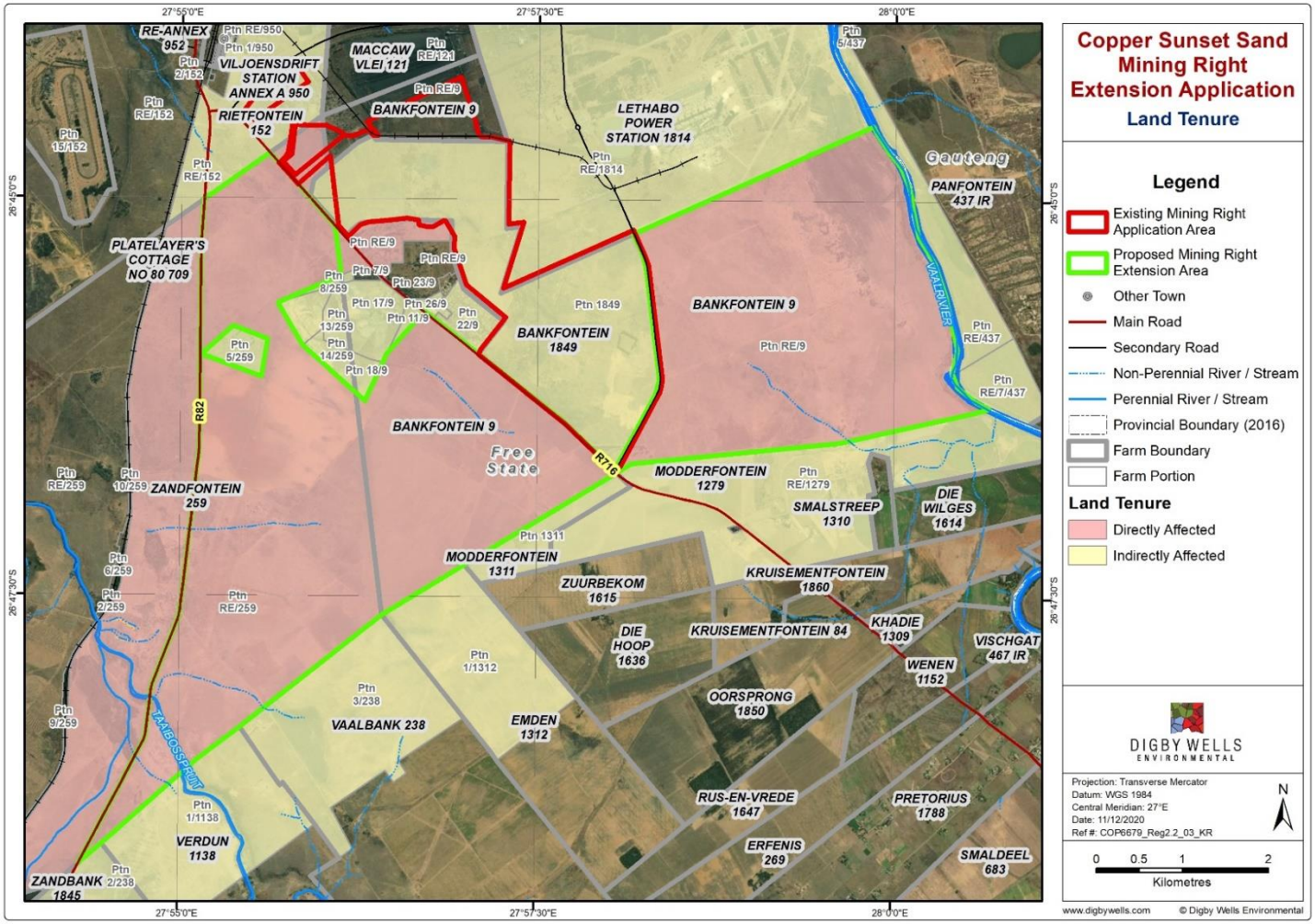


Figure 3-1: Land Tenure Map

4 Item 2(c): Locality Map

Figure 4-1 illustrates the regional setting of the Copper Sunset Project area. The plan is also attached as Plan 2 in Appendix B.

The MREA is situated near the town of Vereeniging within the Sasolburg Magisterial District. The area falls within the jurisdiction of the Metsimaholo Local Municipality, which is located in the Fezile Dabi District Municipality, Free State Province. The locality map is depicted in Figure 4-2 (also attached in Appendix B, Plan 3).

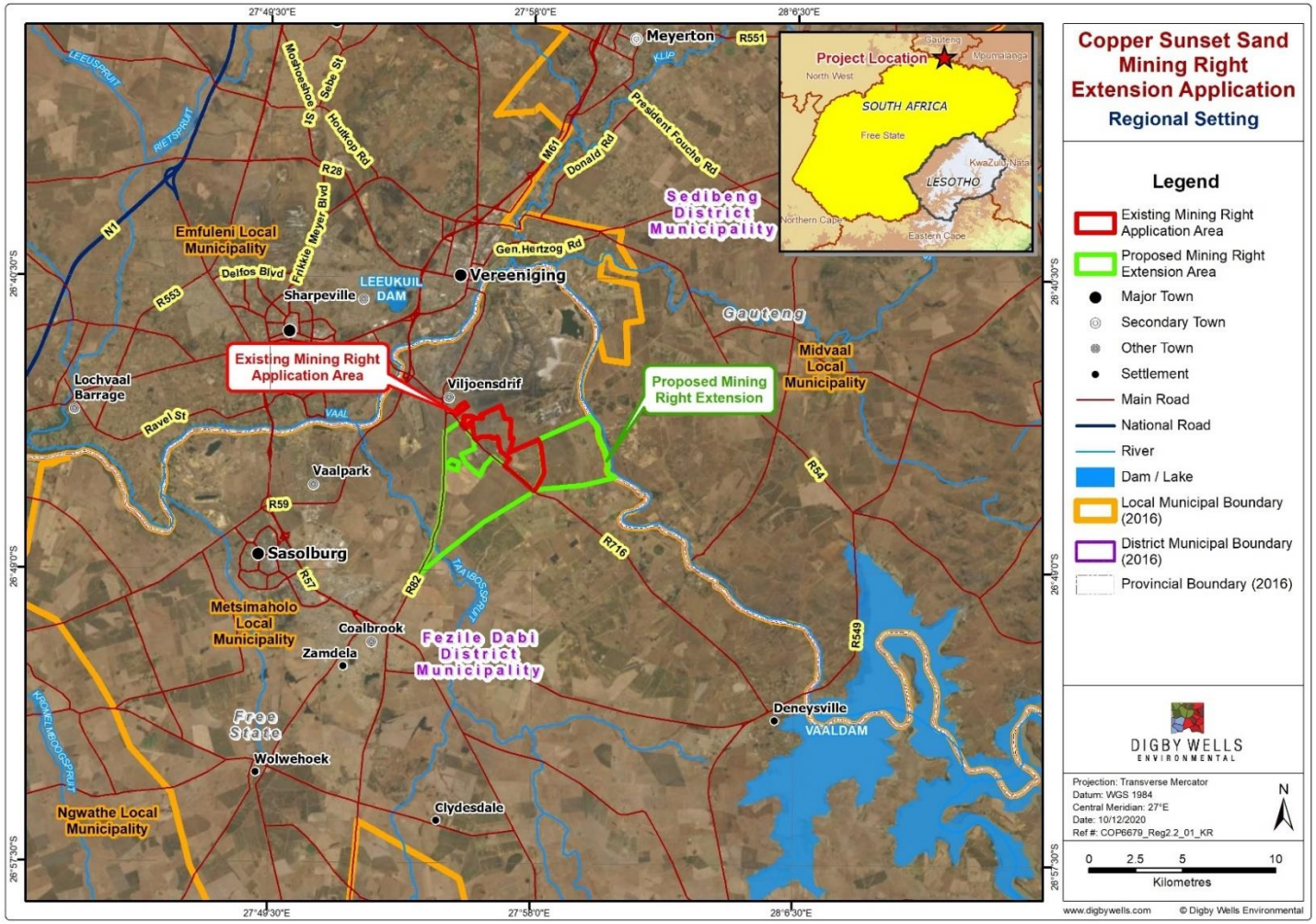


Figure 4-1: Regional Setting

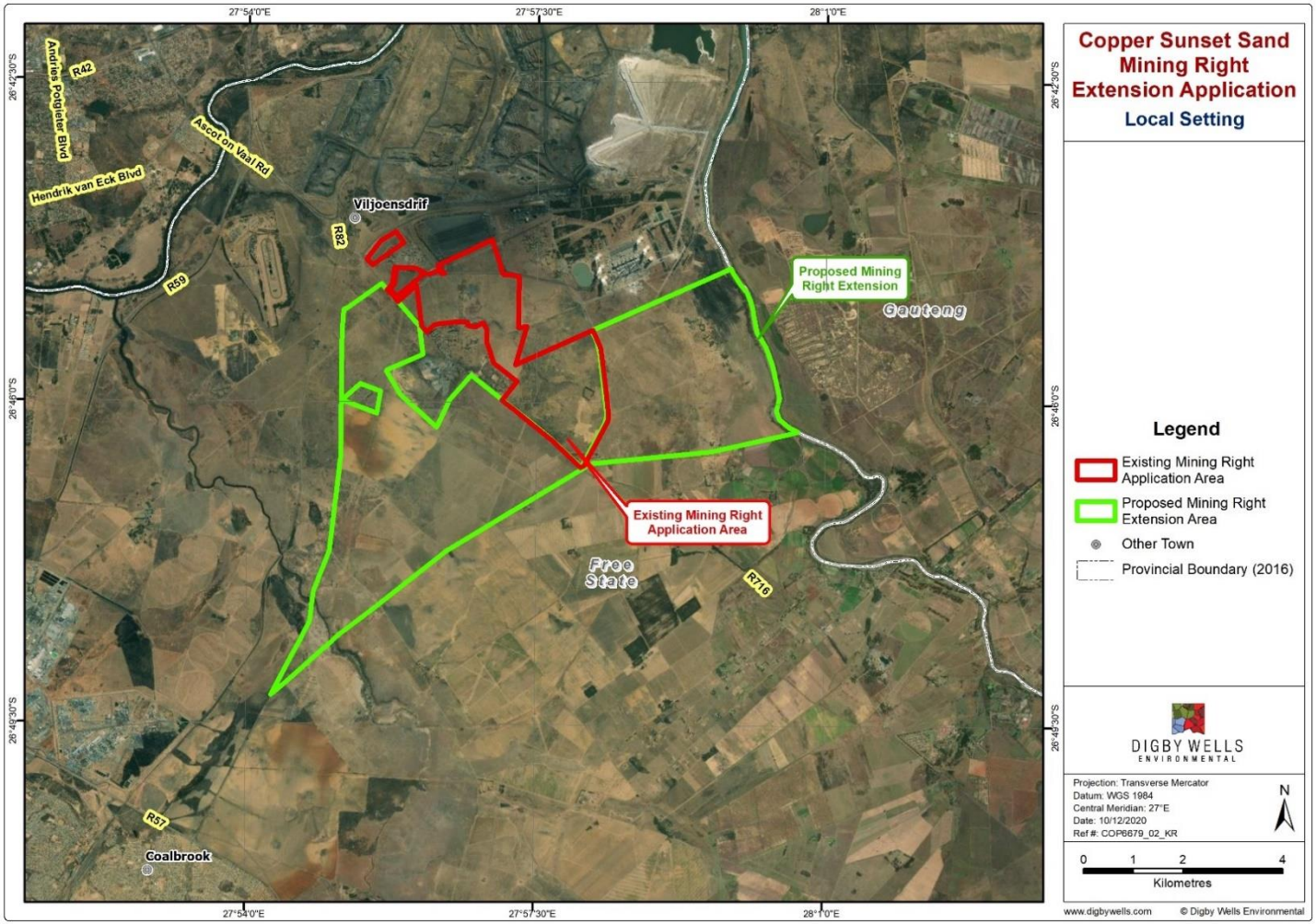


Figure 4-2: Locality Map

5 Item 2(d): Description of the Scope of the Proposed Overall Activity

The proposed infrastructure layout plan, as shown in Figure 5-1 below, is included in Appendix B as Plan 4.

For the purpose of the report, the following terms apply:

- **Mining Right Area** defines the farms included in the Mining Right boundary (approved Copper Sunset Mining Right properties) as indicated in section 3 above;
- **Project Area** defines farm portions directly affected by the proposed mining and mining-related infrastructure (i.e. new proposed expansion areas); and
- **Study Area** will be determined by each specialist and the zone of influence in terms of potential impacts the Project area will have, relevant to the individual specialist fields.

5.1 Item 2(d)(i): Listed and Specified Activities

Together with the EIA Regulations, 2014 (as amended), the Minister published Regulations in terms of Sections 24 and 24D of the NEMA for Activities that require Environmental Authorisation prior to their commencement.

Activities identified in Listing Notice 1 (GN R 327) require that a Basic Assessment Process be followed when applying for an EA. Activities identified in Listing Notice 2 (GN R 325) require a Scoping and EIR Process to be undertaken. Table 5-1 details all the Activities in terms of the EIA Regulations, 2014 (as amended) in accordance with the NEMA that forms part of the Copper Sunset mining operation and have already been approved.

The proposed activities at the additional areas to be mined trigger Regulations GN R.327 and GN R.325, and therefore a S&EIR process must be undertaken, and approval received prior to the activities being commended with. Table 5-2 provides the identified Listed Activities as provided by the EIA Regulation, 2014 (as amended).

Table 5-1: Approved Listed Activities

Name of Activity	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Corresponding Listed Activities in terms of EIA Regulations, 2014 (as amended)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
The clearing of indigenous vegetation prior to the mining of sand	759.13 ha	X	Listing Notice 2 (GN R 325) Activity 15	N/A
Removal of protected species should these species be encountered	759.13 ha	X	Listing Notice 1 (GN R 327) Activity 30	N/A
Mining and screening (where required) of sand within the approved MR area	759.13 ha	X	Listing Notice 2 (GN R 325) Activity 17	N/A
The change in land use from agriculture to mining	759.13 ha	X	Listing Notice 1 (GN R 327) Activity 28	N/A
Construction of mine related infrastructure include hydrocarbon storage tank, oil separator, workshop and hard standing area for the storage of machinery.	1 ha	X	Listing Notice 2 (GN R 325) Activity 17	N/A

Name of Activity	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Corresponding Listed Activities in terms of EIA Regulations, 2014 (as amended)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
Construction and operation of the hydrocarbon storage tank (14,000 L)	10 m^3 14,000 L	N/A	N/A	N/A
Concurrent Rehabilitation	759.13 ha	N/A	N/A	N/A
Construction of the haul roads	759.13 ha	X	Listing Notice 1 (GN R 327) Activity 24	N/A

Table 5-2: New Listed Activities to be Undertaken for the Proposed Expansion Project

Name of Activity Mining (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads pipelines, power lines, conveyors, etc.)	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Applicable Listing Notice** **Listing Notice 1(GN R327); Listing Notice 2 (GN R325) and Listing Notice 3 (GN R324)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
The clearance of indigenous vegetation of more than 20 ha. The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	2821.5 ha	X	Listing Notice 2 (GN R 325) Activity 15	N/A

Name of Activity Mining (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads pipelines, power lines, conveyors, etc.)	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Applicable Listing Notice** **Listing Notice 1(GN R327); Listing Notice 2 (GN R325) and Listing Notice 3 (GN R324)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
Mining and screening (where required) of sand within the proposed expansion area Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing.	2821.5 ha	X	Listing Notice 2 (GN R 325) Activity 17	N/A

Name of Activity Mining (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads pipelines, power lines, conveyors, etc.)	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Applicable Listing Notice** **Listing Notice 1(GN R327); Listing Notice 2 (GN R325) and Listing Notice 3 (GN R324)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
Construction of haul roads and access roads The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres	10 km in length 20 m in width	X	Listing Notice 1 (GN R 327) Activity 24	N/A
Fuel handling and storage facilities. Two new fuel storage tanks will be installed each equating to 14,000 L. The combined capacity including the already approved storage tank at the Copper Sunset workshops amount to 42,000 L. The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	20 m^3	N/A	N/A	N/A

Name of Activity Mining (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads pipelines, power lines, conveyors, etc.)	**Aerial extent of the activity** (Ha or m^2)	**Listed Activity** Mark with an X where applicable or affected.	**Applicable Listing Notice** **Listing Notice 1(GN R327); Listing Notice 2 (GN R325) and Listing Notice 3 (GN R324)**	**Waste Management Authorisation** **(Indicate whether an authorisation is required in terms of the Waste Management Act).** **(Mark with an X)**
The change in land use from agricultural to mining Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.	2821.5 ha	X	Listing Notice 1 (GN R 327) Activity 28	N/A
Concurrent Rehabilitation	2821.5 ha	N/A	N/A	N/A

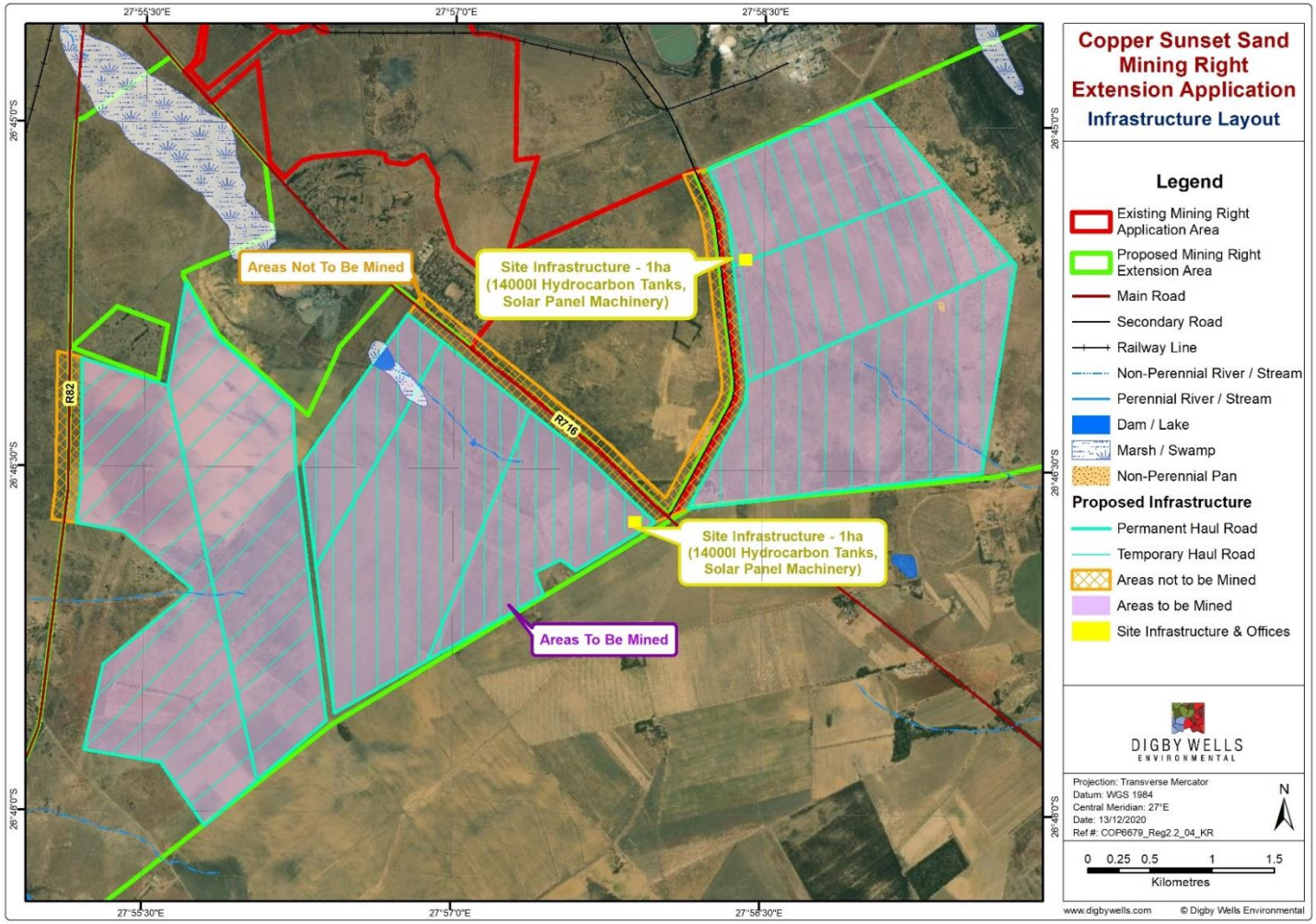


Figure 5-1: Infrastructure Layout Plan

5.2 Description of the Activities to be Undertaken

Copper Sunset began sand mining in 2009. There is currently about nine months left of the Life of Mine. Therefore, Copper Sunset wishes to expand the MRA to include additional portions of the RE of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. The properties are located within Seriti's MRA. The intention of the Application is to maximise the mineral resource and to further extend the LoM.

The sand deposit lies between 0.4 – 1.5 m below the surface. Strip mining will be utilised to recover the resource, with the sand mined in strips of 30 – 35 m in width and 0.4 - 2 m in depth. The length of the strips is dependent on the area to be mined but approximate lengths are in the region of 180 – 600 m. The type of sand present at the mining area includes building sand and plaster sand. In addition, Copper Sunset wish to add clay to the material they wish to mine. The mining method to be applied includes:

- Stripping and stockpiling of topsoil;
- Construction of a temporary haul road (20 m wide and length will be approximately 10 km);
- Mining of the sand resource including screening;
- Backfilling of the mined excavations with stockpiled topsoil; and
- Concurrent rehabilitation.

5.2.1 Resource Deposit

Copper Sunset is applying for an extension to their MRA to include adjacent farms to continue mining general sand (90% plaster and 10% building sand) and clay.

The deposit extends over an area of 2821.5 ha. The deposit is known to be an average of 1.5 m thick. Copper Sunset intends to supply a number of clients with building and plaster sand as well as clay for use mainly in the construction industry.

The proposed Copper Sunset MREA is expected to produce sand at a rate of 53000 m^3 per month. The proposed extension area will extend the LoM for Copper Sunset by approximately 20 years (Figure 5-2).

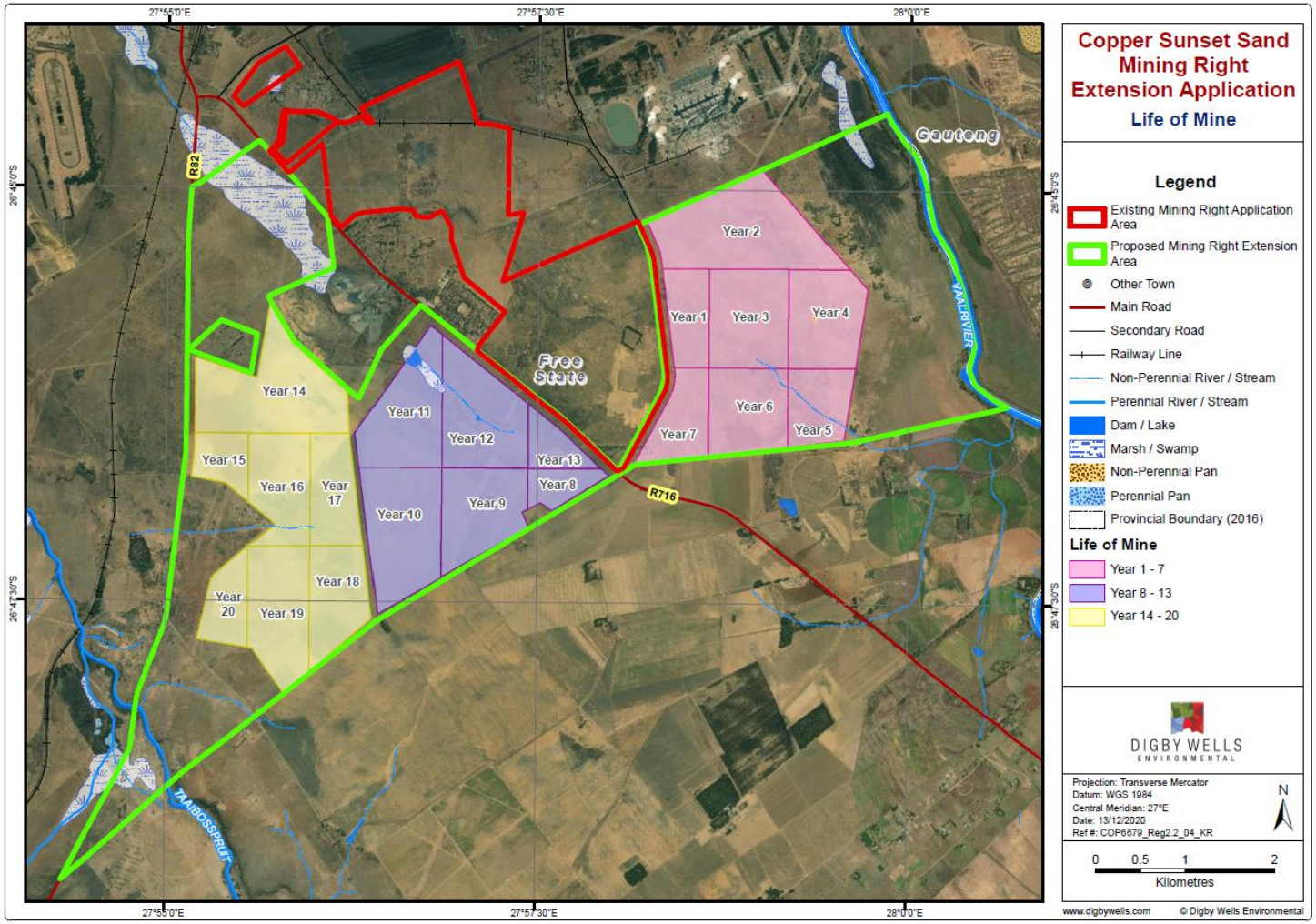


Figure 5-2: LoM Plan

5.2.2 Establishment Phase

A haul road will be constructed to gain access to the sand mining area. No permanent infrastructure will be constructed on site and all machinery will be mobile and brought in by Copper Sunset. The mining infrastructure already established will be used for the expanded areas, however; mobile offices will be established at the entrance to the new mining areas (Figure 5-1 above). A total of two new mobile offices each (approximately 1 ha) will be established at each mining area, which will be erected when mining commences in these areas. Portable toilets, a hydrocarbon storage tank and water bowser will also be utilised. The mobile office areas will include the following:

- Mobile offices;
- Hydrocarbon storage tank (14,000 L) with associated bund. Machinery will be refuelled in the area;
- Waste storage area;
- Parking area for the storage of mobile infrastructure; and
- A generator and solar panels to provide electricity to the offices.

5.2.3 Operational Phase

The mine will make use of a fleet of tipper trucks, front-end loaders, excavators, water trucks, tractor and bulldozers. Mining will commence with the removal of vegetation by means of a bulldozer. The topsoil will be removed by a bulldozer to a depth of about 0.3 – 0.4 m and stockpiled in a separate area for use during rehabilitation. Strip mining will take place in sequences of 30 – 50 m wide to extract the sand by means of light weight excavators. The commencement of mining in the extension areas will initially be on the sand deposit on the eastern portion of the RE of Bankfontein No. 9 RE (Eastern Block), thereafter on the western portion of the RE of Bankfontein No. 9 RE (Western Block) and lastly on a portion of the RE of Zandfontein No. 259.

A screening process will be utilised where required should sand become contaminated with unusable particles. The screening process will include the use of Mobile Screening Machine, called the Powerscreen Chieftain 1400. The mixed sand will be loaded onto the top of the machine and separated out into separate stockpiles, depending on the sand particle sizes. It is proposed that two Mobile Screening Machines or similar equipment be utilised in the sand mining process, however; this could change depending on how the mine develops. The screening machines will be moved from one area to the next within the MRA, as required. The use of the machine will not disturb any additional areas and will be placed on areas which will or have already been disturbed by the sand mining operations.

The customer trucks (100-200 trucks per day) will enter via the haul road into the mining area. The haul road will be constructed as a loop to allow continuous flow of traffic. The mined-out sand will be placed directly onto the customers trucks.

5.2.4 Rehabilitation Phase

Sand mining will cease once the resource has been extracted. Concurrent rehabilitation will be implemented during the sand mining process. The areas which have been mined of sand will be backfilled with the waste material from the screening plant and topsoil, stockpiled during the operational phase. The area will be levelled and then contoured to avoid ponding of water. The topography is anticipated to be slightly lower as a result of the removal of sand. The area will then be allowed to naturally re-vegetate. Where vegetation is not being well established, an indigenous seed mix will be utilised to improve vegetation establishment.

5.2.5 Mining Associated Infrastructure

The existing infrastructure area at the Bankfontein Farm will continue to be utilised. The refuelling of equipment will take place at the mobile office areas within the expanded mining area.

5.2.5.1 *Electricity*

Electricity for the mining operation will be received from a solar power system which will be installed at the proposed mine offices. All mining machinery and plant will be diesel powered. No electricity will be received from Eskom.

5.2.5.2 *Water Management*

Water will be abstracted from an authorised borehole, located at the existing Copper Sunset MRA. This borehole is authorised by the Department of Water and Sanitation (DWS) under Water Use Licence (WUL) No. 08/C22F/AG/2315, granted on 18 September 2013. It is anticipated that water will only be required for potable water and dust suppression on the expansion area. The water will be sourced from the borehole and pumped into a water cart for transport to the new proposed sand mining area. A water cart works by providing water cartage services, water storage or water spraying for dust suppression and landscaping purposes. The water carts feature a water tank that is mounted to the body of a truck. The amount of water used will remain within the limits of the existing license. No mining will take place within a 100 m buffer from the edge of the Vaal River.

5.2.5.3 *Waste Management*

General and hazardous waste will be generated as a result of the Copper Sunset Project. The waste will be handled, separated, stored and disposed of accordingly. The following waste types are anticipated to be generated at the operation:

- General waste:
  - Domestic Waste;
  - Paper;
  - Plastic;
  - Cardboard;

- Tins; and
- Glass.

- Hazardous Waste:
  - Hydrocarbon waste such as oily rags as a result from the hydrocarbon stored onsite; and
  - Chemical waste from the chemicals that may be utilised for cleaning purposes.

It is anticipated that all general waste will either be recycled or disposed of at the local municipality landfill site. Hazardous waste will be removed offsite by a hazardous waste contractor. A safe disposal certificate for the removal of hazardous waste will be retained as proof of safe disposal.

5.2.6 Project Activities

Table 5-3 provides a summary of activities associated with the proposed Project that will be further assessed as part of the EIA process.

Table 5-3: Proposed Project Activities

Activity No.	Activity
Establishment Phase	• Site clearance and vegetation removal; • Removal and stockpiling of topsoil; • Placement of the offices and associated mining equipment; • Construction of the hydrocarbon storage tank and refuelling area; and • Establishment of a haul road / tracks.
Operational Phase	• Mining of sand resources including screening (if required); • Transportation of sand; • Refuelling of machinery within the mining area (for machinery that cannot be moved easily) or at the mobile offices; • Handling of general and hazardous waste; and • Concurrent rehabilitation (topsoil cover, ripping and vegetation establishment) and monitoring of vegetation establishment.
Closure and Rehabilitation Phase	• Backfilling of the mined excavations with topsoil and waste from the screening plants; • Dismantling and removal of infrastructure; • Rehabilitation (topsoil cover, ripping and vegetation establishment); and • Post-closure monitoring.

6 Item 2(e): Policy and Legislative Context

From an environmental and social perspective, the proposed Project is required to comply with all the obligations in terms of the provisions of the NEMA and MPRDA. The additional legislative guidelines directing the Project are outlined in further detail in Table 6-1 below.

Table 6-1: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied
The Constitution of the Republic of South Africa, 1996 Under Section 24 of the Constitution of the Republic of South Africa, 1996 (the Constitution) it is clearly stated that: *Everyone has the right to* *(a) an environment that is not harmful to their health or well-being; and* *(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -* *(i) Prevent pollution and ecological degradation;* *(ii) Promote conservation; and* *(iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*	Digby Wells is undertaking an S&EIR process to identify and determine the potential impacts associated with the proposed Project. Mitigation measures will aim to ensure that the potential impacts are managed to acceptable levels to support the rights as enshrined in the Constitution.
National Environmental Management Act, 1998 (Act No 107 of 1998) and EIA Regulations (as amended in 2017) The Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA), as amended was set in place in accordance with Section 24 of the Constitution. Certain environmental principles under NEMA have to be adhered to, to inform decision making for issues affecting the environment. Section 24 (1)(a) and (b) of NEMA state that: *The potential impact on the environment and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.* The EIA Regulation, 2014 was published under GN R 982 on 4 December 2014 (EIA Regulations) and came into operation on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R 983 (Listing Notice No. 1), GN 984 (Listing Notice No. 2) and GN R 985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended. The EIA Regulations have been made applicable to prospecting and mining activities.	The sand mining Project proposed by Copper Sunset triggers Listed Activities in accordance with the EIA regulations, 2014 (as amended) and therefore requires environmental authorisation prior to being undertaken. The Listed Activities have been included in Table 5-2 above. The EA application was submitted on 14 December 2020. This Scoping Report and proceeding EIA Report will be informed by the requirements of the NEMA and Regulations thereunder.
Mineral and Petroleum Resource Development Act. 2002 (Act No. 28 of 2002) The MPRDA sets out the requirements relating to the development of the nation's mineral and petroleum resources. It also aims to ensure the promotion of economic and social development through exploration and mining related activities. The MPRDA requires that mining companies assess the socio-economic impacts of their activities from start to closure and beyond. Companies must develop and implement a comprehensive Social and Labour Plan (SLP) to promote socio-economic development in their host communities and to prevent or lessen negative social impacts.	Copper Sunset wish to expand their MRA to incorporate adjacent properties to extend the LoM and are thus applying for EA to authorise new Listed Activities as per NEMA. The NEMA EA application and Section 102 application were submitted to the DMRE on 14 December 2020. The EIA will be undertaken to meet the requirements of the MPRDA read with the EIA Regulations, 2014 (as amended). Financial Provisioning and Closure Costs will be included in the EIA/EMPr Report.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) On 29 November 2013, the list of waste management activities published under GN R718 of 3 July 2009 (GN R718) was repealed and replaced with a new list of waste management activities under GN R921 of 29 November 2013. Included in the new list are activities listed under Category A, B and C. These activities include inter alia the following: Category A describes waste management activities requiring a Basic Assessment process to be carried out in accordance with the EIA Regulations supporting an application for a waste management licence; Category B describes waste management activities requiring an Environmental Impact Assessment process to be conducted in accordance with the EIA Regulations supporting a waste management licence application; and	The proposed Project does not warrant the need to apply for a Waste Management Licence (WML), however; the norms and standards for waste management under the Act will be duly taken into consideration.

Applicable legislation and guidelines used to compile the report	Reference where applied
Category C describes waste management activities that do not require a WML but these activities will have to comply with the prescribed requirements and standards as prescribed by the Minister, which includes the Norms and Standards for Storage of Waste, 2013. These activities include the storage of general waste at a facility with a capacity to store in excess of 100 m^3 and storage of hazardous waste in excess of 80 m^3. The Waste Classification and Management Regulations published under GN R 634 of November 2013 require that all wastes be classified according to SANS10234 and managed according to its classification.	
National Water Act, 1998 (Act No. 36 of 1998) (NWA) The NWA provides for the sustainable and equitable use and protection of water resources. It is founded on the principle that the National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person can only be entitled to use water if the use is permissible under the NWA. GN R 704 was published in June 1999 and aims to regulate the use of water for mining and related activities for the protection of water resources and states the following: • Regulation 4: No residue deposit, reservoir or dam may be located within the 1:100 year flood line, or less than a horizontal distance of 100 m from the nearest watercourse. Furthermore, person(s) may not dispose of any substance that may cause water pollution; • Regulation 5: No person(s) may use substances for the construction of a dam or impoundment if that substance will cause water pollution; • Regulation 6 is concerned with the capacity requirements of clean and dirty water systems, and • Regulation 7 details the requirements necessary for the protection of water resources.	The Eastern portion of proposed expansion area is located near the Vaal River. It is anticipated that more than a 100m buffer zone will be established to prevent mining activities being undertaken in close proximity to the river. Wetlands have been identified within the expansion area. A WULA will be submitted to the DWS to obtain the required permissions to mine the areas.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) The NEM:BA regulates the management and conservation of the biodiversity of South Africa within the framework provided under NEMA. This Act also regulates the protection of species and ecosystems that require national protection and also takes into account the management of alien and invasive species. The following regulations which have been promulgated in terms of the NEM:BA are also of relevance: • Alien and Invasive Species Lists, 2014 published (GN R.599 in GG 37886 of 1 August 2014); • National Environmental Management: Biodiversity Act, 2004: Threatened and Protected Species Regulations; and • National list of Ecosystems Threatened and in need of Protection under Section 52(1) (a) of the Biodiversity Act (GG 34809, GN R.1002, 9 December 2011).	A Fauna and Flora Impact Assessment, Wetland Impact Assessment and Aquatics Impact Assessment will be conducted as part of the EIA Phase.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) The prevailing legislation in the Republic of South Africa with regards to the Air Quality field is the National Environment Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA). According to the Act, the DEA, the provincial environmental departments and local authorities (district and local municipalities) are separately and jointly responsible for the implementation and enforcement of various aspects of NEM: AQA. A fundamental aspect of the new approach to the air quality regulation, as reflected in the NEM: AQA is the establishment of National Ambient Air Quality Standards (NAAQS). These standards provide the goals for air quality management plans and also provide the benchmark by which the effectiveness of these management plans is measured. The NEM: AQA provides for the identification of priority pollutants and the setting of ambient standards with respect to these pollutants.	An Air Quality Impact Assessment will be undertaken as part of the EIA Phase. The Project's activities will set out to abide by the NEM: AQA and standards set out in the NAAQS. The required mitigation will be included in the EMPr as part of the EIA Phase.
National Dust Control Regulation 2013 The Minister of Water and Environmental Affairs, released on the 01 November 2013 the National Dust Control Regulation, in terms of Section 53, read with Section 32 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA). In the published National Dust Control Regulations, terms like target, action and alert thresholds were omitted. Another notable observation was the reduction of the permissible frequency of exceedance from three to two incidences within a year. The standard actually adopted a more stringent approach than previously and would require dedicated mitigation plans now that it is in force.	An Air Quality Impact Assessment will be undertaken as part of the EIA Phase. The Project's activities will set out to abide by the NEM: AQA and standards set out in the NAAQS. The required mitigation will be included in the EMPR as part of the EIA Phase.
National Noise Control Regulations, R.154 of 1992 (the Noise Regulations) promulgated in terms of Section 25 of the Environmental Conservation Act, 1989 (Act 73 of 1989)	A Noise Impact Assessment, including modelling, impacts and proposed mitigation measures will be undertaken for the EIA Phase.

Applicable legislation and guidelines used to compile the report	Reference where applied
The National Noise-Control Regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) (NCRs) form part of the Environmental Conservation Act and these Regulations apply to external noise. The NCRs differentiates between Disturbing Noise levels (which is objective and scientifically measurable which are generally compared to existing ambient noise level) and Noise Nuisance (which is a subjective measure and is defined as noise that "*disturbs or impairs or may disturb or impair the convenience or peace of any person*"). Local Authorities use Controlled Areas to identify areas with high noise levels. Restrictions have been set out for development that occurs in these Controlled Areas. These regulations make provision for guidelines pertaining to noise control and measurements. The regulations make reference to the use of the South African National Standards 10103:2008 (SANS) guidelines for the Measurement and Rating of Environmental Noise with Respect to Land Use, Health, and Annoyance and to Speech Communication. As such, a Noise Impact Assessment in accordance with the NCRs must be undertaken for submission to determine the potential disturbing and nuisance noise levels associated with a particular development.	
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) is the overarching legislation that protects and regulates the management of heritage resources in South Africa. The Act requires that Heritage Resources Agency's in this case the South African Heritage Resources Agency (SAHRA) and Provincial Heritage Resources Authority of Gauteng (PHRA-G), be notified as early as possible of any developments that may exceed certain minimum thresholds. This act is enforced through the National Heritage Regulations GN R 548 (2000).	For the Scoping Phase, a Notice of Intent to Develop (NID) was submitted to SAHRA. A Heritage Impact Assessment will form part of the EIA Phase. The heritage baseline is provided in Section 11.11.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) CARA aims to provide for the conservation of the natural agricultural resources of the country through the maintenance of the production potential of land, by combatting and preventing erosion and the weakening of water sources. In addition, this Act aims to protect vegetation, while combatting weeds and invader plants	As part of this sand mining Project, flora, fauna and wetlands will be investigated to determine the current status of the environment and to determine any potential ecological sensitivity to be avoided and/or mitigated.
Environmental Conservation Act, 1989 (Act No. 73 of 1989) (ECA) ECA makes provision for guidelines pertaining to noise control and measurements. The regulations make reference to the use of the South African National Standards 10103:2008 (SANS) guidelines for the Measurement and Rating of Environmental Noise with Respect to Land Use, Health, and Annoyance and to Speech Communication.	Mitigation measures have been included for the potential impacts due to the generation of noise. The mitigation measures will be in compliance with the ECA.
GN R 1147 (Financial Provisioning Regulations), 2015 The Financial Provisioning Regulations prescribe methods for determining the quantum of financial provision for rehabilitation and mechanisms for providing for it. Section 41 (1) of the MPRDA has been repealed and Section 24P of the NEMA, as amended, which provides that the holder of a mining right must make financial provision for rehabilitation of negative environmental impacts. The financial provision must guarantee the availability of sufficient funds.	The Financial Provisioning Regulations are applicable to rehabilitation and closure plans as they prescribe the minimum content of an annual rehabilitation plan and the minimum content of a final rehabilitation, decommissioning and mine closure plan. This will be finalised and included in the EIA Report.
GN R 527 (MPRDA Regulations), 2004 Regulation 527 (GN R. 527) specifies that the EMP must include environmental objectives and specific goals for mine closure. The applicant for a mining right must make prescribed financial provision for the rehabilitation or management of negative environmental impacts, which must be reviewed annually. R527 provides specific principles for mine closure including safety and health, residual and latent environmental impacts etc.	A preliminary Environmental Management Plan is provided in Section 13.9 of this report.

7 Item 2(f): Need and Desirability of the Proposed Activities

South Africa is rich in a variety of mineral resources and has thus become a world leader in mining. For years, mining has been the driving force behind South Africa's economy and continues to make a valuable contribution to the country's economy and people's livelihoods.

Copper Sunset began sand mining in 2009. There is currently about nine months left of the Life of Mine. The Applicant has identified the need to expand the approved MRA to exploit identified sand resources found on the proposed adjacent properties so as to ascertain and prolong the lifespan of the sand mine. Sand is one of the key materials used in the construction of roads, buildings and other infrastructure. There is an increased market demand on the requirements for building sand in the vicinity of the proposed Project area, which motivated the continued operation of the mine. The total market in the geographical area in which the mine is situated is estimated to be between 200,000 and 220,000 tonnes per month. Thus, providing general sand (90% plaster and 10% building sand) and clay to the local markets will support numerous building activities being implemented, and support the growing demand of sand in the market.

The extension is necessary to ensure adequate supply of sand to Copper Sunset's customers. Overall, if approved, this proposed extension to the existing MR will extend the life of sand mining at the existing mine by at least 20 years.

Apart from economic benefits, the proposed Project would ultimately contribute towards the wider socioeconomic development of the area in the form of continued employment opportunities and service delivery through promoting infrastructural development.

7.1 Questions to be Engaged with when Considering Need and Desirability

The Guideline on the assessment of Need and Desirability (Department of Environmental Affairs (DEA), 2017) includes a number of questions, the answers to which should be considered in the EIA Process. Table 7-1 presents the needs and desirability analysis undertaken for the Copper Sunset Project.

Table 7-1: Need and Desirability

Theme	No.	Question	Response
Securing ecological sustainable development and use of natural resources"	1	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	The entire area covered by the extension application (2821.5 ha) will be completely transformed by the proposed mining activities. The vegetation and topsoil will be stripped and the sand resource under the topsoil will be removed through mining activities. It should be noted that the MREA has been disturbed through anthropogenic activity, including farming. A large section of the eastern MREA has historically been impacted by agropastoral activities. Also, the area is located within Seriti's MRA and will possibly be open cast mined by the New Vaal Colliery. While the ecological integrity of the entire application area will be destroyed through mining, with appropriate management measures, impacts on surrounding intact sensitive habitats (except for wetlands proposed to be mined) can be prevented.
	1.1	How were the following ecological integrity considerations taken into account?	
	1.1.1	Threatened Ecosystems	The Project area is situated within two vulnerable ecosystems, the Central Free State Grassland, which constitutes the majority of the Project area, and the Andesite Mountain. Based on the Red Data plant species search for the 2627 DD, 2627 DB, 2628 CA and 2628 CC QDS, a total of 21 Red Data listed flora species of conservation concern (SCC) may occur in the Project area. A total of two Red Data faunal species can potentially be encountered in and around the Project area, including *Aonyx capensis* (African Clawless Otter) and *Pyxicephalus adspersus* (Giant Bullfrog), which are both classified as "Near Threatened". These have been listed in sections 11.7.

Theme	No.	Question	Response
			The proposed extension area does not fall within any original or remaining extents of a threatened ecosystem.
	1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	The Eastern portion of proposed expansion area is located near the Vaal River. It is anticipated that more than a 100 m buffer zone will be established to prevent mining activities being undertaken in close proximity to the river. Wetlands have been identified within the MREA (see Section 11.8). A WULA will be submitted to the DWS to obtain the required permissions to mine the areas.
	1.1.3	Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)	The Project area traverses no protected areas. The western section of the proposed Copper Sunset MRA is predominantly classified as Degraded Land, with the remaining area classified as ESA1 (sites with minimal degradation) and ESA2 (sites with degradation, i.e., they can be totally degraded, but not totally transformed) (Figure 11-13). The eastern section of the MRA is predominantly classified as ESA2, with smaller areas classified as ESA1.
	1.1.4	Conservation targets	These will be considered during the EIA Phase and responded to accordingly.
	1.1.5	Ecological drivers of the ecosystem	
	1.1.6	Environmental Management Framework	
	1.1.7	Spatial Development Framework (SDF)	The Fezile Dabi Municipality Integrated Development Plan (IDP), containing the SDF, was referenced for the compilation of this Scoping Report, and will be considered in the Impact Assessment Phase.

Theme	No.	Question	Response
	1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.)	A desktop survey of wetlands was carried out for the Scoping Phase which referenced National Freshwater Ecosystem Priority Areas (NFEPA) wetlands. No RAMSAR sites are present in the vicinity of the Project area.
	1.2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed Project will completely disturb the grassland currently existing within the extension area resulting in the destruction of the current biological diversity over the area. It should be noted that a large section of the eastern MREA has historically been impacted by agropastoral activities. The concurrent rehabilitation method ensures continued reinstatement of mined-out areas, thereby keeping the impact on the receiving environment as low as possible. No consideration was given to alternative mining sites mainly due to the availability of sand within the expansion area and that the area is directly adjacent to Copper Sunset's existing mining operation. The Eastern portion of proposed expansion area is located near the Vaal River. It is anticipated that more than a 100 m buffer zone will be established to prevent mining activities being undertaken in close proximity to the river. Wetlands have been identified within the expansion area and the Applicant would like to mine these areas. Thus, the Project area will need to be assessed due to potential impacts such as wetland loss, habitat loss, habitat fragmentation, alien invasive plants proliferation and loss of faunal and floral species of conservation concern. Digby Wells' impact assessment methodology will be utilised to identify, determine and assess the potential impacts during the EIA Phase (Section 12.1).
	1.3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	

Theme	No.	Question	Response
	1.4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	General and hazardous waste will be generated as a result of the proposed Project. The waste will be handled, separated, stored and disposed of accordingly. It is anticipated that all general waste will either be recycled or disposed of at the local municipality landfill site. Hazardous waste will be removed offsite by a hazardous waste contractor. A safe disposal certificate for the removal of hazardous waste will be retained as proof of safe disposal.
	1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	A desktop survey has been conducted for the Scoping Phase but the extent to which cultural heritage sites will/may be disturbed will be investigated in the EIA Phase. No archaeological material was identified during the pre-disturbance survey. Burial ground was identified during the pre-disturbance survey.
	1.6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed sand mining activities will essentially deplete a non-renewable natural resource within the expansion area (sand). Once the sand is removed, it will be gone from this area forever. The sand will be sold to the building and construction industry and will form an integral part to future construction projects in the area. Sand is an integral ingredient for residential and other developments. Preliminary impacts of the proposed Project have been identified and mitigation measures aimed at avoiding, reducing and / or managing the negative impacts as well as enhancing the positive impacts have been recommended.

Theme	No.	Question	Response
	1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	The Scoping Phase has confirmed the presence of wetlands. The sand mine will make use of limited water to allow the operation of the activity. The extent of these impacts and potential mitigation can only be determined in the EIA Phase.
	1.7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	Sand is a critical component for any development activity. The sand will be sold into the local building and construction market and will form an integral part to future construction projects in the area. The total market in the geographical area in which the mine is situated is estimated to be between 200 000 and 220 000 tonnes per month. The social impacts as a result of sand mining proceeding will be assessed in the EIA Phase.
	1.7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)	
	1.7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	The EIA will provide mitigation measures to reduce the overall impact of the mine in terms of scarce resource usage.

Theme	No.	Question	Response
	1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts?	Sufficient information was gathered prior to the onset of this process to indicate that the potential mining of sand is feasible.
	1.8.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	Each specialist will investigate the impacts and present the gaps and / or limitations in knowledge in their respective reports. Gaps in knowledge are collated and expressly provided in the EIA Report, which is submitted to the Competent Authority for consideration.
	1.8.2	What is the level of risk associated with the limits of current knowledge?	
	1.8.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
	1.9	How will the ecological impacts, resulting from this development impact on people's environmental right in terms following:	This will be investigated and quantified by each specialist and presented in the EIA Phase.
	1.9.1	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	
	1.9.2	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	
	1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will	

Theme	No.	Question	Response
		result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	
	1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	
	1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Refer to Section 9.1 for details of the alternatives considered. This aspect will be further investigated during the EIA Phase.
	1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Cumulative impacts will be investigated and presented during the EIA Phase.
Promoting justifiable economic and social development"	2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
	2.1.1	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	The social baseline took the Fezile Dabi District Municipality IDP for the period 2020-2021 and the Metsimoholo Local Municipality IDP (2018-2019) into consideration. The IDP presents issues and requests raised by residents in each local municipal district of the Fezile Dabi Municipality.
	2.1.2	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	Copper Sunset has been operational since 2009. The mine contributes directly to society through the employment of local residents and Local Economic Development (LED) commitments of

Theme	No.	Question	Response
	2.1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	the mine. The mine also contributes to infrastructure development in the surrounding area.
	2.1.4	Municipal Economic Development Strategy ("LED Strategy").	
	2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	The extension area will contribute to a change of sense of place within the local area as a result of cumulative dust and noise which would be created as a result of the proposed mine. The main benefit associated with the Project is the ability to provide sand for developments taking place within the Metsimaholo Local Municipality. Sand is a critical component of any development activity. The proposed Project will result in continued employment opportunities. The positive impact from the Project will be recognised through implementing the Community Development Projects.
	2.2.1	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	
	2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The mine supplies sand to the building industry in the local and regional area. In addition, the mine has to meet the commitments of the SLP regarding Human Resources Development, LED, and the process pertaining to management of downscaling and retrenchment. The proposed extension of the mining footprint will not impact negatively on the social status of the area.
	2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	The mine will offer portable skills to employees throughout the LoM, to ensure that they have skills other than those required by the mine, to lessen the negative impact and foster continued livelihood.
	2.5	In terms of location, describe how the placement of the proposed development will	

Theme	No.	Question	Response
	2.5.1	result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	The number of staff at the existing Copper Sunset mine has been reduced via retrenchment following extensive consultation with all staff. There will be additional employment directly created at the existing mine should the extension application be granted. The extension will also result in the prolonging of the existing jobs at the existing mine. The sand mined from the extension area is a critical component for development within the area. The construction/ development industry will also provide employment opportunities.
	2.5.2	reduce the need for transport of people and goods	The sand product will be loaded onto customer trucks trucked to various markets.
	2.5.3	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	
	2.5.4	compliment other uses in the area,	A Traffic Impact Assessment will be undertaken in the EIA Phase, which will establish potential congestion on surrounding roads and provide mitigation measures to manage the impact.
	2.5.5	be in line with the planning for the area,	Copper Sunset currently has about nine months left of the LoM. The LoM is proposed to be extend by at least 20 years and the Closure and Rehabilitation Report will consider end-land use in line with the LED Strategy.
	2.5.6	for urban related development, make use of underutilised land available with the urban edge,	Not applicable. The proposed Copper Sunset Project area is outside an urban area.

Theme	No.	Question	Response
	2.5.7	optimise the use of existing resources and infrastructure,	The mining infrastructure already established will be used for the expanded areas, however; mobile offices will be established at the entrance to the new mining areas. No permanent infrastructure will be constructed on site for the sand mining operation. All machinery will be mobile and brought in by Copper Sunset.
	2.5.8	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	No bulk infrastructure will form part of this development.
	2.5.9	discourage "urban sprawl" and contribute to compaction/densification,	The Project area and surrounds are fairly rural and cannot therefore influence urban sprawl.
	2.5.10	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	The Community Development projects associated with the SLP prioritises Historically Disadvantaged South Africans as beneficiaries. The Social Impact Study will inform and update the SLP.
	2.5.11	encourage environmentally sustainable land development practices and processes,	Not applicable. This can only be considered during the investigation for the end land use, post closure.
	2.5.12	take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	The proposed expansion area is dependent on the location of the identified sand resource.
	2.5.13	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	The proposed Project will allow the mine to continue contributing to the local, regional and national Gross Domestic Product (GDPs), and also to the local communities through job security, as well as

Theme	No.	Question	Response
			other influences and community upliftment programmes that are undertaken by the mine through their SLP.
	2.5.14	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	The impact to cultural heritage will be investigated during the EIA Phase.
	2.5.15	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	The proposed Project will ensure job security, as well as programmes implemented from the mine's SLP.
	2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	Social impacts will be investigated during the EIA Phase.
	2.6.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	Gaps in knowledge, uncertainties and assumptions will be determined during the EIA Phase and presented in the EIA Report.
	2.6.2	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	
	2.6.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
	2.7	How will the socio-economic impacts, resulting from this development impact on people's environmental right in terms following:	
	2.7.1	Negative impacts: e.g. health (e.g. HIV- Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	A Social Impact Assessment will be conducted during the EIA Phase which will consider the extent and significance of the proposed impacts presented in this section.

Theme	No.	Question	Response
	2.7.2	Positive impacts. What measures were taken to enhance positive impacts?	
	2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	
	2.9	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	
	2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	
	2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	

Theme	No.	Question	Response
	2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	
	2.13	What measures were taken to:	
	2.13.1	ensure the participation of all interested and affected parties,	During the pre-application and Scoping Phase, an I&AP database was developed to identify and verify the directly and indirectly affected landowners or land occupiers as well as the potentially affected surrounding communities. This database will be updated throughout the EIA Process to ensure adequate consultation.
	2.13.2	provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	Digby Wells will maintain and update the I&AP database to ensure communication with all registered I&APs. Site notices have been erected in various locations around the site and in the nearest communities to announce the Project, SMS notifications will be utilised to keep I&APs informed about the Project. Due to COVID-19 Regulations, Focus Group meetings will be held in both the Scoping and EIA Phases to engage with any I&AP who wishes to attend, and the Project will be presented at these meetings as well as the findings of the impact assessments. *COVID-19 measures during face-to-face meetings will be taken into consideration.*
	2.13.3	ensure participation by vulnerable and disadvantaged persons,	Refer to Section 10 of this Scoping Report, describing the Public Participation Process (PPP) to be implemented for the proposed Project. Focus Group meetings are planned to be held in the scoping and EIA Phases of the Project.

Theme	No.	Question	Response
			Efforts will be made at the meetings to be held to ensure that all participants can participate in a language they are able to understand.
	2.13.4	promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	The consultation process seeks to inform affected communities of the positive and negative impacts associated with the proposed Project and provide opportunity for any stakeholder to raise concerns which will be responded to both on record in the reports and through direct written response (where possible).
	2.13.5	ensure openness and transparency, and access to information in terms of the process,	Digby Wells is bound by legislation and regulations to share information pertaining to the Project, to be transparent and impartial.
	2.13.6	ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and	All stakeholder needs will be accommodated as far as is reasonably possible.
	2.13.7	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was be promoted?	The EAP cannot force participation from specific demographics. Cultural norms will be respected and adhered to; however, no demographic can be excluded from public consultation and therefore all registered stakeholders and meeting attendees will be considered intrinsic to the public consultation process and outcomes. *COVID-19 measures during face-to-face meetings will be taken into consideration.*
	2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	

Theme	No.	Question	Response
	2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected	The Applicant must produce a Health and Safety policy and best practice on site, compliant with the Mine Health and Safety Act, 1996 (Act No. 29 of 1996). Workers must be educated on a regular basis as to the environmental and safety risks that may occur within their work environment. Also, adequate measures need to be taken to ensure that the appropriate personal protective equipment is issued to workers based on the areas that they work and the requirements of their job.
	2.16	Describe how the development will impact on job creation in terms of, amongst other aspects:	
	2.16.1	the number of temporary versus permanent jobs that will be created,	There will be additional employment directly created at the existing mine should the extension application be granted. The extension will also result in the prolonging of the existing jobs at the existing mine. In addition to permanent employees,14 persons are contracted on a semi-permanent basis.
	2.16.2	whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	There will be additional employment directly created at the existing mine should the extension application be granted. The extension will also result in the prolonging of the existing jobs at the existing mine.
	2.16.3	the distance from where labourers will have to travel,	There will be additional employment directly created at the existing mine should the extension application be granted. The extension will also result in the prolonging of the existing jobs at the existing mine.
	2.16.4	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	

Theme	No.	Question	Response
	2.16.5	the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	There are no host communities living in the areas planned to be mined. The Farms are owned by Seriti and they lease these to the farmers. The number of farm workers who may be displaced (if any) should the Project proceed will be determined during the EIA Phase.
	2.17	What measures were taken to ensure:	
	2.17.1	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Digby Wells has identified the relevant government organisations which must be consulted throughout the EIA Process. Furthermore, this application is in terms of the One Environmental System and Digby Wells shall endeavour to align the various procedures to reduce stakeholder fatigue.
	2.17.2	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	Not Applicable.
	2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	As part of the EIA Process, Financial Liability for the Applicant will be calculated to determine the cost of decommissioning and rehabilitating the mine site to an end-land use which is sustainable and in the best interest of both the surrounding communities and the environment.
	2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	
	2.20	What measures were taken to ensure that he costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	

Theme	No.	Question	Response
	2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Refer to Section 9 for the description of the process followed to reach the proposed preferred site. This aspect will be further investigated during the EIA Phase.
	2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Cumulative impacts will be assessed during the EIA Phase and presented in the EIA Report.

8 Item 2(g): Period for which the Environmental Authorisation is Required

The MR holder requests that the Environmental Authorisation be valid for at least the duration of the Mining Right.

9 Item 2(h): Description of the Process Followed to Reach the Proposed Preferred Site

This section describes the alternatives investigated during the preliminary phase of the Project. This includes the location, design or layout, mining method and the No-Go alternative.

9.1 Item 2(h)(i): Details of all Alternatives Considered

Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives help identify the most appropriate method of developing the project, taking into account location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives and the no-go alternative. Alternatives also help identify the activity with the least environmental impact.

9.1.1 Location Alternatives

The location of the mining activity is determined by the location of the resource. This application relates to the extension of the existing MR to now include the additional portions of the RE of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259 (**preferred alternatives**). The initial plan was to mine the entire Zandfontein Farm, however, due to other land uses the MRA was reduced in size to only consider a portion of the farm.

Locational alternatives have not been considered as the proposed area has been selected based on the availability of sand resource and the established mining operation taking place on the adjacent portion of land. Should any area within the extension area be deemed unsuitable for the proposed mining activities or additional viable alternatives be identified during the EIA process, this will be stated in the EIA report.

9.1.2 Design or Layout Alternatives

The design and layout options associated with this proposed extension area are primarily influenced by the occurrence of the sand resource. The mining layout is designed to consider the following:

- Any infrastructure in the area;
- Exclusion of environmentally sensitive areas;
- Servitudes;
- Thickness and quality considerations; and

- The intention to mine in strips approximately 500 m long by 30 m wide.

The infrastructure to be utilised by the mine will not be permanent. Wetlands have been identified within the proposed MREA, especially near the Vaal River and Taaibosspruit.

9.1.2.1 *Wetlands Located within the Extension Area*

Option 1 – Implement a buffer around the wetlands and not mine them

Option 2 – Apply to the DWS to mine the whole area (including wetland areas)

Option 3 – Mine severely disturbed wetlands and conserve those with high ecological importance and sensitivity (**preferred option**)

9.1.2.1.1 *Avoid Wetlands*

Channelled valley bottoms, seeps, floodplains, unchanneled valley bottom wetlands and valley head seep cover 1740.59 ha of the extension area. The appropriate buffer requirements would have to be implemented in order to avoid the wetlands. This would result in only a small portion of the area able to be mined which would make the expansion project uneconomical as limited sand will be able to be sold. This is therefore not considered to be the preferred option however the option will be investigated further during the EIA Phase.

9.1.2.1.2 *Mine Wetlands*

Wetlands with their associated buffer zones are located throughout the project area and therefore this option will involve the mining of all the wetlands located within the project area. This may result in the complete loss of wetlands and could be considered to have a significant negative impact on the environment. This is therefore not considered to be the preferred option however the option will be investigated further during the EIA Phase.

9.1.2.1.3 *Mine Severely Damaged Wetlands Only (Preferred Option)*

The third option involves the mining of some significantly disturbed wetlands while other wetlands will remain preserved and possibly aim to improve the overall Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) of the wetlands. The PES and EIS of the wetlands identified within the proposed extension area will be investigated during the EIA Phase. Depending on the outcomes, some wetlands (i.e. those with high ecological importance and sensitivity) could be identified to not be mined in order to retain their integrity in the area. In this case, only those deemed to be less important or severely damaged as a result of historically disturbance will be mined. This is the preferred option. The reason for this is this option permits the mining of sand while taking the environment into consideration (i.e. preserving some of the wetlands). This option will be further investigated during the EIA phase.

9.1.3 Mining Method Alternatives

Due to the shallow location of the sand, strip mining is the only possible mining process to remove the sand material. The use of any other alternative mining method such as

underground mining will not target the resource being mined and will possibly cause more damage to the environment than the strip-mining method.

9.1.4 The "No-Go" Alternative

The no-go option would result in the sand resource not being mined and would therefore not be available for the construction industry within the Gauteng and Free State Provinces. If the proposed Project is not approved, the opportunity to utilize this mineral as well as valuable socio-economic opportunities will be lost. The no-go option would, however, mean that all the negative impacts associated with mining will still be realised as the area will still be open cast mined by the New Vaal Colliery (i.e. vegetation removal, dust creation and noise generation). Therefore, the no-go option would just mean that the sand resource will not be realised but the area will still be mind for coal.

Additionally, if the EA is not granted, the jobs that would have been created by the proposed mining Project as well as the jobs that would have been retained from the old Copper Sunset mine would be lost.

Through a Regulation 31 Amendment Process, Copper Sunset wishes to amend and consolidate all EAs and EMPrs into one consolidated EMPr that is applicable to the approved MR and the new areas being incorporated. The consolidation has been deemed a more effective management tool; therefore, the no-go option would result in Copper Sunset maintaining its current separate authorisations at the operation, which will hinder effective management.

10 Item 2(i): Details of the Public Participation Process followed

During the Scoping Phase, the following core stakeholder engagement activities were undertaken:

- Compilation of a Stakeholder Engagement Plan to be approved by the DMRE;
- Stakeholders (including Government Departments, landowners, land occupiers, communities, Non-Governmental Organisations, agricultural organisations, Parastatals and businesses) have and will continue to be identified and captured in a stakeholder database;
- A Background Information Document (BID) and letter was distributed to the identified I&APs together with the placement of adverts and site notices around the Project area;
- The environmental Scoping Report and associated documentation is available for public comment for a period of 30 days (from 11 January to 10 February 2021);
- Consultation with I&APs will be undertaken; and
- Suggestions and concerns will be obtained from I&APs.

Table 10-1 provides a summary of the public participation activities undertaken to date.

Table 10-1: Public Participation Scoping Phase Activities

Activity	Details
Identification of stakeholders	Stakeholder database which represents various sectors of society, including directly affected and adjacent landowners, in and around the proposed Project area.
Distribution of BID announcement letter	A BID with registration and comment form was emailed to stakeholders on 8 January 2021. An SMS was also sent to stakeholders on 8 January 2021 announcing the availability of the Draft scoping report.
Placing of newspaper advertisement	A newspaper advertisement will be placed in English in the Vaalweekblad on 8 January 2021.
Putting up of site notices	Site notices were put up at the proposed Project site on 8 January 2021. A site notice placement report and map were developed to indicate the locations of site notices in and around the Project area.
Announcement of Draft Scoping Report	Announcement of availability of the Draft Scoping Report was emailed to stakeholders on 8 January 2021. The Draft Scoping Report has been released electronically and copies are available to stakeholders on the Digby Wells website (www.digbywells.com under Public Documents) and can be accessed via our data-free service. Note: ***Due to COVID-19 Regulations, no documents were placed at public areas.*** Stakeholders were sent a data-free link where they can access the reports. http://view.datafree.co/PublicDocuments/.
Consultation with Stakeholders	Focus Group meetings are planned to be held with Ward Committee Members and neighbouring landowners (immediately adjacent to the Project area) during the public review period. The time and venue will be communicated to stakeholders in due course.
Obtaining comments from stakeholders	Comments, issues of concern and suggestions received from stakeholders will be captured in the Comment and Response Report (CRR). The CRR will be included in the updated Scoping Report, which will be submitted to the DMRE and simultaneously made available to I&APs.
Announcement of Final Scoping Report	The final report will be made available on www.digbywells.com (under Public Documents)

10.1 Item 2(h)(iii): Summary of Issues Raised by I&APs

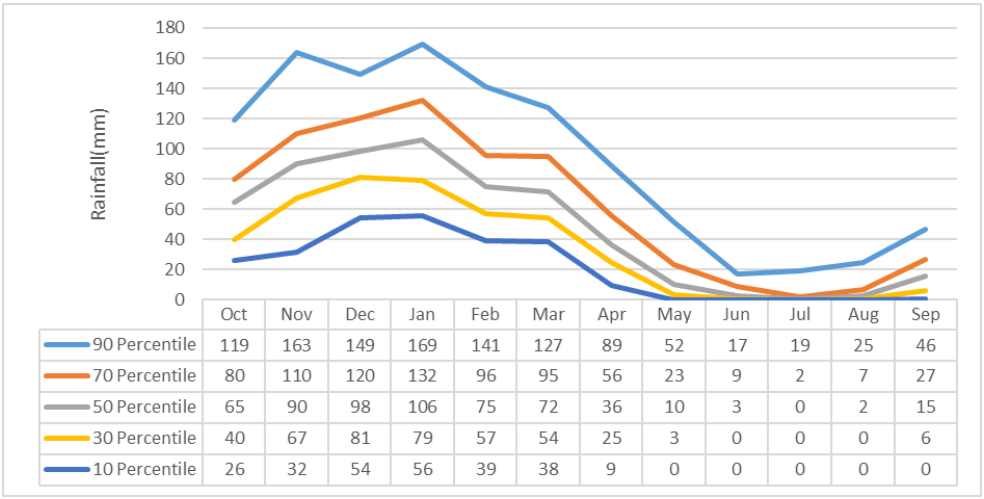
This section will be populated in the Final Scoping Report, once comments and responses have been received from the public. All comments and responses which are received during the 30-day public comment period, as well as comments received prior to the Final Scoping Report being finalised, will be included herein.

11 Item 2(j): The Environmental Attributes Associated with the Sites

This section comprises the baseline environment of the proposed Project area as assessed by the relevant specialists at a desktop level. This includes the features of the environment on site and land use which is expected to be affected by the proposed Project.

11.1 Climate

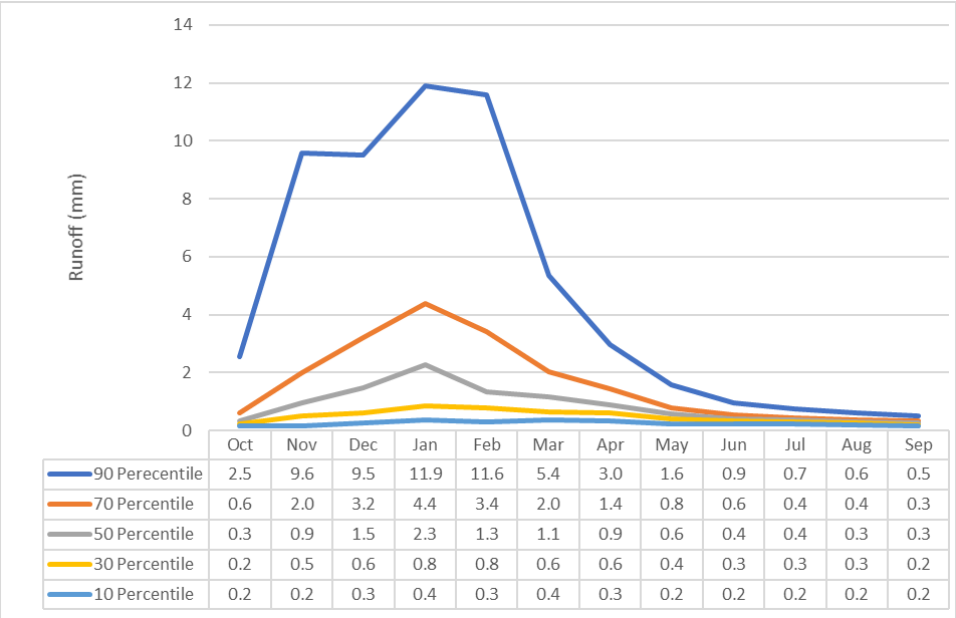
The MREA is characterised by a typical continental climate of warm-hot summers and cool-cold winters (South African Weather Bureau, 1986). The climate is classified as Cwb (Oceanic Subtropical Highland Climate) by the Köppen-Geiger system (Köppen & Geiger, 1936). The Mean Annual Precipitation (MAP) for quaternary catchments C22F, C22G and C22K is 655 mm, 613 mm and 644 mm, respectively (WRC, 2015). The combined average MAP for the three quaternary catchments is likely to be distributed as indicated in Figure 11-1. The wettest month is January with a 90th percentile of 169 mm and a 10th percentile of 56 mm. This implies that the region experiences moderate to high rainfall.



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
90 Percentile	119	163	149	169	141	127	89	52	17	19	25	46
70 Percentile	80	110	120	132	96	95	56	23	9	2	7	27
50 Percentile	65	90	98	106	75	72	36	10	3	0	2	15
30 Percentile	40	67	81	79	57	54	25	3	0	0	0	6
10 Percentile	26	32	54	56	39	38	9	0	0	0	0	0

Figure 11-1: Average Monthly Rainfall Distribution

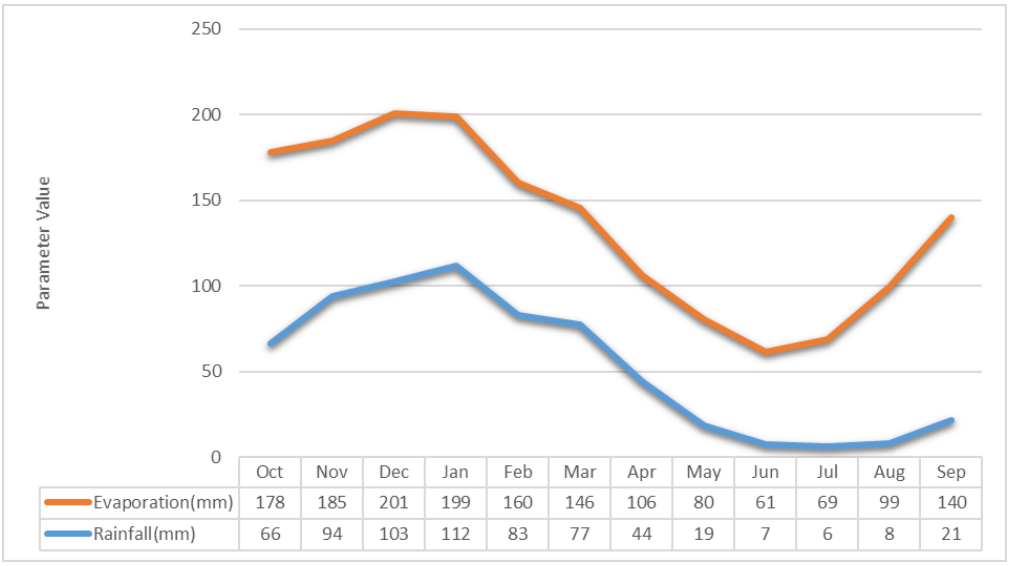
The Mean Annual Runoff (MAR) depth for the area was calculated to be 27.72 mm. This runoff accounts for approximately 4% of the MAP for the area. The 90th (extreme flow) and 70th (normal flow) percentiles of runoff during the month of January are 11.9 mm and 4.4 mm, respectively. The MAR for quaternary catchments C22F, C22G and C22K is likely to be distributed as indicated in Figure 11-2.



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
90 Perecentile	2.5	9.6	9.5	11.9	11.6	5.4	3.0	1.6	0.9	0.7	0.6	0.5
70 Percentile	0.6	2.0	3.2	4.4	3.4	2.0	1.4	0.8	0.6	0.4	0.4	0.3
50 Percentile	0.3	0.9	1.5	2.3	1.3	1.1	0.9	0.6	0.4	0.4	0.3	0.3
30 Percentile	0.2	0.5	0.6	0.8	0.8	0.6	0.6	0.4	0.3	0.3	0.3	0.2
10 Percentile	0.2	0.2	0.3	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2

Figure 11-2: Monthly Percentile Distribution of Runoff

The Mean Annual Evaporation (MAE) for quaternary cathments C22F, C22G and C22K is 1 650 mm, 1 600 mm and 1 625 mm, respectively (WRC, 2015). The region experiences higher evaporation than precipitation, giving rise to dry winters and wet summers with a negative natural water balance. The average monthly distribution of potential evaporation and rainfall for the quaternary catchments can be seen in Figure 11-3.



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Evaporation(mm)	178	185	201	199	160	146	106	80	61	69	99	140
Rainfall(mm)	66	94	103	112	83	77	44	19	7	6	8	21

Figure 11-3: Monthly Distribution of Potential Evaporation and Rainfall

11.1.1 Temperature and Humidity

The monthly temperature and humidity records (three-year average) for the Project area are presented in Table 11-1 and Figure 11-4 below. The data indicates that the monthly temperature average varied between 10°C - 22°C. Ambient temperatures were observed to

be higher during the summer months. The relative humidity records ranged between 41% and 58% with June as the highest humidity month and December presenting the lowest level at 41%.

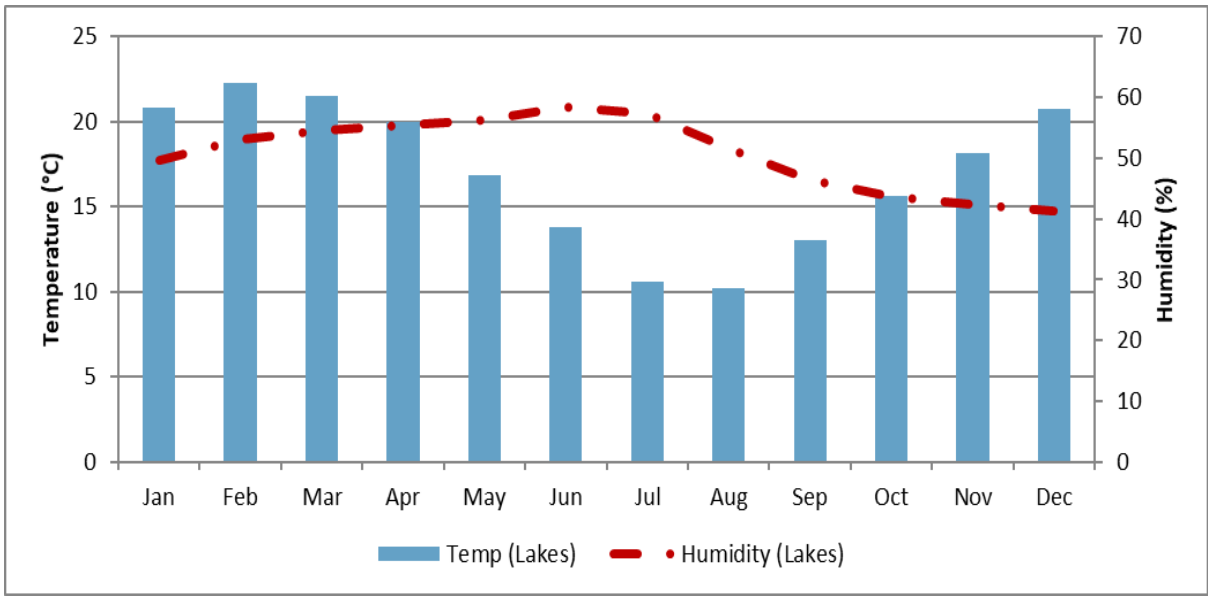


Figure 11-4: Monthly Temperature and Humidity (2017- 2019)

11.1.2 Rainfall

The total monthly rainfall records (three-years average) are provided in Table 11-1 and Figure 11-5. Based on the rainfall data, the summer months (December – February) received most of the rainfall (i.e. >62%) with December and February being the peak rainfall months (Figure 11-5), followed by Spring with 22% and Autumn with 15%. While winter (June – August), received the least rainfall.

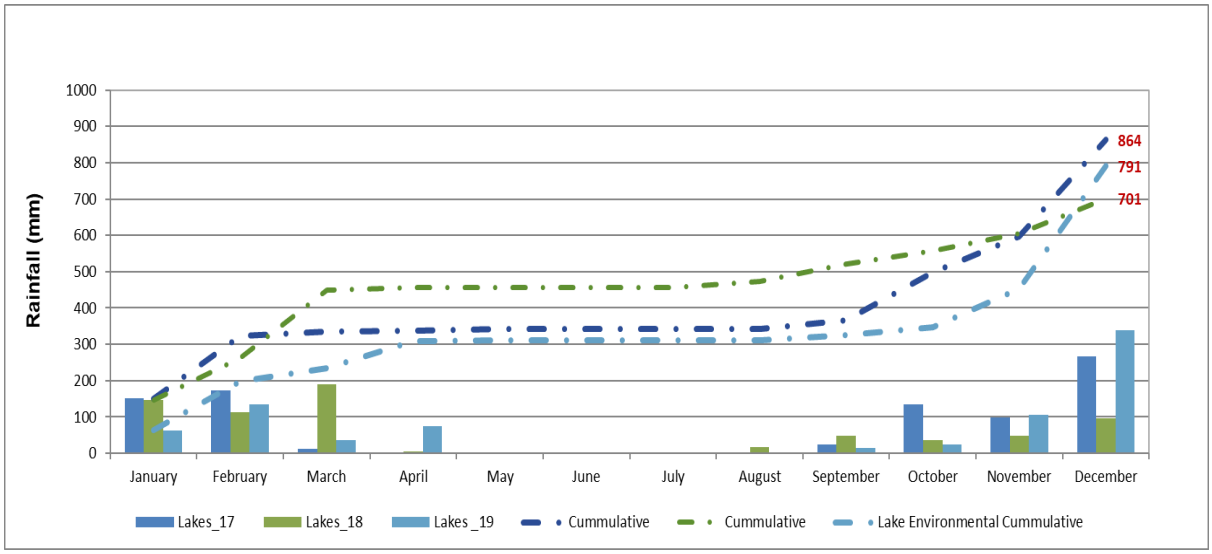


Figure 11-5: Rainfall (2017 – 2019)

Table 11-1: Climate Statistics

Parameters	3-year average (2017 – 2019)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Temp. (◦C)	21	22	22	20	17	14	11	10	13	16	18	21	17
Total Mon. Rain (mm)	121	140	79	28	1	0	0	6	28	65	83	234	785
Rel. Hum. (%)	50	53	55	55	56	58	57	52	46	44	42	41	51

(Source: Lakes Environmental Data)

11.2 Topography and Slope

The topography of the proposed MREA ranges from higher elevations in the center of the extension area to lower-lying areas in the east and west. The MREA can be described as uneven slopes with moderate undulating plains running towards the low-lying valleys, the Vaal River on the eastern side and the Taaibosspruit on the western side of the MREA. The overall elevation of the MREA is approximately 1415 meters above mean sea level (mamsl). The elevation difference gives rise to a slope of between 0 and 2 degrees (°), with a ridge near the Vaal River floodplain having a slope of 3-4°.

11.3 Geology

The MREA lies within the Vryheid Formation that forms part of the Ecca Group which is part of the Karoo Supergroup. The Vryheid Formation consists predominantly of thick beds of yellowish to white cross-bedded sandstone and grit alternating with beds of soft sandy shale. The geology of the area contains coal seams that support the coal mining activities of the adjacent properties. Dolerite sheets and dykes have intruded the sedimentary rocks extensively in the Formation.

11.4 Surface Water

The MREA stretches across three different quaternary catchments, namely C22F, C22G and C22K within the Vaal Water Management Area (WMA 5) (Figure 11-6). The catchment area is drained by the Vaal River. The water quality in the Vaal River catchments varies from poor in the highly developed areas to good in the less developed areas (Digby Wells & Associates, 2010). The land use in the catchment includes agriculture, extensive gold and coal mining, power generation, industrial activities and urban developments (Digby Wells & Associates, 2010).

11.4.1 Water Quality

The water quality data of the selected monitoring points (Figure 11-7) was benchmarked against the target water quality guidelines for domestic use, aquatic ecosystems, livestock watering and irrigation (Table 11-2).

Based on the water quality results, the baseline water quality is generally acceptable and have slight exceedances in relation to the guideline values. Slight exceedances in Aluminium and Iron were observed in monitoring points SW1 and SW2. A slight exceedance of Zinc was observed at all monitoring points, while Calcium was elevated at SW3. It is not envisaged that these exceedances will have a significant impact on the Vaal River water quality given that they are only slightly elevated above the target water quality guidelines. Furthermore, the presence of slightly higher Aluminium and Iron at SW1 (which is upstream) than the concentration as SW2 (which is downstream of the Mine), indicate that these parameters are unlikely to be elevated by the existing mining activities but rather by other upstream activities. This may be attributed to the Vaal River being situated some distance from the existing mine activities (i.e. approximately 3 to 5 km away). Based on the baseline water quality results, the Copper Sunset Mining activities do not indicate any impacts of the water quality within the Vaal River.

The results indicate minimal impact on water resources as a result of human activities. This is especially evidenced by relatively low values of Total Dissolved Solids (TDS) and Suspended Solids (SS).

11.4.2 Sensitivity Assessment

Water features such as rivers, dams, pans and wetlands within and around the Project area (Figure 11-8) constitute the establishment of sensitive water features which are sensitive to developmental impacts and due care should be taken to ensure that they are protected from degradation. Contamination of the water resources will impact on downstream water users including aquatic ecosystems which rely on these resources for water supply and habitat

Table 11-2: Baseline Surface Water Quality within the Copper Sunset Project Area (covering both the existing and additional areas)

Parameter	DWS Domestic Use	DWS Aquatic Ecosystem	DWS Livestock Watering	DWS Irrigation	SW1	SW2	SW3
	mg/L (unless otherwise stated)						
pH, at 25˚C *(pH meter units)*	6.0 - 9.0	NS	NS	6.5 - 8.4	8	7.8	7.5
Electrical Conductivity, *(mS/m)*	<70	NS	NS	NS	18	19	70
Total Dissolved solids (TDS)	<450	NS	<1000	NS	140	140	448
Aluminium	<0.15	<0.01	<5	<5	0.315	0.312	< 0.100
Ammonia	NS	NS	NS	NS	<0.1	0.3	1.1
Arsenic	≤200	0.01	≤1	0.1	< 0.010	< 0.010	< 0.010
Barium	NS	NS	NS	NS	0.048	0.046	0.030
Beryllium	NS	NS	NS	0.1	< 0.010	< 0.010	< 0.010
Bismuth	NS	NS	NS	NS	< 0.010	< 0.010	< 0.010
Boron	NS	NS	<5	<0.5	< 0.010	< 0.010	< 0.010
Cadmium	<0.005	<0.00015	<0.01	<0.01	< 0.010	< 0.010	< 0.010
Calcium	<32	NS	<1000	NS	14	15	51
Cerium	NS	NS	<5	NS	< 0.010	< 0.010	< 0.010
Caesium	NS	NS	<5	NS	< 0.010	< 0.010	< 0.010
Chloride	<100	NS	<1500	<100	8	9	44
Chromium	<0.05	0.007	<1	<0.1	< 0.010	< 0.010	< 0.010
Cobalt	NS	NS	<1	<0.05	< 0.010	< 0.010	< 0.010
Copper	<1	<0.0003	<0.5	<0.2	< 0.010	< 0.010	< 0.010
Fluoride	<1	<0.75	<2	<2	<0.2	<0.2	0.2
Iron	<0.1	NS	<10	<5	0.292	0.235	0.058
Lead	<0.01	<0.0002	<0.1	<0.2	< 0.010	< 0.010	< 0.010
Lithium	NS	NS	NS	NS	< 0.010	< 0.010	< 0.010
Magnesium	<30	NS	<500	NS	7	7	19
Manganese	<0.05	<0.18	<10	<0.02	< 0.025	< 0.025	< 0.025
Mercury	<1	0.04	<1	NS	< 0.010	< 0.010	< 0.010
Molybdenum	NS	0.04	0.01	0.01	< 0.010	< 0.010	< 0.010
Nickel	NS	NS	<1	<0.2	< 0.010	< 0.010	< 0.010
Nitrate	≤6	NS	<200	100	0.6	0.6	2.9
Total Phosphate, as P	NS	NS	NS	NS	0.3	0.2	1.1
Potassium	<50	NS	NS	NS	3.0	3.2	8.7
Selenium	<0.02	<0.002	<0.05	<0.02	< 0.010	< 0.010	< 0.010
Silicon	NS	NS	NS	NS	5.1	5.0	5.3
Silver	NS	NS	NS	NS	< 0.010	0.010	< 0.010
Sodium	<100	NS	<2000	<70	8	9	51
Strontium	NS	NS	NS	NS	0.071	0.071	0.113
Sulphate	<200	NS	<1000	NS	22	25	137
Suspended Solids at 105º	NS	NS	NS	<50	50	38	37
Tin	NS	NS	NS	NS	< 0.010	< 0.010	< 0.010
Titanium	NS	NS	NS	NS	0.029	0.036	0.026
Uranium	0.070 - 0.284	NS	NS	0.01	< 0.010	< 0.010	< 0.010
Vanadium	<0.1	NS	<1	<0.1	< 0.010	< 0.010	< 0.010
Zinc	<3	<0.002	<20	<1	0.048	0.037	0.029
KEY:							
Exceeds either the DWS standards for domestic, aquatic ecosystem, livestock watering and irrigation water uses							
No Standard							NS

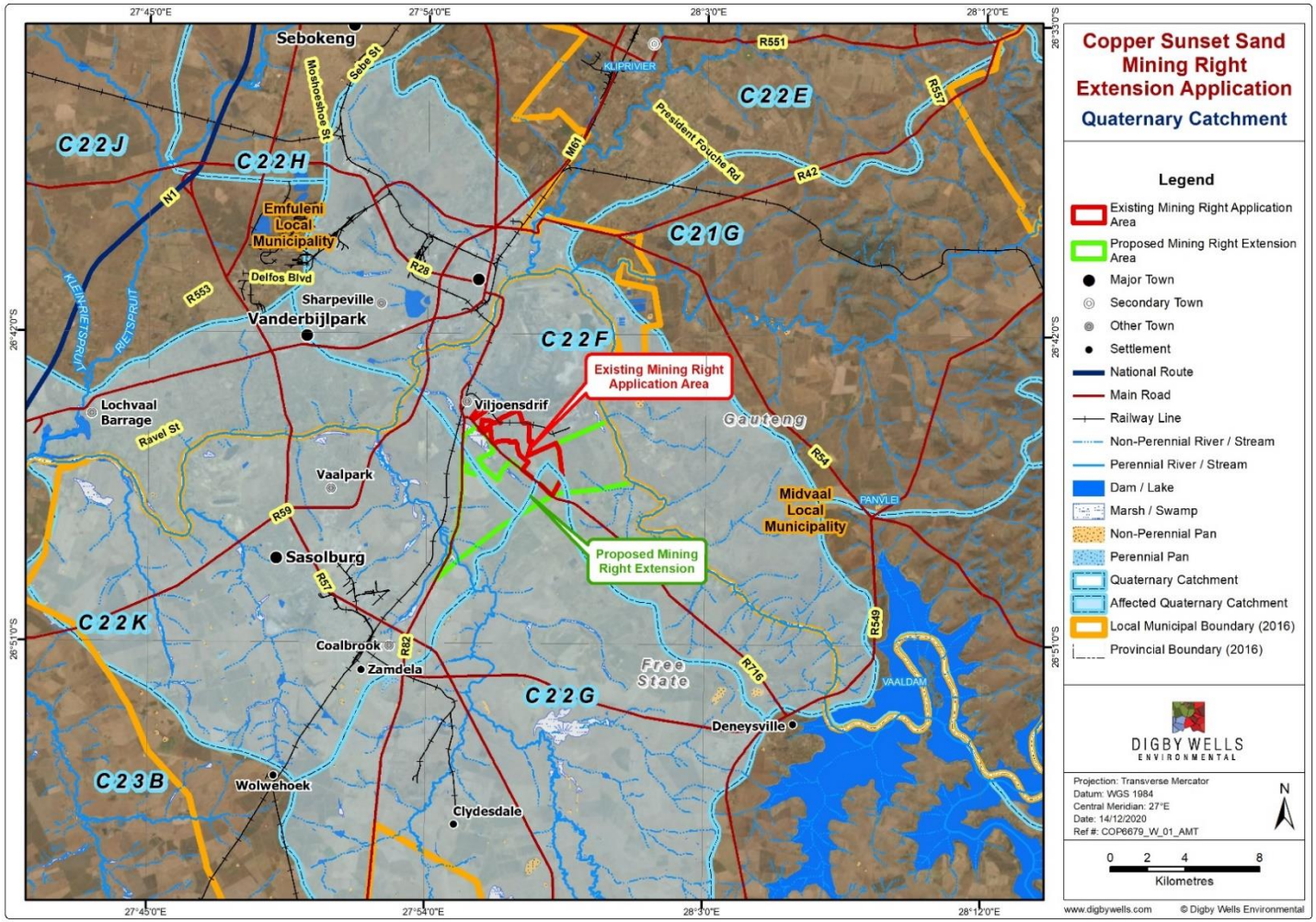


Figure 11-6: Quaternary Catchments

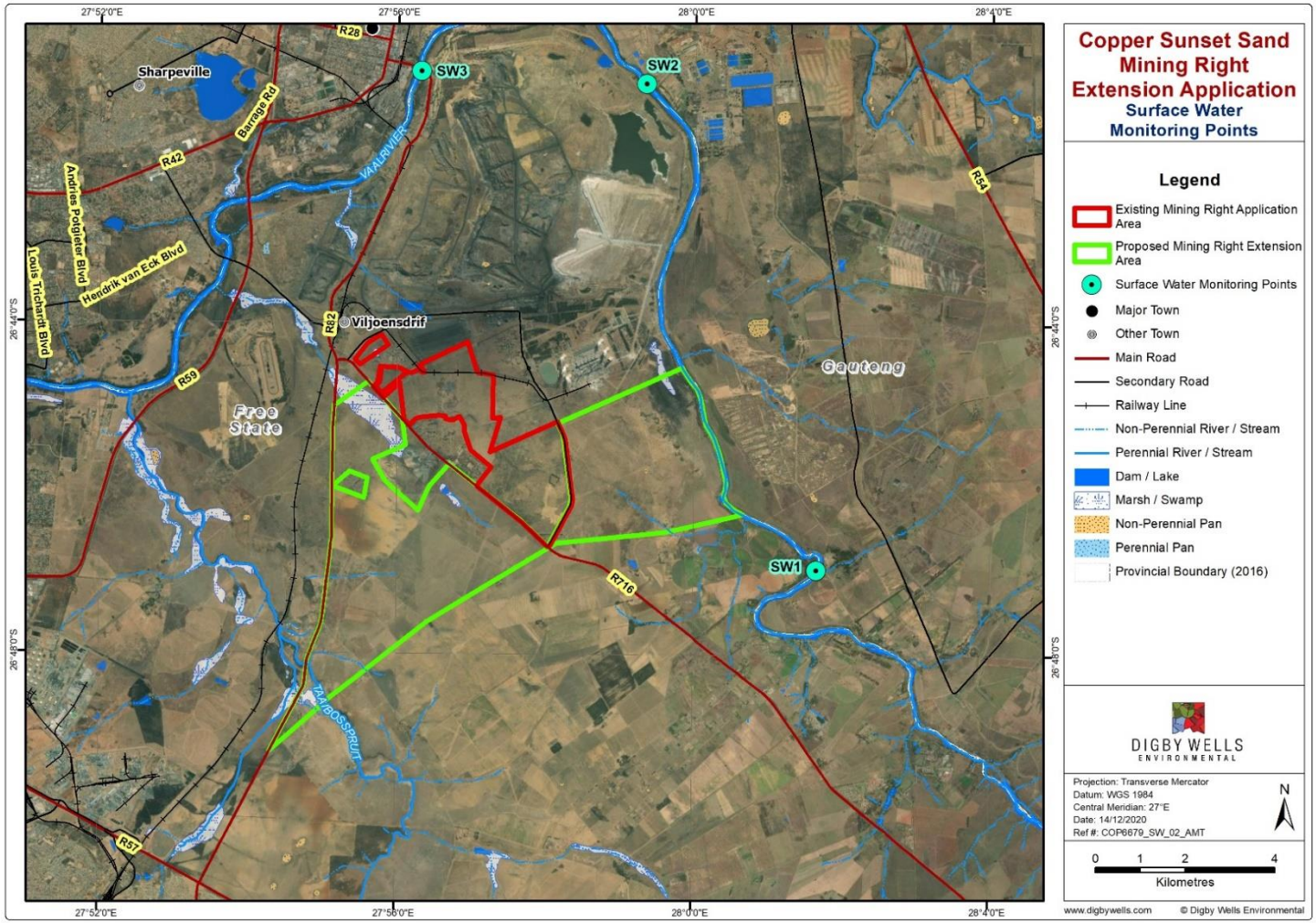


Figure 11-7: Surface Water Quality Monitoring Points

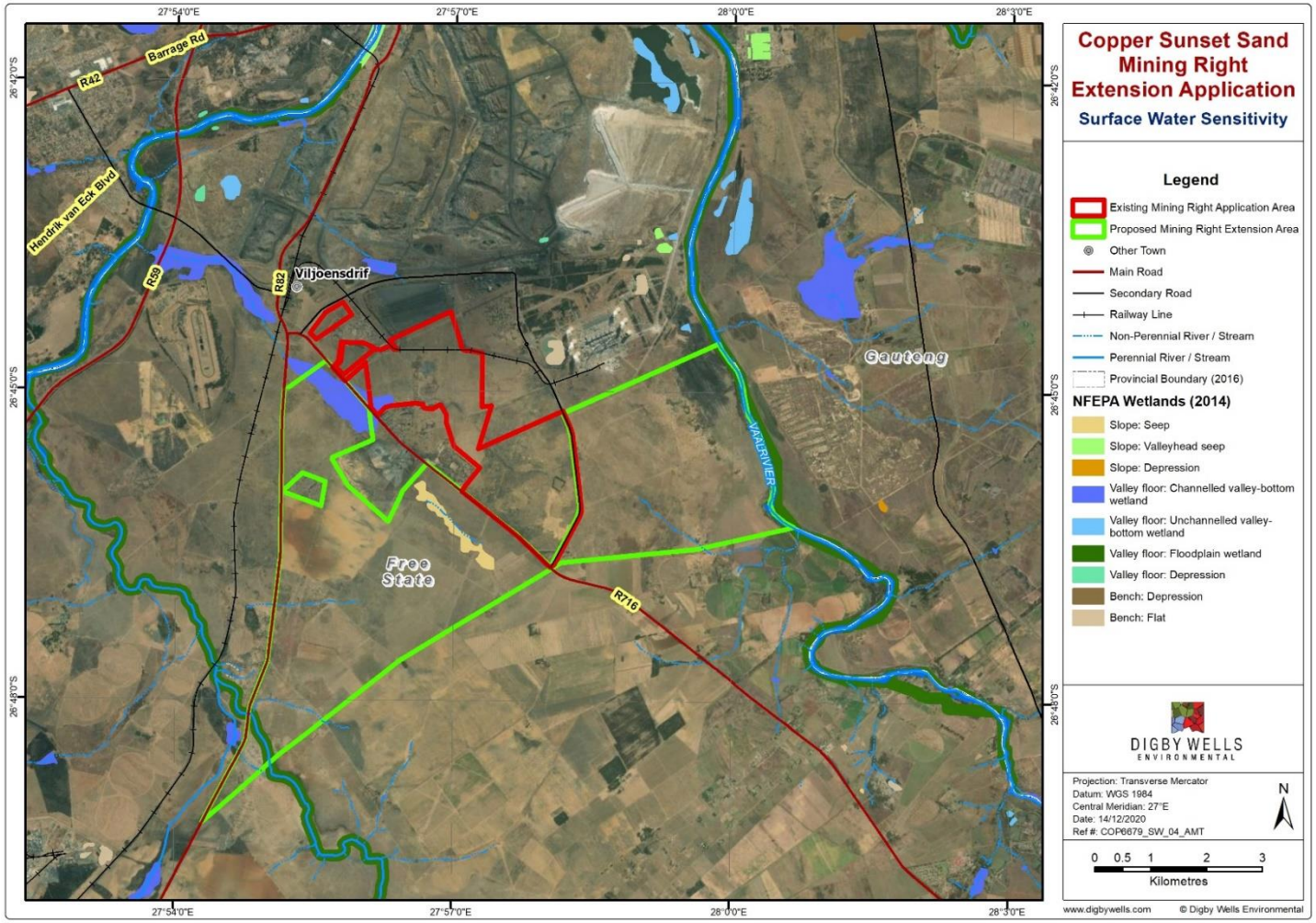


Figure 11-8: Surface Water Sensitivity Assessment

11.5 Soil, Land Use and Land Capability

This section provides the baseline environment regarding soils, land use and land capability associated with the proposed MREA.

11.5.1 Land Type and Soil Forms

Existing land type and soil data was used to obtain generalised soil patterns and terrain types for the Project area. Land Type data exists in the form of published 1:250 000 maps. These maps indicate delineated areas of similar climate and pedosystems which includes areas of uniform terrain and soil patterns (Land Type Survey Staff, 1972 - 2006).

Baseline data suggested that the land types for the proposed MREA are predominantly of the Ca1 type, with a small area on the western side of the site as Bb23 and Dc1 soil types. The main land types and dominant soil forms are briefly described below in Table 11-3.

Table 11-3: Land Type and Dominant Soil Forms

Land Type	Soil Forms	Geology	Characteristics
Bb23	• Avalon • Clovelly • Estcourt • Glencore • Glenrosa • Hutton • Katspruit • Kroonstad • Longlands • Mispah • Rensburg • Sterkspruit • Valsrivier • Wasbank • Willowbrook	• Plinthic Catena • Ecca shale and sandstone with occasional dolerite sills; • Pretoria shale and quartzite with diabase sills; • Sporadic occurrence of Ventersdorp lava, Witwatersrand quartzite, dolomite and Black Reef quartzite; and • Occasional small pans in the Ecca Group.	• Red and yellow, dystrophic/mesotrophic not widespread; and • Apedal soils with plinthic subsoils (plinthic soils comprise >10% of the land type; red soils comprise <33% of the land type).
Ca1	• Avalon • Clovelly • Estcourt • Fernwood • Glencore • Hutton • Kroonstad • Longlands • Rensburg • Valsrivier • Wasbank & Westleigh	• Plinthic Catena; • Upland duplex and/or margalitic soils common; • Sandstone and grit of the Ecca Group, Karoo Sequence.	• Land type qualifies as Ba-Bd, but >10% occupied by upland duplex/margalitic soils.

Land Type	Soil Forms	Geology	Characteristics
Dc1	• Valsrivier • Serkspruit • Oakleaf • Bonheim	• Alluvium and colluvium derived from siltstone, sandstone, mudstone and shale (Irrigasie Formation, Karoo Sequence); • Shale and sandstone (Ecca Group); • Dolerite; • Nebo granite (Bushveld Complex); • Sandstone and conglomerate (Wilgerivier Formation, Waterberg Group); and • Rhyolite and andesite (Selonsrivier Formation Rooiberg Group).	• Dominantly Prismacutanic and/or Pedocutanic diagnostic horizons; • Could contain one or more of vertic, melanic and red structures diagnostic horizons.

11.5.2 Land Use

The current land use of the proposed Copper Sunset MREA was identified by aerial imagery during the desktop assessment. The land use in the MREA is dominated by grassland and cultivated land. Other land use types identified include forested land, waterbodies, wetlands, mines and quarries, built-up areas and shrubland.

11.5.3 Land Capability

The land capability was determined by assessing a combination of soil type, terrain and climate features. Land capability is defined as the most intensive long-term sustainable use of land under rain-fed conditions (Soil Conservation Service: U.S. Department of Agriculture, 1973; Schoeman *et al*., 2000).

The dominant land capability class in the MREA is Class III (Arable Land – Moderate Cultivation/Intensive Cultivation) which is not suitable for agriculture but has a high land use potential for pastures, woodland, rangeland, wildlife food or cover and a very small section of Class IV. A detailed breakdown is given below (Table 11-4).

Table 11-4: Land Capability Classification of the Copper Sunset Project Area

Class	Classification	Dominant Limitation Influencing the Physical Suitability for Agricultural Use
III	Arable Land – Moderate Cultivation/Intensive Cultivation	Soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
IV	Arable Land – Moderate Grazing	Soils have severe limitations that will restrict choice of plants and will require very careful management

11.5.4 Soil Classification

Clovelly, Avalon, Katspruit, Mispah, Witbank and Arcadia soil forms dominate the MREA. Soil forms are conceptual generalizations based on specific soil properties. Each soil form is made up of soil horizons, uniquely combined, and integrated. The typical augured soil horizons were identified as:

- Orthic A-horizons, overlying Yellow-brown to Red Apedal B-horizons with a Plinthic B-horizon. These soils were deep, sandy-loam soils with increased clay content with depth;
- Vertic A-horizons overlying an unspecified material in the low-lying areas. These soils are high in clay content, young soils with evidence of emerging soil development in the form of colour variations and clay lamellae. These soils were mainly associated with wetlands and low-lying areas; and
- Shallow Orthic A-horizon overlying hard rock (dolerite). These soils were identified within the eastern area, between the floodplain and hillslope.

A large section of the eastern MREA has historically been impacted by agropastoral activities. These activities caused change to the soil physical, chemical and biological functioning, therefore changing the natural soil form to Witbank soils. The area has low vegetation cover, unnatural topographies, water ponding, increased surface runoff and increased Alien Invasive Plants (AIPs).

11.6 Flora

The proposed Copper Sunset MREA falls predominantly within the Central Free State Grassland vegetation type, with a small section on the western side within the Andesite Mountain Bushveld vegetation type (Mucina & Rutherford, 2012). The Grassland Biome is the second most bio-diverse biome in South Africa (Mucina & Rutherford, 2012). The Grassland Biome is situated primarily on the central plateau of South Africa, and the inland areas of Kwa-Zulu-Natal and the Eastern Cape provinces. This biome is rich in flora and fauna diversity but is under threat due to rapid urbanisation and expansion of mining and industrial activities.

The Central Free State Grassland regional vegetation type is characterised by short grassland covering undulating plains (Mucina & Rutherford, 2012). It is considered a 'Vulnerable' vegetation type with a conservation target of 24%. In natural conditions, *Themeda triandra is dominant, whereas Eragrostis curvula and E. chloromelas* become dominant in degraded habitats.

The Andesite Mountain Bushveld is dominated by dense, medium-tall thorny bushveld with grass layers being well developed on hill slopes and some valleys in undulating landscapes (Mucina & Rutherford, 2012). The Andesite Mountain Bushveld is listed as 'Least Threatened' on the National List of Threatened Terrestrial Ecosystems (Mucina & Rutherford, 2012). Table 11-5 lists species characteristic of the two vegetation types.

Table 11-5: Characteristic Plant Species of the two Regional Vegetation

Plant form	Central Free State Grassland	Andesite Mountain Bushveld
Graminoids	*Brachiaria serrata, Cynodon dactylon, Cynodon hirsutus, Digitaria ternata, Elionurus muticus, Eragrostis chloromelas, Eragrostis patentipilosa, Eragrostis plana, Eragrostis racemosa, Heteropogon contortus, Hyparrhenia hirta, Microchloa caffra, Setaria sphacelata, Themeda triandra, Trachypogon spicatus, Abildgaardia ovata, Andropogon schirensis, Cymbopogon caesius, Diheteropogon amplectens, Melinis nerviglumis, Panicum gilvum* and *Setaria nigrirostris*	*Eragrostis curvula, Hyparrhenia hirta, Setaria sphacelata, Themeda triandra, Cymbopogon pospischilii, Digitaria eriantha, Elionurus muticus, Eragrostis racemosa, Eragrostis superba* and *Panicum maximum*
Herbs	*Acanthospermum australe, Ajuga ophrydis, Eriosema salignum, Euryops transvaalensis, Gerbera viridifolia, Helichrysum nudifolium, Helichrysum rugulosum, Hermannia depressa, Lotononis macrosepala, Nidorella hottentotica, Pentanisia prunelloides, Peucedanum afrum, Rotheca hirsuta, Selago paniculata, Senecio coronatus, Senecio inornatus, Sonchus nanus* and *Vernonia oligocephala*.	*Commelina africana, Vernonia galpinii, Vernonia oligocephala and Aloe greatheadii var. davyana.*
Tall Shrubs		*Asparagus laricinus, Euclea crispa subsp. crispa, Searsia pyroides, Diospyros lycioides, Gymnosporia polyacantha, Lippia javanica* and *Rhamnus prinoides, Asparagus suaveolens, Searsia rigida, Teucrium trifidum, Isoglossa grantii and Rhoicissus tridentate*

Plant form	Central Free State Grassland	Andesite Mountain Bushveld
Low Shrubs	*Anthospermum rigidum*, *Chaetacanthus setiger*, *Tephrosia capensis* and *Thesium impeditum*	
Small Trees		*Vachellia caffra, Vachellia karroo, Celtis africana, Protea caffra, Zanthoxylum capense and Ziziphus mucronata*
Geophytic and Semiparasitic Herbs	*Aspidoglossum ovalifolium* and *Hypoxis rigidula,* while the semiparasitic herb *Striga asiatica* has also been noted	

11.6.1 Conservation Status of the Unit

The Free State Biodiversity Plan (Collins, 2016) is a spatial tool that forms part of the national biodiversity planning tools and initiatives that are provided for in national legislation and policy. The Free State Biodiversity Plan was published in 2016, and like those of the other provinces, identifies and maps terrestrial categories with associated land-use and management guidelines. The categories are divided into Protected Area (PA), Critical Biodiversity Area (CBA), ESA, Other Area and Degraded Area.

The western section of the proposed Copper Sunset MREA is predominantly classified as Degraded Land, with the remaining area classified as ESA1 and ESA2 (Figure 11-9). The eastern section of the MREA is predominantly classified as ESA2, with smaller areas classified as ESA1.

According to the National List of threatened terrestrial ecosystems, the proposed MREA does not fall within any original or remaining extents of a threatened ecosystem. The MREA traverses no protected areas. The Vaaldam Nature Reserve is approximately 17 km from the proposed Copper Sunset MREA. The MREA also does not fall within or close to any Important Bird Areas (IBA), the nearest, Suikerbosrand Nature Reserve IBA, is about 35 km from the Project area. The Suikerbosrand Nature Reserve is a fully protected provincial reserve that is recognised as an IBA on account of the presence of two globally threatened species (i.e. the African Grass Owl and Secretarybird), and several regionally threatened taxa.

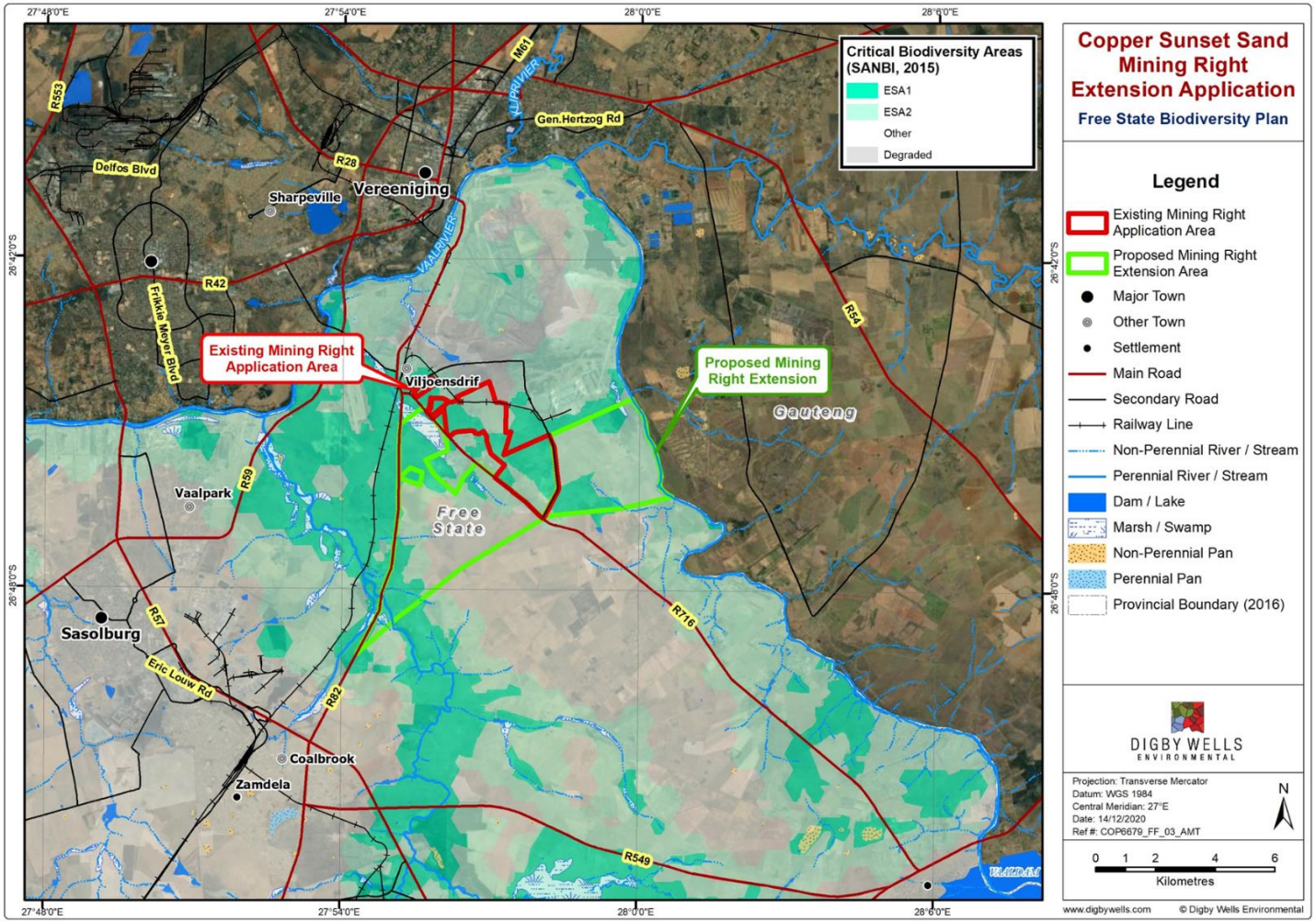


Figure 11-9: Free State Biodiversity Plan

11.6.2 Floral Species Composition

The proposed MREA lies within four Quarter Degree Square (QDS) namely 2627 DD,2627 DB, 2628 CA and 2628 CC. Based on the results of a search of historical records for the QDS on the Botanical Research and Herbarium Management Software (BRAHMS) New Plants of southern Africa website (NEWPOSA), a total of 254 species are indicated to potentially occur in the Project area.

11.6.3 Protected Flora – Species of Conservation Concern

Based on the Red Data plant species search for the 2627 DD,2627 DB, 2628 CA and 2628 CC QDS, a total of 21 Red Data listed flora Species of Conservation Concern (SCC) may occur in the Project area, however; none of these species were recorded during the infield assessment, this could be due to the transformed nature of the site. The species considered SCC are classified as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and Near Threatened (NT) (Table 11-6).

Table 11-6: Flora Species of Conservation Concern

Scientific Name	Common Name	Red List Status
Adromischus umbraticola subsp. umbraticola		NT
Alepidea attenuata Weim.		NT
Bowiea volubilis subsp. volubilis	Climbing Green Lily	VU
Brachycorythis conica subsp. transvaalensis	Albertina Sisulu Orchid	CR
Brachystelma incanum		VU
Ceropegia decidua subsp. pretoriensis		VU
Cheilanthes deltoidea subsp. silicicola		VU
Cleome conrathii		NT
Delosperma macellum	Rooibergpypie	EN
Dicliptera magaliesbergensis		VU
Drimia sanguinea	Rooislangkop	NT
Gnaphalium nelsonii		NT
Habenaria barbertoni		NT
Habenaria kraenzliniana		NT
Habenaria mossii		NT
Holothrix randii	Tassel Orchid	NT

Scientific Name	Common Name	Red List Status
Kniphofia typhoides [1]		NT
Lithops lesliei subsp. lesliei		NT
Melolobium subspicatum		VU
Pearson bracteata		NT
Stenostelma umbelluliferum		NT

11.6.4 Free State Nature Conservation Ordinance (Ordinance No. 8 of 1969)

According to desktop data based on historical records and a search in the relevant QDS', a total of 14 species (Table 11-7) protected under the Free State Nature Conservation Ordinance (Ordinance No. 8 of 1969), specifically Schedule 6, could potentially occur in the Project area. However, none of these species were recorded during the infield assessment as the site has been transformed and is being currently utilised for livestock grazing. The presence

Table 11-7: List of potential SCC species that could occur in the Project area

Scientific Name	Common Name	Free State Nature Conservation Ordinance 8 of 1969	Global Red List Status
Boophane disticha	Bushman Poison Bulb	Schedule 6 (Section 30)	LC
Crinum bulbispermum	Vaal River Lily	Schedule 6 (Section 30)	LC
Crinum macowanii	Boslelie	Schedule 6 (Section 30)	LC
Haemanthus montanus		Schedule 6 (Section 30)	LC
Helichrysum argyrosphaerum DC.	Wild Everlasting	Schedule 6 (Section 30)	LC
Helichrysum caespititium (DC.) Harv.		Schedule 6 (Section 30)	LC
Helichrysum caespititium DC.	Boriba	Schedule 6 (Section 30)	LC
Helichrysum callicomum Harv.		Schedule 6 (Section 30)	LC
Helichrysum lineare DC.		Schedule 6 (Section 30)	LC

[1] Kniphofia typhoides is protected under the Free State Nature Conservation Ordinance (Ordinance No. 8 of 1969), specifically Schedule 6 (Section 30)

Scientific Name	Common Name	Free State Nature Conservation Ordinance 8 of 1969	Global Red List Status
Helichrysum nudifolium (L.) Less. var. nudifolium		Schedule 6 (Section 30)	LC
Helichrysum paronychioides DC.		Schedule 6 (Section 30)	LC
Helichrysum rugulosum Less.		Schedule 6 (Section 30)	LC
Helichrysum subglomeratum Less.		Schedule 6 (Section 30)	LC
Kniphofia typhoides		Schedule 6 (Section 30)	NT

EN = Endangered, CR = Critically Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern

11.6.5 Alien and Exotic Vegetation

Based on the results of a search of historical records for the relevant QDS BRAHMS NEPOSA and field records from historical studies, a total of four NEM: BA listed, as well as bush encroachers and unlisted weed species, may potentially occur in the Project area. These are listed Table 11-8 below.

Table 11-8: Alien Invasive Plant Species, Weeds, Exotics and Indicators of Bush Encroachment that could Potentially Occur on-site

Family	Species Name	Growth Form	Category
Amaranthaceae	*Amaranthus hybridus*	Forb	Weed
Asteraceae	*Bidens pilosa*	Forb	Exotic
Asteraceae	*Cirsium vulgare*	Forb	1b
Asteraceae	*Conyza bonariensis*	Forb	Weed
Solanaceae	*Datura stramonium*	Forb	1b
Myrtaceae	*Eucalyptus eugeniodes**	Tree	Exotic
Salicaceae	*Populus x canescens*	Tree	2
Apocynaceae	*Gomphocarpus fruticosus*	Herb	Naturalised Weed
Asteraceae	*Tagetes minuta*	Forb	Weed
Verbenaceae	*Verbena bonariensis*	Forb	1b
Asteraceae	*Xanthium spinosum*	Forb	1b
Asteraceae	*Seriphium plumosum*	Herb	Indicator of bush encroachment

11.7 Fauna

This section covers various groups of animals including mammals, birds, herpetofauna and invertebrates.

11.7.1 Mammals

Mammals form a vital component of ecosystems. Not only are they important for nutrient cycling, habitat modification, consumers of plants and seed dispersal but they are also a considerable component of predators in healthy ecosystems.

A search of historical records for the 2627 DD, 2627 DB, 2628 CA, 2628 CC on the Demography Unit (formerly the Avian Demography Unit), or ADU online database (MammalMAP, 2019) and field records from historical studies was undertaken. The search indicated that a total of 11 mammal species may potentially be present in the Project area, one of which is NT Globally (*Aonyx capensis* (African Clawless Otter)) (Table 11-9). The presence of the African Clawless Otter is probably associated with the Vaal River and this will be confirmed during the EIA Phase.

Table 11-9: Red Data Mammal Species

Family	Scientific Name	Common name	Category
Bathyergidae	*Cryptomys hottentotus*	Southern African Mole-rat	LC
Bovidae	*Antidorcas marsupialis*	Springbok	LC
Bovidae	*Raphicerus campestris*	Steenbok	LC
Bovidae	*Taurotragus oryx*	Common Eland	LC
Canidae	*Otocyon megalotis*	Bat-eared Fox	LC
Herpestidae	*Cynictis penicillata*	Yellow Mongoose	LC
Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	LC
Molossidae	*Tadarida aegyptiaca*	Egyptian Free-tailed Bat	LC
Mustelidae	*Aonyx capensis*	African Clawless Otter	NT
Mustelidae	*Mellivora capensis*	Honey Badger	LC
Canidae	*Canis mesomelas*	Black-backed Jackal	LC

11.7.2 Herpetofauna

Based on the results of a search of historical records for the 2627 DD, 2627 DB, 2628 CA, 2628 CC AB on the Animal Demography Unit (formerly the Avian Demography Unit), or ADU online database (FrogMAP,2019; ReptileMAP, 2019) and field records from historical studies, a total of 24 herpetofauna species may potentially be present in the Project area, four of which are SCC. Of these species one is listed as Red Data species, this is the *Pyxicephalus adspersus* (Giant Bull Frog) (NT). A list of these species is provided in Table 11-10.

Table 11-10: Herpetofauna Species

Family	Scientific name	Common name	Category
Colubridae	*Crotaphopeltis hotamboeia*	Red-Lipped Snake	LC (SARCA 2014)
Elapidae	*Naja mossambica*	Mozambique Spitting Cobra	LC (SARCA 2014)
Gekkonidae	*Lygodactylus ocellatus*	Spotted Dwarf Gecko	LC (SARCA 2014)
Gekkonidae	*Pachydactylus affinis*	Transvaal Gecko	LC (SARCA 2014)
Gekkonidae	*Pachydactylus capensis*	Cape Gecko	LC (SARCA 2014)
Lamprophiidae	*Boaedon capensis*	Brown House Snake	LC (SARCA 2014)
Lamprophiidae	*Lycodonomorphus inornatus*	Olive House Snake	LC (SARCA 2014)
Lamprophiidae	*Lycodonomorphus rufulus*	Brown Water Snake	LC (SARCA 2014)
Lamprophiidae	*Lycophidion capense capense*	Cape Wolf Snake	LC (SARCA 2014)
Lamprophiidae	*Psammophylax rhombeatus*	Spotted Grass Snake	LC (SARCA 2014)
Leptotyphlopidae	*Leptotyphlops scutifrons conjunctus*	Eastern Thread Snake	-
Scincidae	*Trachylepis punctatissima*	Speckled Rock Skink	LC (SARCA 2014)
Typhlopidae	*Afrotyphlops bibronii*	Bibron's Blind Snake	LC (SARCA 2014)
Viperidae	*Causus rhombeatus*	Rhombic Night Adder	LC (SARCA 2014)
Bufonidae	*Amietophrynus gutturalis*	African Common Toad	LC
Bufonidae	*Cacosternum boettgeri*	Boettger's Dainty Frog	LC
Hyperoliidae	*Kassina senegalensis*	Senegal Running Frog	LC
Phrynobatrachidae	*Phrynobatrachus natalensis*	Natal Dwarf Puddle Frog	LC
Pyxicephalidae	*Amietia angolensis*	Angola River Frog	LC
Bufonidae	*Schismaderma carens*	African Red Toad	LC
Pyxicephalidae	*Strongylopus fasciatus*	Striped Stream Frog	LC
Hyperoliidae	*Semnodactylus wealii*	Weale's Running Frog	LC
Pipidae	*Xenopus laevis*	African Clawed Frog	LC

Family	Scientific name	Common name	Category
Pyxicephalidae	*Pyxicephalus adspersus*	Giant Bullfrog	Near Threatened

11.7.3 Avifauna

A total of 235 avifaunal species have been historically recorded in the Project area based on records from SABAP2, this includes several typical Highveld assemblages.

11.7.4 Invertebrates

A total of 62 invertebrate species, which were historically present in the relevant QDS may potentially occur in the Project area, none of these have been listed as SCC species globally or within the country.

11.7.5 Species of Special Conservation Concern

According to the Red Data faunal species, data from the ADU and historical records, a total of two Red Data faunal species can be potentially encountered in and around the Project area, including *Aonyx capensis* (African Clawless Otter) and *Pyxicephalus adspersus* (Giant Bullfrog) (NT), which will be confirmed during the EIA Phase. These are listed in Table 11-11 below.

Table 11-11: Red Data Faunal Species

Scientific Name	Common Name	Global status	S.A status
Mustelidae	*Aonyx capensis*	African Clawless Otter	Near Threatened
Pyxicephalidae	*Pyxicephalus adspersus*	Giant Bullfrog	Near Threatened

11.8 Wetlands

The proposed Copper Sunset MREA is located within the Highveld Ecoregion (Level II Ecoregion 11.02), falling under the Southern Temperate Highveld Freshwater Ecoregion according to Darwall *et al.* (2009). It is characterised by plains with a moderate to low relief and soils that are mostly coarse, sandy and shallow. There are various grassland vegetation types (with moist types present towards the east and drier types towards the west and south). Table 11-12 provides a summary of the main attributes of the Highveld Ecoregion (Kleynhans & Hill, 1999; Kleynhans, Thirion, & Moolman, 2005).

Table 11-12: Main Attributes of the Highveld Ecoregion

Main Attributes	Highveld Ecoregion
Terrain morphology: Broad division (dominant types in bold) (Primary)	**Plains; Low Relief; Plains; Moderate Relief**; Lowlands; Hills and Mountains; Moderate and High Relief; Open Hills; Lowlands; Mountains; Moderate to high Relief Closed Hills. Mountains; Moderate and High Relief.
Vegetation types (dominant types in bold) (Primary)	Mixed Bushveld (limited); Rocky Highveld Grassland; **Dry Sandy Highveld Grassland**; Dry Clay Highveld Grassland; **Moist Cool Highveld Grassland**; Moist Cold Highveld Grassland; North Eastern Mountain Grassland; Moist Sandy Highveld Grassland; Wet Cold Highveld Grassland (limited); Moist Clay Highveld Grassland; Patches Afromontane Forest (very limited).
Altitude (mamsl) (modifying)	1 100 - 2 100; 2 100 - 2 300 (very limited)
MAP (mm) (Secondary)	400 to 1 000
Coefficient of Variation (% of annual precipitation)	<20 to 35
Rainfall concentration index	45 to 65
Rainfall seasonality	Early to late summer
Mean annual temp. (Degree Celsius (°C))	12 to 20
Mean daily max. temp. (°C): February	20 to 32
Mean daily max. temp. (°C): July	14 to 22
Mean daily min. temp. (°C): February	10 to 18
Mean daily min temp. (°C): July	-2 to 4
Median annual simulated runoff (mm) for quaternary catchment	5 to >250

11.8.1 National Freshwater Ecosystem Priority Areas

The eastern section of the proposed Copper Sunset MREA comprises the following:

- Floodplain (Rank 6) National Freshwater Ecosystem Priority Areas (NFEPA) wetland associated with the Vaal River,
- Channelled Valley Bottom (Rank 5),
- Seep (Rank 6); and
- Floodplain (Rank 6) (associated with the Taaibosspruit) NFEPA Wetlands located within the western section.

The entire MREA was defined as a Sub-Quaternary Catchment. Figure 11-10 and Figure 11-11 illustrates these NFEPA wetlands and River Freshwater Ecological Priority Areas (FEPAs), respectively in relation to the MREA.

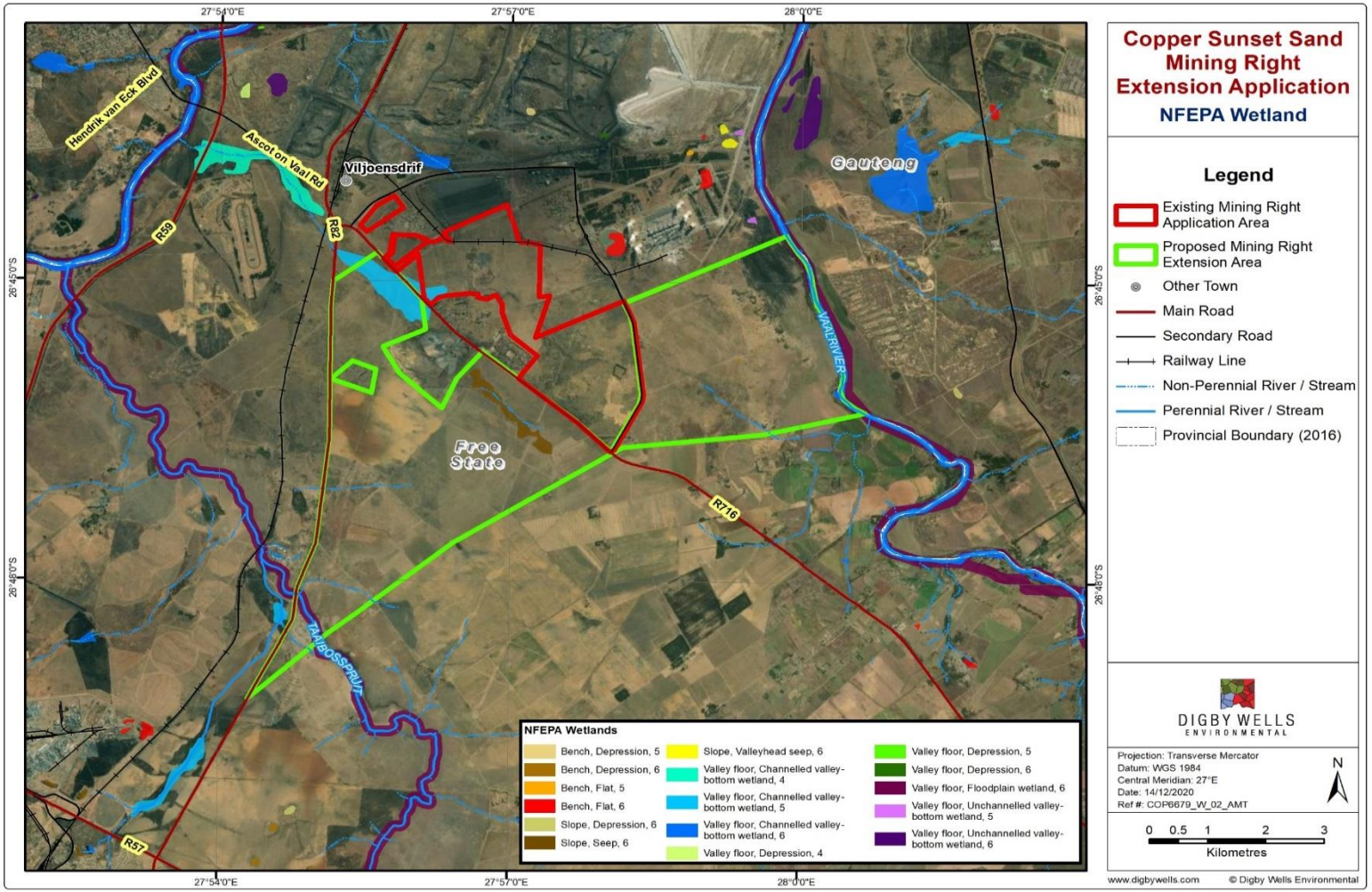


Figure 11-10: NFEPA Wetlands

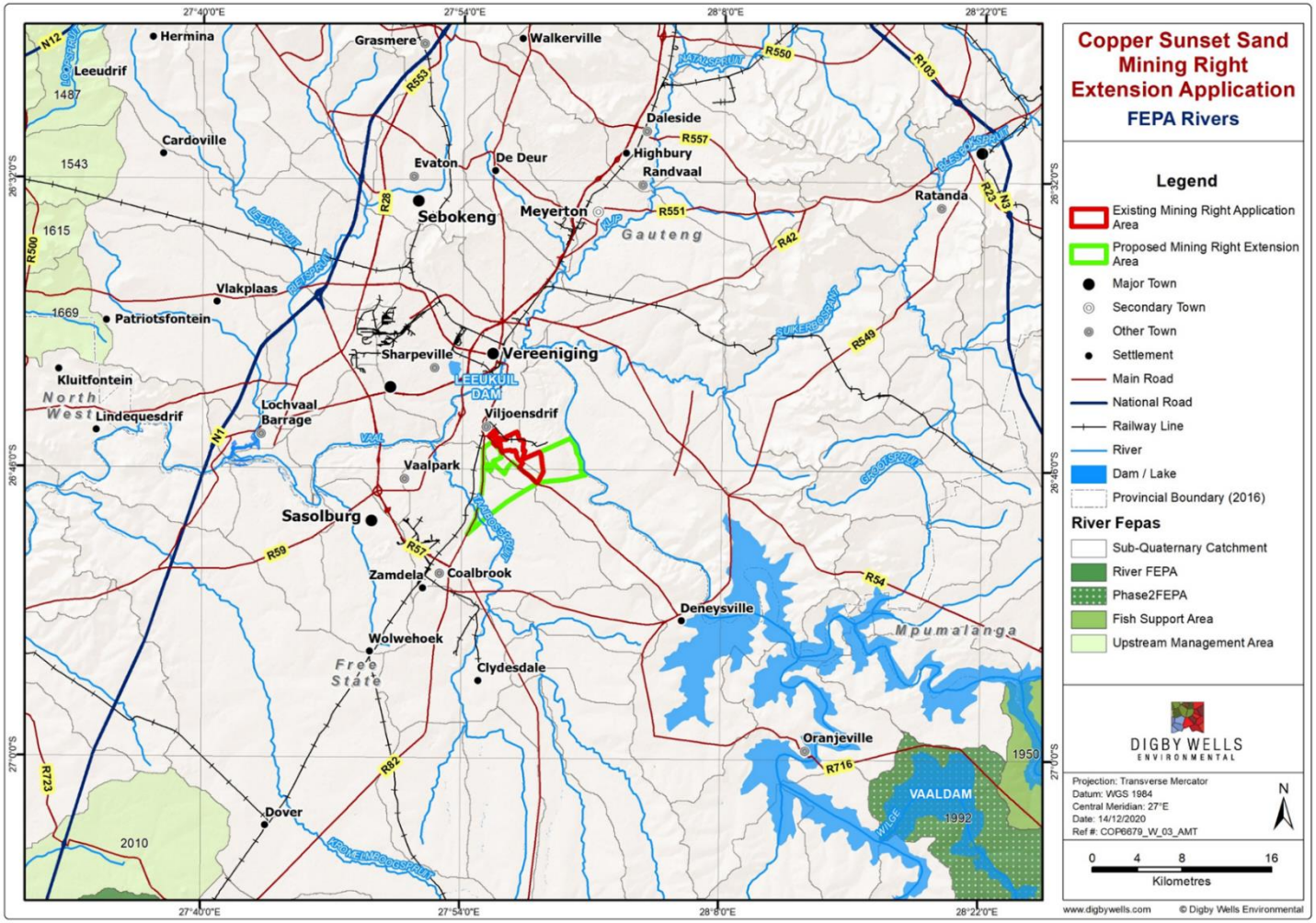


Figure 11-11: River FEPAs

11.8.2 Mining and Biodiversity Guidelines

The Mining and Biodiversity Guideline was developed collaboratively by SANBI, DEA, DMRE and the Chamber of Mines and the South African Mining and Biodiversity Forum in 2013. The purpose of the guideline was to provide the mining sector with a manual to integrate biodiversity into the planning process thereby encouraging informed decision-making around mining development and environmental authorizations. The aim of the guideline is to explain the value for mining companies to consider biodiversity management throughout the planning process. The guideline highlights the importance of biodiversity in managing the social, economic and environmental risk of the proposed mining Project. The country has been mapped into biodiversity priority areas including the four categories listed in Table 11-13 below, each with associated risks and implications (DEA *et al*., 2013).

Table 11-13: Mining and Biodiversity Guideline Categories (Department of Environmental Affairs *et al.* 2013)

Category	Risk and Implications for Mining
Legally Protected	Mining prohibited; unless authorised by ministers of both the DEA and DMRE.
Highest Biodiversity Importance	Highest Risk for Mining: The Environmental Impact Assessment (EIA) process must confirm significance of the biodiversity features that may be a fatal flaw to the proposed Project. Specialists must provide site-specific recommendations for the application of the mitigation hierarchy that informs the decision-making processes of mining licences, water use licences and environmental authorisations. If granted, authorisations should set limits on allowed activities and specify biodiversity related management outcomes.
High Biodiversity Importance	High Risk for Mining: the EIA process must confirm the significance of the biodiversity features for the conservation of biodiversity priority areas. Significance of impacts must be discussed as mining options are possible but must be limited. Authorisations may set limits and specify biodiversity related management outcomes.
Moderate Biodiversity Importance	Moderate Risk for Mining: the EIA process must confirm the significance of the biodiversity features and the potential impacts as mining options must be limited but are possible. Authorisations may set limits and specify biodiversity related management outcomes.

No areas within the proposed MREA were classified according to the guideline. However, in proximity, along the Vaal River and Viljoensdrift, areas were classified as High Biodiversity Importance – High Risk for Mining and Moderate Biodiversity Importance – Moderate Risk for Mining (Figure 11-12).

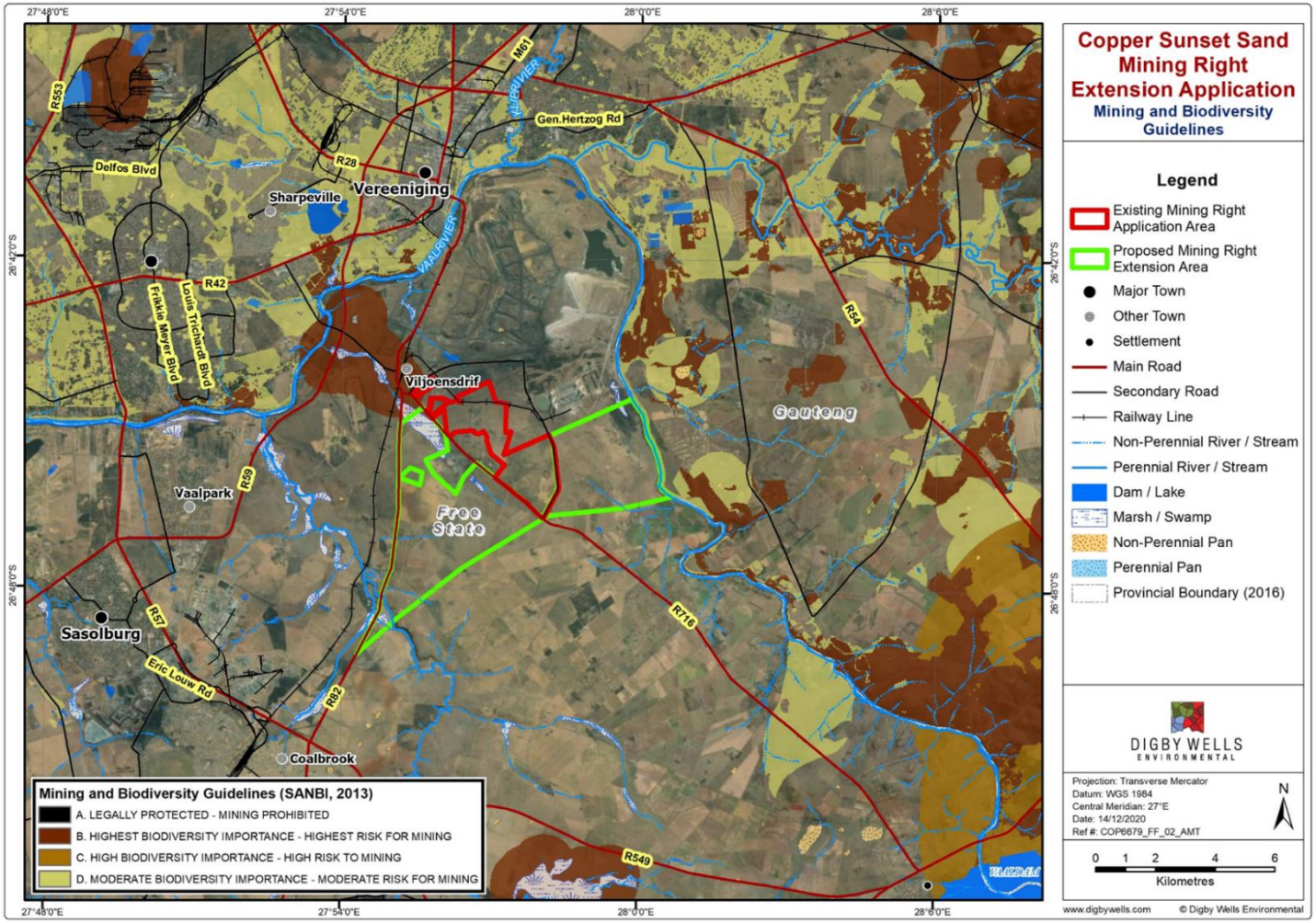


Figure 11-12: Mining and Biodiversity Guideline

11.8.3 Wetland Delineation and HGM Unit Identification

The wetlands identified within the MREA cover a total of 2308.97 ha. The breakdown of the wetland types area is detailed in Table 11-14 and Table 11-15 below. Figure 11-13 illustrates the wetland delineations for the MREA.

Table 11-14: Wetland HGM Units (Western Portion of the MREA)

HGM Unit	Area (ha)
Chanelled Valley Bottom	418.76
Channelled Valley Bottom and Seep	43.04
Floodplain	161.42
Floodplain and Associated Valley Bottom	688.62
Seep	2.49
Valley Head Seep and Channelled Valley Bottom	124.35
Total Wetlands (ha)	**1 438.68**

Table 11-15: Desktop Delineated Wetland HGM Units (Eastern Portion of the MREA)

HGM Unit	Area (ha)
Chanelled Valley Bottom	216.76
Channelled Valley Bottom and Seep	125.41
Floodplain	270.47
Floodplain and Associated Valley Bottom	11.37
Seep	158.41
Valley Head Seep and Channelled Valley Bottom	87.88
Total Wetlands (ha)	**870.29**

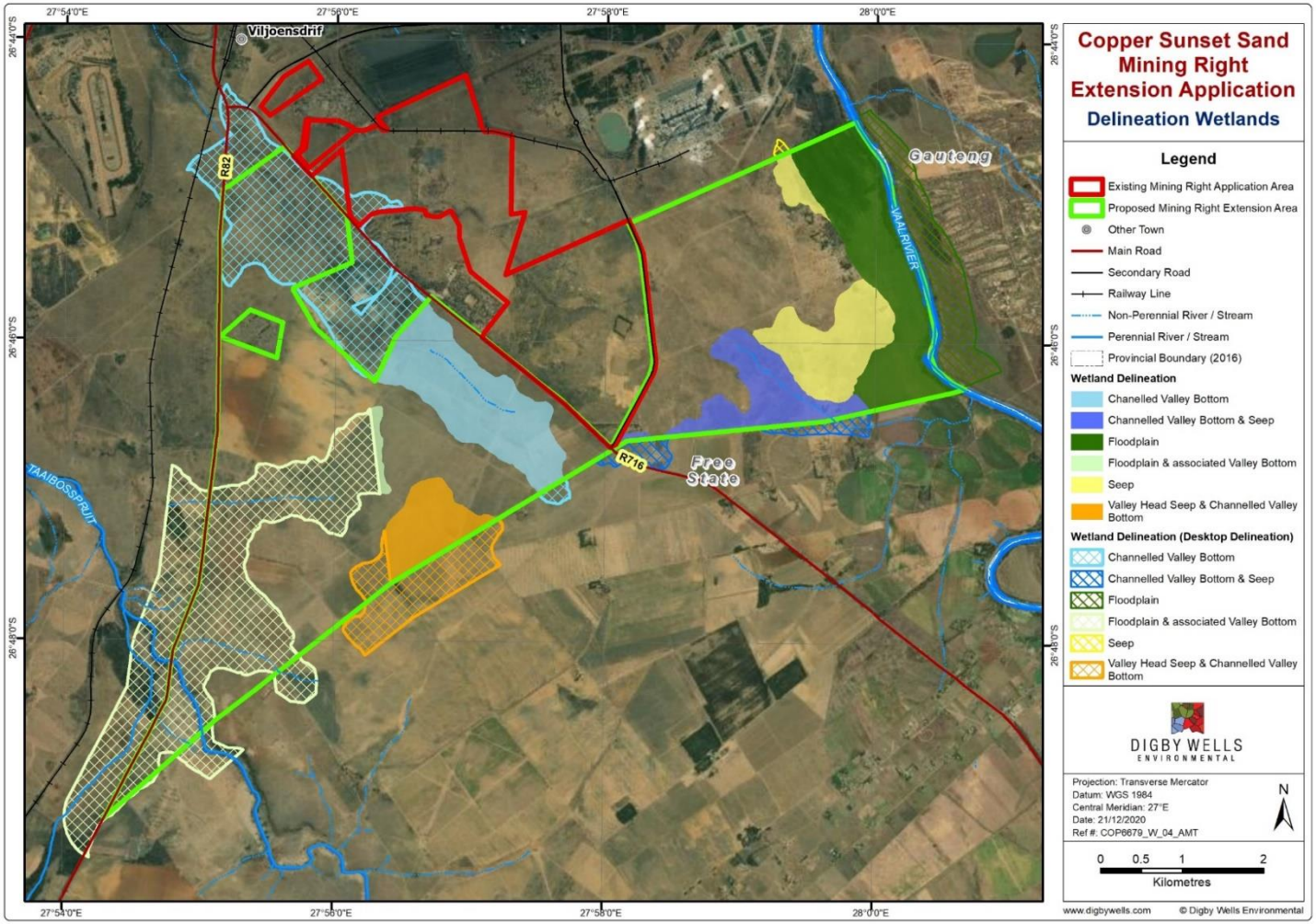


Figure 11-13: Wetland Delineation of the Proposed Copper Sunset MREA

11.9 Air Quality

11.9.1 Existing Air Quality – Dustfall

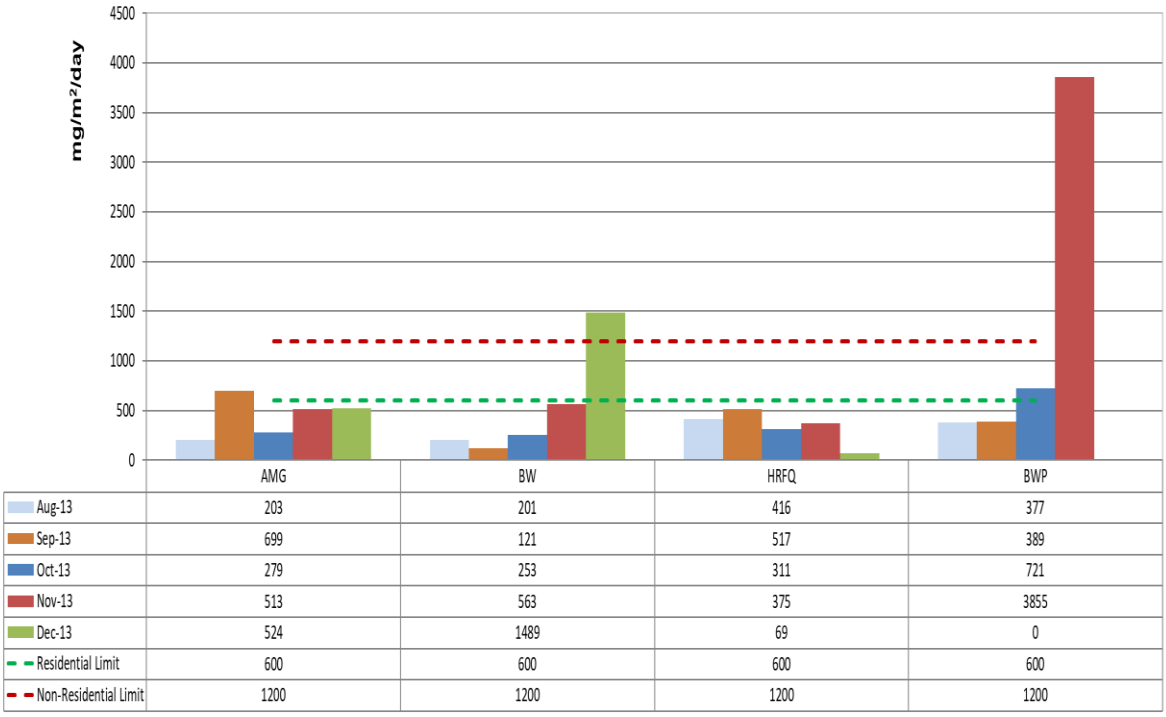
Archived dust deposition data collected using the American Standard Test Method (ASTM) D1739 for the area was used to assess background scenarios in the Project area. Data for 26 months, from August 2013 to October 2015 from four sites was obtained and the graphs showing the result are depicted below (Figure 11-14 to Figure 11-16). This is the only data currently available. Based on reports from the National Occupational Health and Safety Consultants for the period, all the dust monitoring sites were classified as non-residential. The site names are replaced with acronyms in the graphs, i.e. At Main Gate (AMG); Behind Workshop (BW), Haul Road from Quarry (HRQ) and Behind Washing Plant (BWP). The dustfall rates were compared with the South African Government Notice 827 in Gazette 36974, 1 November 2013 Dust Control Regulations. The results are summarised below:

- BW was in exceedance in December 2013 (1489 mg/m^{2}d) and June 2014 (1342 mg/$^{m2/}$d), respectively. These monitoring locations are within the mine boundary and most likely impacted by the sand mining activities. Mine related localised activities result in particulates being airborne, deposited and re-suspended. Thus, leading to the high dustfall rates measured on-site; and
- BWP measured exceedances in November 2013 (3855 mg/m^{2}d). The dustfall rate measured was more than three times the non-residential limit of 1200 mg/m^2/d.

Despite the above, for the 26 months period, only the aforementioned exceedances were recorded, and none occurred in sequential months.

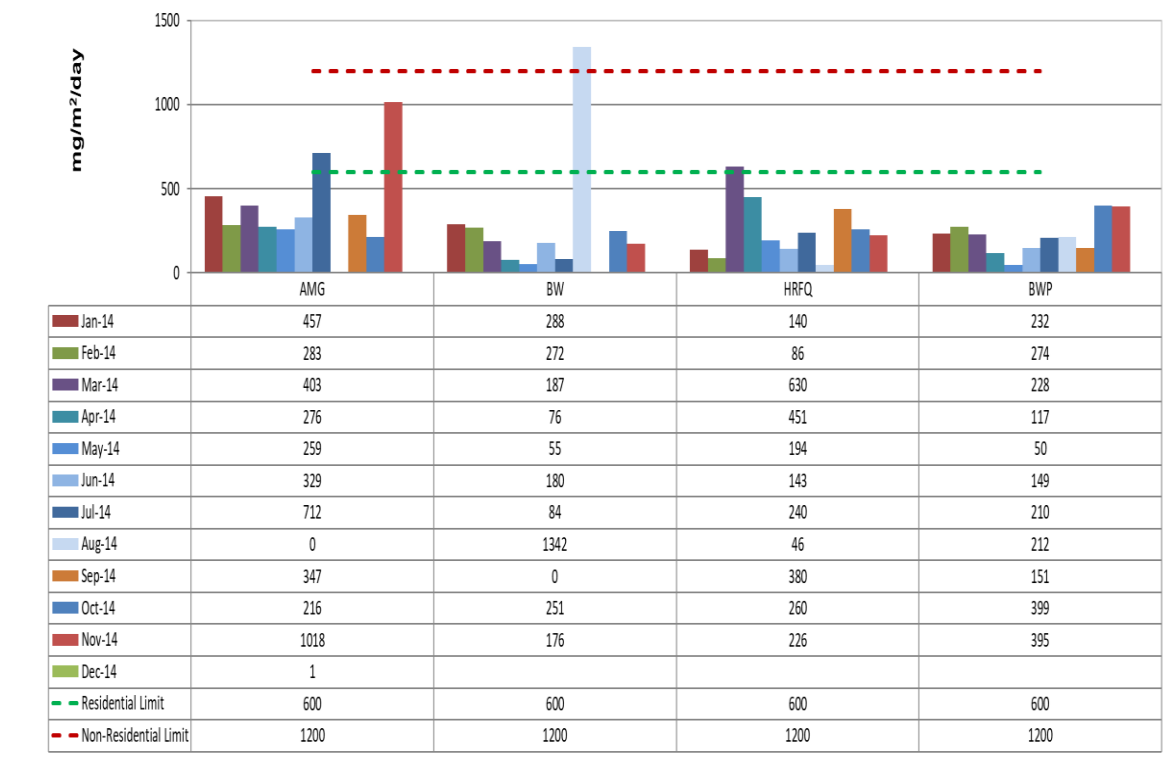
11.9.2 PM_{10}

The ambient concentrations of fine particulate matter with aerodynamic diameter less than 10 micron could not be determined as data was not available for evaluation. If in future this is made available, this will be analysed and used to comprehensively assess daily PM_{10} variability on site.



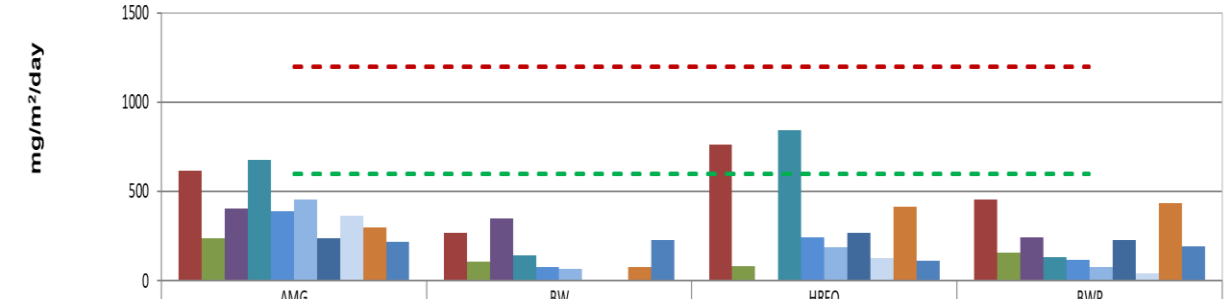
	AMG	BW	HRFQ	BWP
Aug-13	203	201	416	377
Sep-13	699	121	517	389
Oct-13	279	253	311	721
Nov-13	513	563	375	3855
Dec-13	524	1489	69	0
Residential Limit	600	600	600	600
Non-Residential Limit	1200	1200	1200	1200

Figure 11-14: Copper Sunset Dustfall Data (2013)



	AMG	BW	HRFQ	BWP
Jan-14	457	288	140	232
Feb-14	283	272	86	274
Mar-14	403	187	630	228
Apr-14	276	76	451	117
May-14	259	55	194	50
Jun-14	329	180	143	149
Jul-14	712	84	240	210
Aug-14	0	1342	46	212
Sep-14	347	0	380	151
Oct-14	216	251	260	399
Nov-14	1018	176	226	395
Dec-14	1			
Residential Limit	600	600	600	600
Non-Residential Limit	1200	1200	1200	1200

Figure 11-15: Copper Sunset Dustfall Data (2014)



	AMG	BW	HRFQ	BWP
Jan-15	617	268	764	455
Feb-15	239	105	80	159
Mar-15	406	350	0	244
Apr-15	675	143	840	131
May-15	388	74	241	118
Jun-15	455	66	186	76
Jul-15	236	0	266	228
Aug-15	363	0	125	41
Sep-15	297	77	415	432
Oct-15	218	226	113	190
Residential Limit	600	600	600	600
Non-Residential Limit	1200	1200	1200	1200

Figure 11-16: Dustfall Data (2015)

11.10 Noise

The baseline characterisation of the Project area encompasses a description of the monitoring locations and existing noise sources that contribute to the general noise soundscape of the area. The soundscape of the Project area is characterised by measurements taken at selected receptors in the area likely to be impacted. Data encompasses both daytime and night-time measurements.

11.10.1 Existing Noise Soundscape in the Project Area

11.10.1.1 *Desktop Assessment*

A desktop assessment of the Project area and surroundings was conducted. Google Earth® imagery was used to identify the exact locations of these sources that may impact the existing noise soundscape within the Project area. The Project area is characterised by scattered farmsteads, low population density and can therefore be classified as a Rural area (Pateman, 2011).

The predominant land use types in and around the project area as identified from the Google Earth® imagery are agriculture, mining (New Vaal Colliery, Afrimat and Mission Point Mining), industry (Eskom Lethabo Power Station), recreational (Vaal Racecourse) and residential (Figure 11-17). The activities associated with these land-use types have the potential to generate noise that may have an influence on the existing noise soundscape of the Project area.

11.10.1.2 *Ambient Noise Measurements*

A baseline assessment noise survey was undertaken to determine the ambient noise levels at selected sensitive receivers in the area. The ambient noise levels within the Project boundary and selected receivers will be assessed during the EIA Phase, by conducting daytime and night-time measurements at predetermined noise monitoring locations. Figure 11-17 depicts the mine boundary and the proposed noise monitoring locations (labelled N1 to N4).

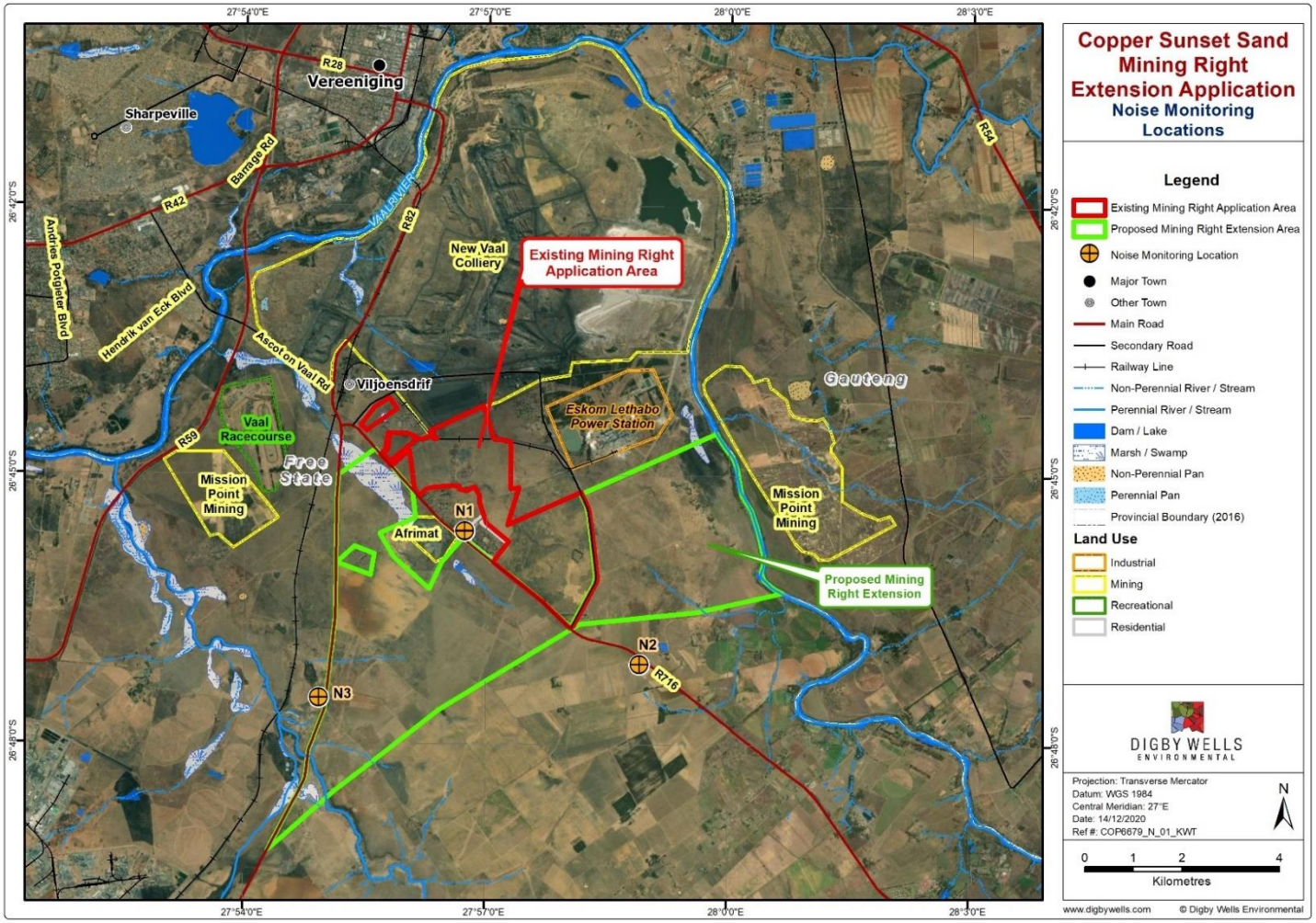


Figure 11-17: Noise Monitoring Locations

The results of the baseline measurements are presented in Table 11-16, the L_{Aeq} noise level recorded for the measurement period was used to understand the noise soundscape of the area. The L_{Aeq} noise level data describes the average noise level for the measurement period taking into account all noise sources that were audible at the specific measurement location. In Table 11-16, the results, as well as the rating limits according to the SANS 10103:2008 guidelines, are presented side by side. A noise level time series history graph per noise measurement location can be seen in Figure 11-18 to Figure 11-20.

Table 11-16: Results of the Baseline Noise Measurements

Sample ID	SANS 10103:2008 rating limit					
	Type of district	**Period**	**Acceptable rating level dBA**	**$L_{Aeq, T}$ dBA**	**Maximum/Minimum dBA**	**Date**
N1	Rural	Daytime	45	51	90 / 34	01/10/2020
		Night-time	35	43	54 / 31	01/10/2020
N2	Rural	Daytime	45	47	74 / 33	01/10/2020
		Night-time	35	41	59 / 28	01/10/2020
N3	Rural	Daytime	45	50	65 / 40	01/10/2020
		Night-time	35	46	56 / 32	01/10/2020
	Indicates current $L_{Aeq, T}$ levels above either the daytime rating limit or the night-time rating limit					

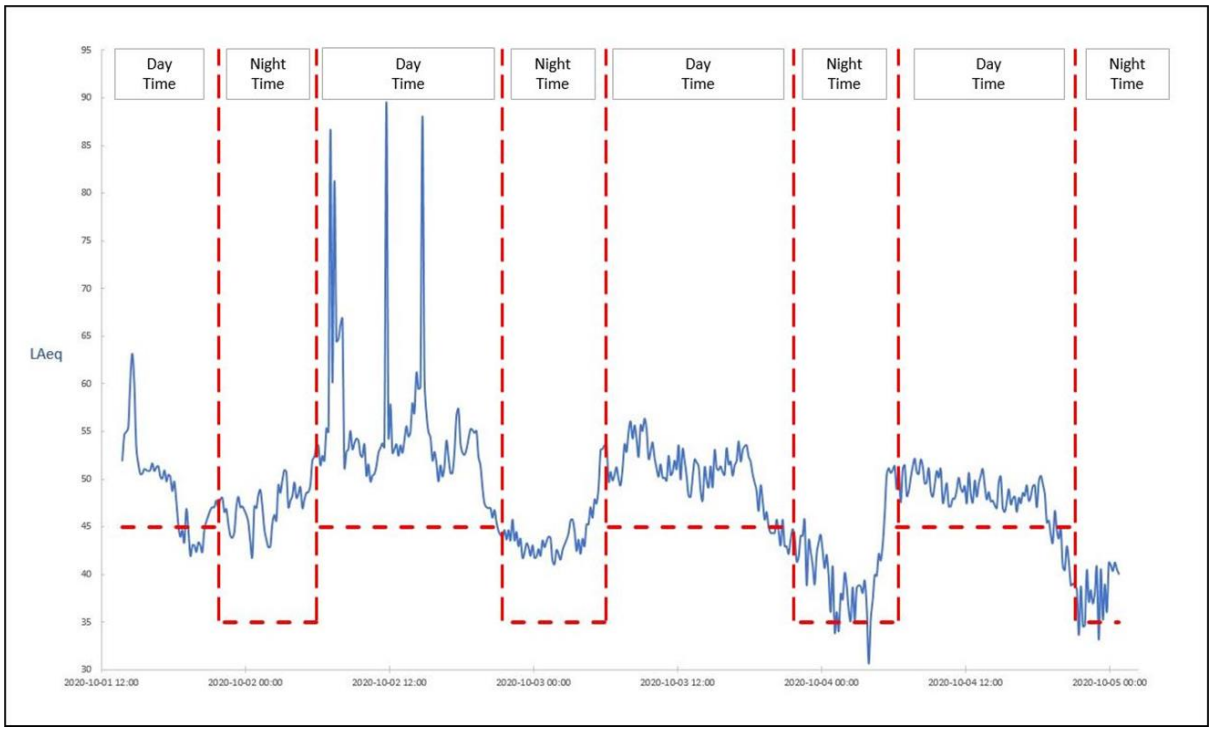


Figure 11-18: Noise Time Series Graph for N1

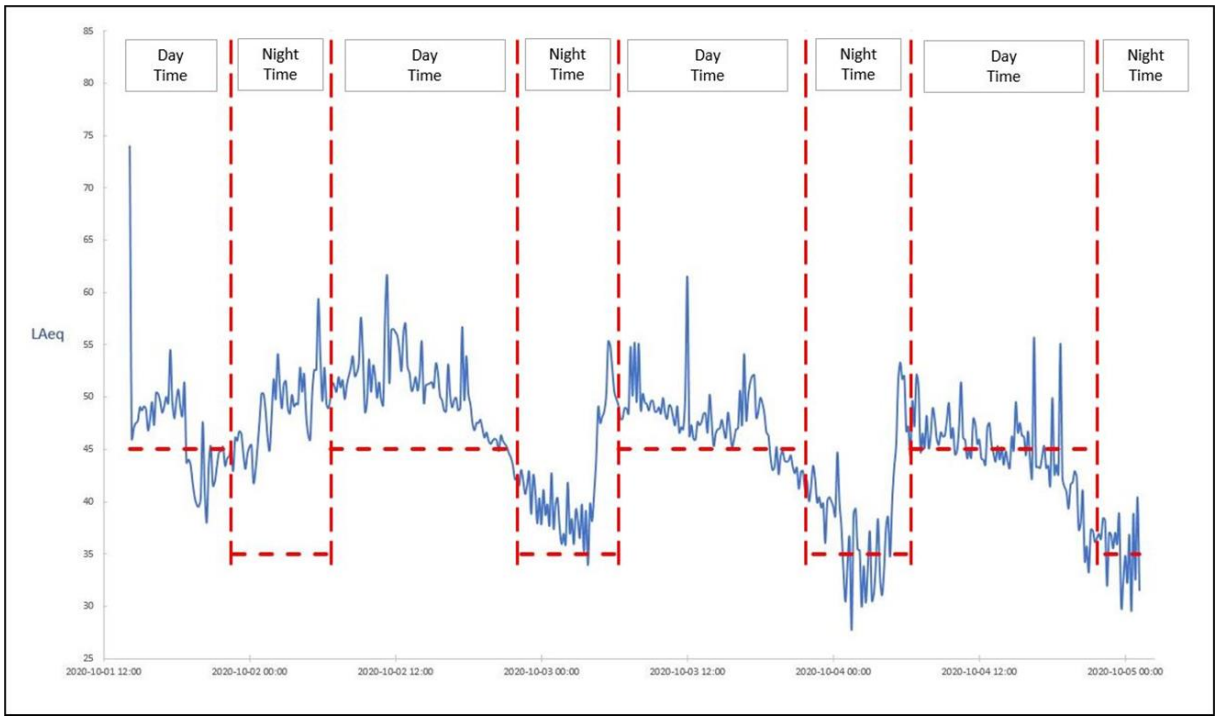


Figure 11-19: Noise Time Series Graph for N2

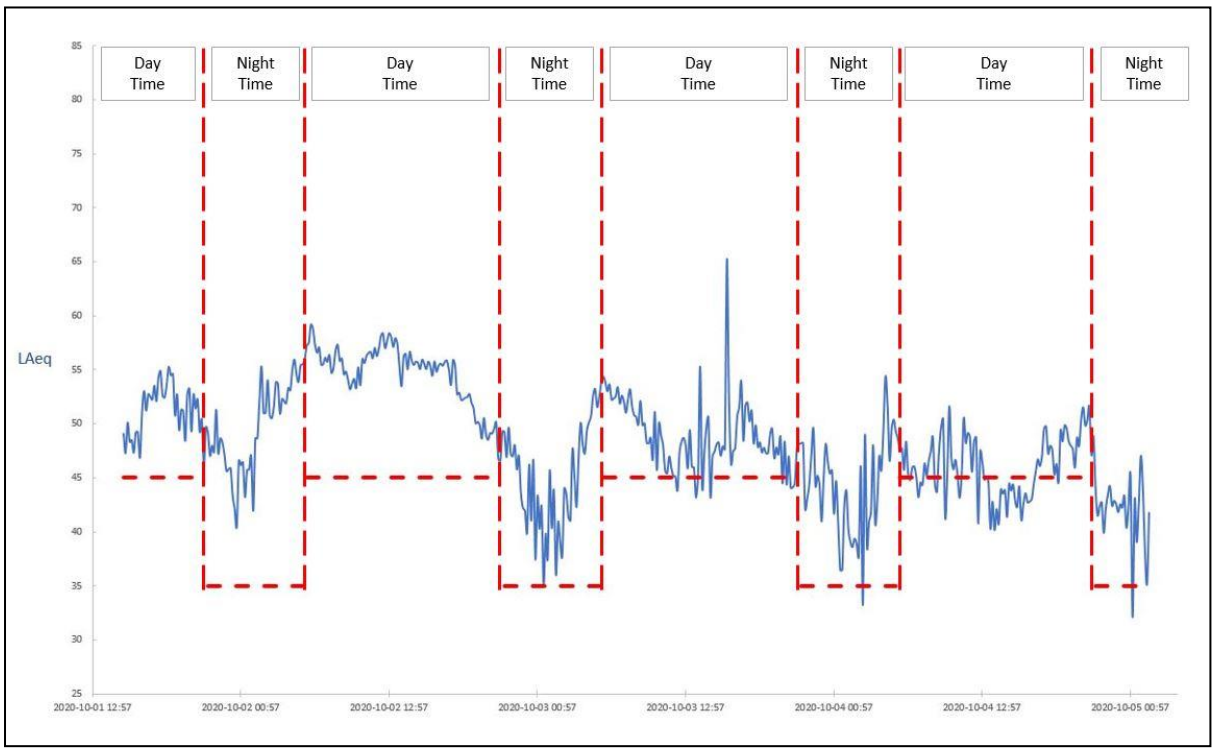


Figure 11-20: Noise Time Series Graph for N3

11.10.1.3 *Day-time Results*

The Sound Level Meters (SLM) was set up for continuous daytime and night-time measurement over four days. The average daytime ambient noise level is estimated at 49dBA. The daytime noise levels at the different measurement locations indicate that the ambient daytime levels at all measurement locations were above the SANS guidelines maximum limit rating of 45dBA allowable for outdoor ambient noise in rural districts. The main noise sources influencing the daytime sound levels at the various measurement locations were the continuous mining activities to the north of the Project area, sound from kids screaming and playing from the residential area at N1, continuous birdsong, metal clanging and hammering from the workshop in the vicinity of N2, intermittent noise from domestic animals (dogs) and vehicular activity on the R716 road.

11.10.1.4 *Night-time Results*

The average night-time ambient noise level is estimated at 43dBA. The night-time noise levels at the different measurement locations indicate that the ambient night-time levels at all measurement locations were above SANS guidelines rating levels of 35dBA allowable for outdoor ambient noise in rural districts. The main noise sources influencing the night-time sound levels at the various measurement locations were the continuous coal mining activities to the north of the Project area, coupled with intermittent noise from domestic animals (dogs) and vehicular activity on the R716 road.

11.11 Cultural Heritage

The site-specific Project area (the farm portions extent associated with the proposed Project, including a 500 m buffer area) is underlain by geological features within the Karoo Supergroup, specifically the Vryheid Formation. The Vryheid Formation is the basal layer of the Ecca Group and dates to approximately 280 million years ago (mya). These layers were deposited in a deltaic environment (Bamford, 2016). The Vryheid Formation includes shales, mudstones, sandstones, and coal. This unit is considered of very-high palaeontological sensitivity (SAHRA, 2013; Groenewald & Groenewald, 2014).

Fossil plants are usually preserved in the shales between the coal horizons and, to a lesser extent, within the sandstone surface outcrops (Bamford, 2012; 2014; 2016). Common fossil plants within the *Vryheid Formation* include *Glossopteris* leaves, roots and inflorescences, and *Calamites* stems. Coal deposits can potentially also include fossils of mammal-like reptiles and amphibians. These are however, rarely, if ever, preserved with plant fossils.

Table 11-17 provides a general breakdown of the timeframes within the archaeological and cultural past in South Africa. Figure 11-21 below provides a breakdown of the previously identified heritage resources representing each of these periods.

Table 11-17: Archaeological periods in South Africa

The Stone Age	Early Stone Age (ESA)	2 mya to 250 thousand years ago (kya)
	Middle Stone Age (MSA)	250 kya to 20 kya
	Later Stone Age (LSA)	20 kya to 500 CE (Common Era[2])
Farming Communities	Early Farming communities (EFC)	500 to 1400 CE
	Late Farming Communities (LFC)	1100 to 1800 CE
Historical Period	-	1500 CE to 1994 (Behrens & Swanepoel, 2008)

Adapted from Esterhuysen & Smith (Stories in Stone, 2007)

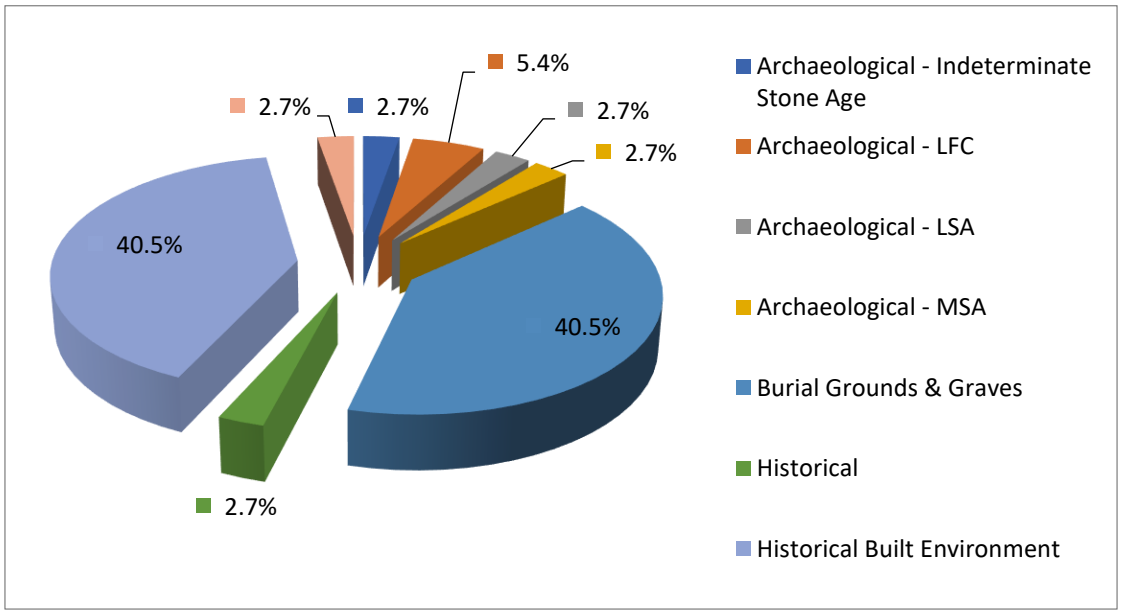


Figure 11-21: Heritage resources identified within the regional study area

The cultural heritage landscape is dominated by the historical built environment and burial grounds and graves, although there are expressions of the MSA, LSA and LFC periods.

11.11.1 Results of the Field Survey

Table 11-18 includes descriptions of the heritage resources identified during the pre-disturbance and ground-truthing surveys. No archaeological material was identified during the

[2] Common Era (CE) refers to the same period as *Anno Domini* ("In the year of our Lord", referred to as AD): i.e. the time after the accepted year of the birth of Jesus Christ and which forms the basis of the Julian and Gregorian calendars. Years before this time are referred to as 'Before Christ' (BC) or, here, BCE (Before Common Era).

pre-disturbance survey. The Heritage Impact Assessment (HIA) report will include photographs of these heritage resources and will also include a plan presenting the spatial distribution of these sites and the geographical relationship of these resources to the proposed Project layout.

The Project area has been disturbed through anthropogenic activity, including farming. Modern structures, agricultural infrastructure (including cattle kraals, water tanks and boreholes), electrical infrastructure, and informal/untarred roads have been established within the Project area. Part of the area had recently been burned, which improved visibility. In other areas, the natural grass was overgrown, limiting ground visibility. Some other areas had been disturbed through animal activity. Burrows were inspected for the presence of any archaeological materials. Cattle graze within the Project area.

Table 11-18: Heritage Resources Identified Through the Pre-Disturbance Survey[3]

Site Name	Description
BGG-001	Burial ground of approximately 65 identified graves. The graves within the burial ground are marked by sand heaps with upright stone headstones, brick or cement headstones or no headstones, stone and brick heaps with no headstone, cement dressings (with and without individual fences), granite dressings with headstones and brick borders with headstones. Most of the headstones that have inscriptions are illegible and in poor condition. Grave goods are present on some graves. The burial ground is currently not fenced off, but parts have been fenced off in the past, as there are dilapidated remains of fencing.
BGG-002	This heritage resource was identified by the soil specialist and was not verified in the field by the heritage specialist. As such, there is no description of this resource.

A preliminary assessment of the Genealogical Society of South Africa (Google Earth Cemetery Initiative, 2011) database did not indicate additional burial grounds are known to exist within the Project area.

11.12 Socio-Economic

The socio-economic baseline profile presented in this section focuses on the primary and secondary study areas, defined in Table 11-19.

Table 11-19: Primary and Secondary Study Areas

Primary Study Area	Secondary Study Areas	
Ward 18 Ward 19	Metsimaholo Local Municipality (MLM)	Fezile Dabi District Municipality (FDDM)

[3] In accordance with SAHRA procedures, the GPS co-ordinates of these heritage resources have not been included in documents available to the public.

The data presented in this baseline was sourced from available reference documents that were made available from the applicant as well as from secondary literature available in the public domain, namely:

- Statistics South Africa (Stats) Wazimap (2017) – providing statical data of the project community;
- Fezile Dabi District Municipality website - Reviewed Final Integrated Development Plan (IDP) (2020/2021); and
- Metsimaholo Local Municipality website - Reviewed Integrated Development Plan (IDP) 2020/21.

11.12.1 Geographical Setting

The proposed Project is located within the jurisdiction of the FDDM within the MLM in the Free State Province, South Africa. The local municipality covers an estimated area of 1739 square kilometres. The major towns include Sasolburg, Zamdela, Deneysville, Refengkgotso, Oranjeville, Metsimaholo, Viljoensdrif and Coalbrook. For purposes of this Project, Viljoensdrif is the nearest surrounding community.

11.12.2 Population Demographics

The Fezile Dabi district population makes up 494,777 (17.45%) of the Free State Province. The population is distributed across the four local municipalities as displayed in Table 11-20 below. It is evident that the majority of the population in the district is situated in MLM, which accounts for 33.05% of the population of the district.

Table 11-20: Analysis of Demographic Profile of Fezile Dabi District Municipality

Name of Local Municipality	Total population	% of District population	Total population	Growth rate
Metsimaholo Local Municipality	163 564	33.05%	149 108	2.1%
Mafube Local Municipality	57 574	11.64%	57 876	-0.1%
Moqhaka Local Municipality	154 732	31.27%	160 532	-0.8%
Ngwathe Local Municipality	118 907	24.03%	120 520	-0.3%

Adapted from Stats SA, CS (2016)

Table 11-21 provides a summary of the indicative population statistics for the ward under consideration as compared to the secondary study area.

Table 11-21: Indicative Statistics related to the Population in the Secondary Study Area

Indicators	Free State	FDDM	MLM	Ward 18	Ward 19
Population	2 745 591	488 035	163 564	4 570	7 553
Size (km^2)	130 011.5	20 829.1	1 720.1	82.4	163.1
Population Density (*whole people / km^2*)	21	23	87	55	46
Number of Households	838 877	147 452	46 936	1 713	2 624
Average household size	3.27	3.31	3.18	2.67	2.88
Number of child-headed households[4]	4 377	671	171	4	5
Percentage of child-headed households[5]	0.52%	0.46%	0.36%	0.23%	0.19%

Adapted from Stats (Statistics by Place, 2011) and Wazimap (Wazimap, 2017)

According to Statistics South Africa's 2016 Community Survey, the total combined urban and rural population of MLM is estimated at 163,564 with estimated 59113 households. Accordingly, the MLM accounts for an estimated 33 % of the total district population of 494,777. Based on the survey results, this municipality is the most populated area within the Fezile Dabi Region followed by Moqhaka Local Municipality. The municipality's dependency ratio is estimated at 45.9.

In terms of Population distribution, the majority population is black African, followed by white population with a total of 82.3% and 16.4%, respectively. The Indian/Asian population is the smallest of all the population groups and amounts to 0.3% and Coloured community to 0.7% of the population. Figure 11-22 depicts the population distribution of the local municipality.

[4] Head of the household is younger than 18 years

[5] Child-headed households expressed as a percentage of the total number of households in the area.

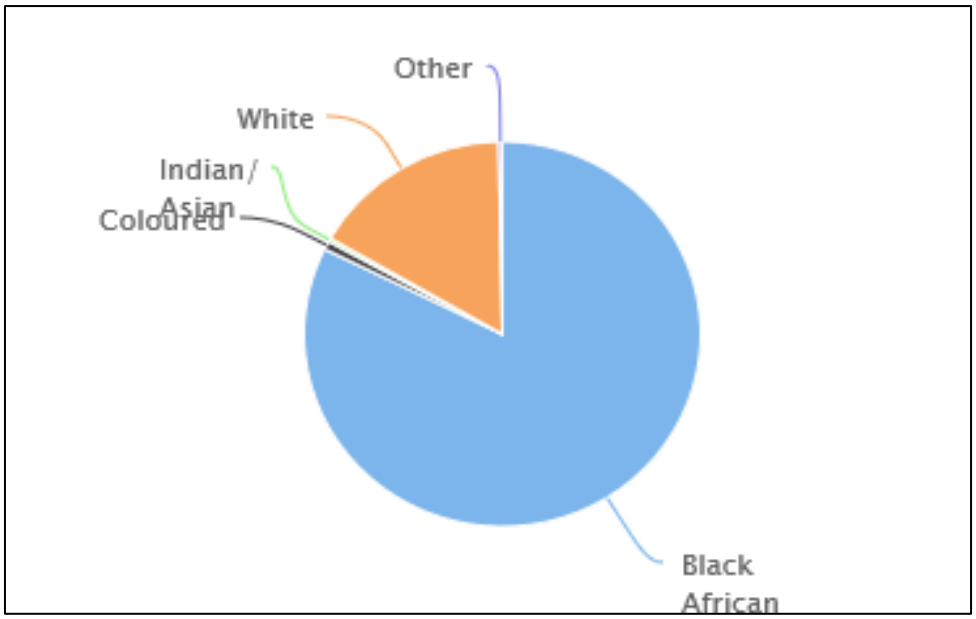


Figure 11-22: Population Distribution of Metsimaholo Local Municipality

Adapted from Wazimap (Wazimap, 2017)

Table 11-22 presents an overview of the population by age. The commonly used languages are SeSotho (57.9%), followed by Afrikaans which is 16.2% in comparison to other languages spoken in the area.

Table 11-22: Population by Age Range (in Percentages)

Language	Free State	FDDM	MLM	Ward 18	Ward 19
Under 18	34.7	33.4	31.1	23.6	33.4
18 to 64	59.8	60.6	64.5	70.0	65.0
65 and over	5.5	6.1	4.4	6.4	1.6

Adapted from Stats (Statistics by Place, 2011) and Wazimap (Wazimap, 2017)

11.12.3 Education

The education profile of the municipality's education profile indicates that 29910 people have Grade 12 or equivalent education. On the other hand, a total of 11027 people have obtained higher education qualifications. In total, over 87621 people have not completed grade 12 / standard 10, with 6693 with no formal education at all (Figure 11-23). The total number of people who have not completed matric (including those with no schooling), constitutes 53.5% of the total municipal population and those with matric and higher education constitutes 25% of the total municipal population.

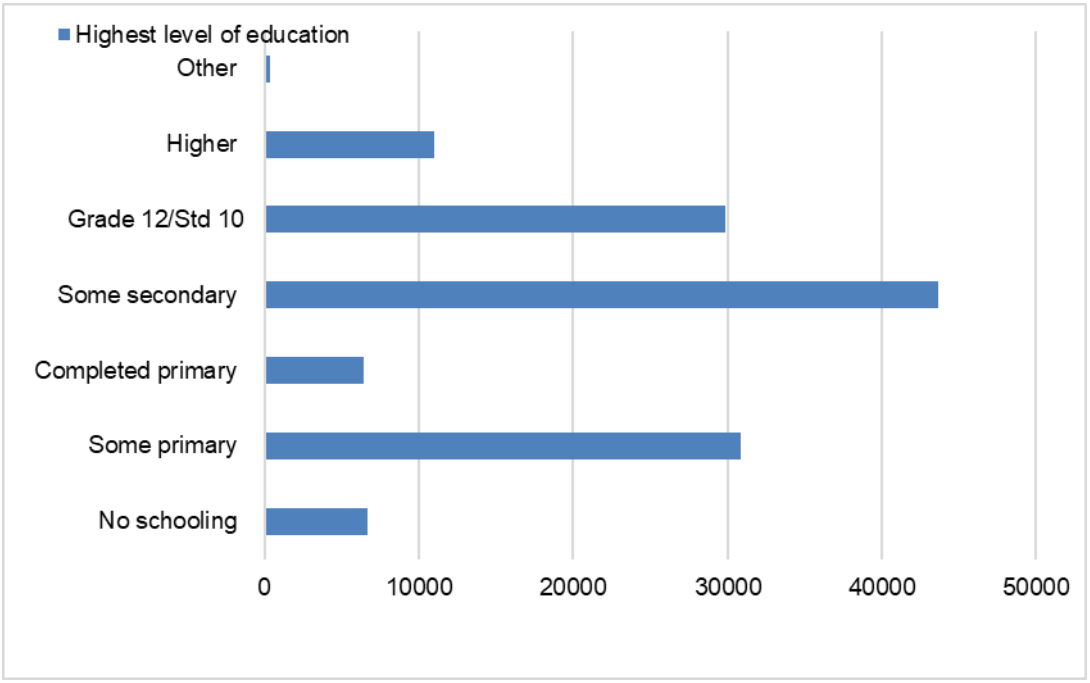


Figure 11-23: Education Levels

Adapted from Metsimaholo IDP (2020/2021)

11.12.4 Employment

A total of 44261 people are employed, while 3008 are discouraged work-seekers. According to Census 2011, 20948 people are unemployed; making the unemployment rate stand at 32.1%.

11.12.5 Household Services

This section provides a brief overview of the level of households' access to basic public services and infrastructure namely: the supply of water, sanitation and waste management.

11.12.5.1 *Sources of Water*

According to the municipal IDP, the Water Services Development Plan (WSDP) is still yet to be developed. There is no plan in place to manage the sanitation in the area although the municipality is in the process of addressing such challenges. The Municipality is dependent on regional sources of water supply as depicted in Figure 11-24 below.

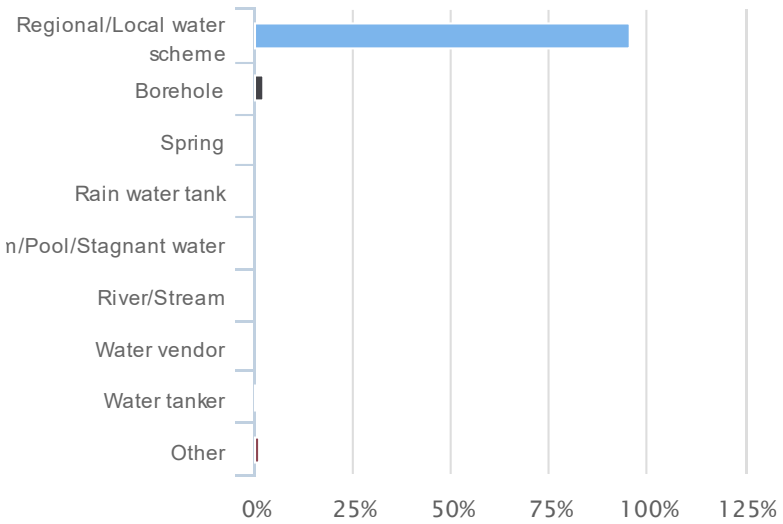


Figure 11-24: Sources of water

11.12.5.2 *Sanitation Resources*

The challenge with sanitation services is that some informal settlements are not receiving proper sanitation service due to deteriorating infrastructure and incomplete projects. Refer to Table 11-23 for the sanitation resources employed by the population of the areas under investigation.

Table 11-23: Sanitation Services

Description	Number / Percentage at MLM	Ward 18	Ward 19
Status of Water Services Development Plan (WSDP)	Draft awaiting council approval.		
National Target Flush toilet (connected to sewerage system)	33 850 households (73.9%)	1614 of the total 1685 households	960 of the total 2605 households
Number/Percentage of Households with Flush toilet (with septic tank)	696 households (1.5%)	18	18
Number/Percentage of Households with Chemical toilet	223 households (0.48%)	0	10
Number/Percentage of Households with Pit latrine with ventilation (VIP)	197 households (0.43%)	3	40
Number/Percentage of Households with Pit latrine without ventilation	7 466 households (16.3%)	39	1165

Description	Number / Percentage at MLM	Ward 18	Ward 19
Number/Percentage of Households with Bucket latrine	1 533 households (3.4%)	6	10
Number/Percentage of Households with no sanitation	617 households (1.3%) Areas with no access to Sanitation services are Mooidraai	0	60
Number/Percentage of Households using other sanitation methods	1 170 households (2.6%)	5	342

Adapted from Metsimaholo IDP (2020/2021)

12 Item 2(k): Impacts Identified

Potential impacts resulting from the proposed Copper Sunset Project identified during the Scoping Report include the following:

- Potential increase in ambient noise levels;
- Potential increase in ambient dust levels;
- Soil erosion and compaction;
- Potential soil contamination from hydrocarbon spillages;
- Potential increase of traffic within the study area and nearby roads;
- Habitat loss and impact on biodiversity;
- Potential impacts on fauna;
- Increased potential for the spread, and establishment of alien and invasive species;
- Possible contamination and siltation of surface water;
- Potential loss of wetland, habitat integrity and functionality; and
- Potential loss of or damage to heritage and cultural aspects.

Refer to Table 13-1 for the preliminarily identified impacts per Project activity and the proposed mitigation measures.

12.1 Item 2(g)(vi): Methodology used in Determining the Significance of the Environmental Impacts

The methodology to identify, determine and assess the potential impacts is provided in this section and will be utilised by the relevant Specialists during the EIA Phase.

12.1.1 Impact Rating

The impact assessment methodology that will be utilised during the EIA Phase for the Project consists of two phases namely impact identification and impact significance rating.

Impacts and risks have been identified based on a description of the activities to be undertaken. Once impacts have been identified, a numerical environmental significance rating process will be undertaken that utilises the probability of an event occurring and the severity of the impact as factors to determine the significance of a particular environmental impact.

The severity of an impact is determined by taking the spatial extent, the duration, and the severity of the impacts into consideration. The probability of an impact is then determined by the frequency at which the activity takes place or is likely to take place and by how often the type of impact in question has taken place in similar circumstances.

Following the identification and significance ratings of potential impacts, mitigation and management measures were incorporated into the EMP.

Details of the impact assessment methodology used to determine the significance of physical, bio-physical and socio-economic impacts are provided below.

The significance rating process follows the established impact/risk assessment formula:

Significance = Consequence x Probability x Nature

Where

Consequence = Intensity + Extent + Duration

And

Probability = Likelihood of an impact occurring

And

Nature = Positive (+1) or negative (-1) impact

Note: In the formula for calculating consequence, the type of impact is multiplied by +1 for positive impacts and -1 for negative impacts

The matrix calculates the rating out of 147, whereby intensity, extent, duration and probability are each rated out of seven as indicated in

Table 12-2. The weight assigned to the various parameters is then multiplied by +1 for positive and -1 for negative impacts.

Impacts are rated prior to mitigation and again after consideration of the mitigation has been applied; post-mitigation is referred to as the residual impact. The significance of an impact is determined and categorised into one of seven categories (The descriptions of the significance ratings are presented in Table 12-3).

It is important to note that the pre-mitigation rating takes into consideration the activity as proposed, (i.e., there may already be some mitigation included in the engineering design). If the specialist determines the potential impact is still too high, additional mitigation measures are proposed.

Table 12-1: Impact Assessment Parameter Ratings

Rating	Intensity/Replaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
7	Irreplaceable loss or damage to biological or physical resources or **highly** sensitive environments. Irreplaceable damage to **highly sensitive** cultural/social resources.	Noticeable, on-going natural and / or social benefits which have improved the overall conditions of the baseline.	International The effect will occur across international borders.	Permanent: The impact is irreversible, even with management, and will remain after the life of the project.	Definite: There are sound scientific reasons to expect that the impact will definitely occur. >80% probability.
6	Irreplaceable loss or damage to biological or physical resources or **moderate to highly** sensitive environments. Irreplaceable damage to cultural/social resources of **moderate to highly** sensitivity.	Great improvement to the overall conditions of a large percentage of the baseline.	National Will affect the entire country.	Beyond project life: The impact will remain for some time after the life of the project and is potentially irreversible even with management.	Almost certain / Highly probable: It is most likely that the impact will occur. <80% probability.
5	Serious loss and/or damage to physical or biological resources or **highly** sensitive environments, limiting ecosystem function. Very serious widespread social impacts. Irreparable damage to highly valued items.	On-going and widespread benefits to local communities and natural features of the landscape.	Province/ Region Will affect the entire province or region.	Project Life (>15 years): The impact will cease after the operational life span of the project and can be reversed with sufficient management.	Likely: The impact may occur. <65% probability.
4	Serious loss and/or damage to physical or biological resources or **moderately** sensitive environments, limiting ecosystem function. On-going serious social issues. Significant damage to structures / items of cultural significance.	Average to intense natural and / or social benefits to some elements of the baseline.	Municipal Area Will affect the whole municipal area.	Long term: 6-15 years and impact can be reversed with management.	Probable: Has occurred here or elsewhere and could therefore occur. <50% probability.
3	Moderate loss and/or damage to biological or physical resources of **low to moderately** sensitive environments and, limiting ecosystem function. On-going social issues. Damage to items of cultural significance.	Average, on-going positive benefits, not widespread but felt by some elements of the baseline.	Local Local extending only as far as the development site area.	Medium term: 1-5 years and impact can be reversed with minimal management.	Unlikely: Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur. <25% probability.

Rating	Intensity/Replaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
2	**Minor loss and/or effects** to biological or physical resources or low sensitive environments, not affecting ecosystem functioning. Minor medium-term social impacts on local population. Mostly repairable. Cultural functions and processes not affected.	Low positive impacts experience by a small percentage of the baseline.	Limited. Limited to the site and its immediate surroundings.	Short term: Less than 1 year and is reversible.	Rare / improbable: Conceivable, but only in extreme circumstances. The possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures. <10% probability.
1	**Minimal to no loss** and/or effect to biological or physical resources, not affecting ecosystem functioning. Minimal social impacts, low-level repairable damage to commonplace structures.	Some low-level natural and / or social benefits felt by a very small percentage of the baseline.	Very limited/Isolated. Limited to specific isolated parts of the site.	Immediate: Less than 1 month and is completely reversible without management.	Highly unlikely / None: Expected never to happen. <1% probability.

Table 12-2: Probability / Consequence Matrix

Significance																																						
-147	-140	-133	-126	-119	-112	-105	-98	-91	-84	-77	-70	-63	-56	-49	-42	-35	-28	-21	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147
-126	-120	-114	-108	-102	-96	-90	-84	-78	-72	-66	-60	-54	-48	-42	-36	-30	-24	-18	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126
-105	-100	-95	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105
-84	-80	-76	-72	-68	-64	-60	-56	-52	-48	-44	-40	-36	-32	-28	-24	-20	-16	-12	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84
-63	-60	-57	-54	-51	-48	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63
-42	-40	-38	-36	-34	-32	-30	-28	-26	-24	-22	-20	-18	-16	-14	-12	-10	-8	-6	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Consequence

Table 12-3: Significance Rating Description

Score	Description	Rating
109 to 147	A very beneficial impact that may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change	Major (positive) (+)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and / or social) environment	Moderate (positive) (+)
36 to 72	A positive impact. These impacts will usually result in positive medium to long-term effect on the natural and / or social environment	Minor (positive) (+)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the natural and / or social environment	Negligible (positive) (+)
-3 to -35	An acceptable negative impact for which mitigation is desirable. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural and / or social environment	Negligible (negative) (-)
-36 to -72	A minor negative impact requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the natural and / or social environment	Minor (negative) (-)
-73 to -108	A moderate negative impact may prevent the implementation of the project. These impacts would be considered as constituting a major and usually a long-term change to the (natural and / or social) environment and result in severe changes.	Moderate (negative) (-)
-109 to -147	A major negative impact may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects. The impacts are likely to be irreversible and/or irreplaceable.	Major (negative) (-)

12.2 Item 2(g)(vii): The Positive and Negative Impacts that the Proposed Activity and Alternatives will have on the Environment and the Community that may be Affected

All potential negative and positive impacts will be identified, ranked and mitigation measures prescribed during the EIA Phase. The assumed impacts (to be confirmed during the EIA Phase) are listed in Table 13-1 below.

12.3 Item 2(g)(viii): The Possible Mitigation Measures that could be Applied and the Level of Risk

Possible mitigation measures that could be applied to risks regarding the site layout will be considered and discussed as part of the EIA Phase. This will also take into consideration the comments received from I&APs during the PPP as well as the findings of the specialist investigations. The proposed mitigation measures for the assumed risks (to be confirmed during the EIA Phase) are also listed in Table 13-1 below.

12.4 Item 2(g)(ix): The Outcome of the Site Selection Matrix

The preliminary layout for this application process has been predominantly determined by the position of the economically mineable sand resource. The EIA Phase will consider how the layout can be altered to reduce or avoid impacts and sensitive environments.

12.5 Item 2(g)(x): Motivation where no Alternatives sites were Considered

The preferred site is primarily influenced by the established Copper Sunset mining operation taking place on the adjacent portion of land. This application relates to the extension of the existing MRA to now include the additional portions of the RE of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. Viable sand reserves have been identified over the extension areas, through extrapolation of the existing disturbance within the existing MRA.

Therefore, locational alternatives were not considered as the site has been selected based on the availability of sand. The alternatives considered in this report include the design or layout, mining method, and the “No-Go” alternative. Refer to section 9.1 above.

12.6 Item 2(g)(xi): Statement Motivating the Preferred Alternatives and Site

As stated above, the preferred site has been selected based on the availability of sand and its proximity to the existing mining operation. No other site alternatives were identified. Wetlands have been identified within the proposed extension areas and cover 2308.97 ha of the area. A large section of the MREA has historically been impacted by anthropogenic activities. The Applicant intends to mine severely disturbed wetland areas (leaving sensitive wetlands unmined) in order to fully maximise the mineral resource available on the properties. A wetland

offset assessment will be undertaken to determine the number of wetlands to be offset and to compensate for significant residual adverse impacts. A more detailed description is provided in Section 9.

13 Item 2(l): Plan of Study for the EIA Process

The purpose of the EIA Phase is to investigate the potential negative and positive impacts of a proposed project activities on the environment. The potential impacts will then be quantified to assess the significance that an impact may pose on the receiving environment. The objectives of the EIA process are to:

- Ensure that the potential biophysical and social impacts of the proposed Project, including those as a result of potential traffic impacts, are taken into consideration during the decision-making process;
- Ensure that the Project activities undertaken do not have a substantial detrimental impact on the environment by presenting management and mitigation measures that will avoid and/or reduce those impacts;
- Ensure that I&APs are informed about the proposed Project and the PPP to be followed;
- Ensure that I&APs are given an opportunity to raise concerns; and
- Provide a process aimed at enabling authorities to make an informed decision, especially in respect of their obligation to take environmental and social considerations into account when making those decisions.

13.1 Item 2(l)(i): Description of the Alternatives Considered and Assessed

The alternatives including the “No-Go” alternatives considered and assessed are presented in Section 9.1 above. These will be further investigated during the EIA Phase.

13.2 Item 2(l)(ii): Description of Aspects to be Assessed as part of the EIA Process

The EIA Phase will assess the overall aspects affected by the proposed Project in relation to Listed Project activities. The identified Listed and specified Activities for the Project are included in Section 5.1 above, and the affected environmental aspects, which will also form part of the EIA Phase, are contained in Section 13.3 below.

13.3 Item 2(l)(iii): Aspects to be Assessed by Specialists

The following Specialist Impact Assessments will be undertaken as part of the EIA Phase:

- Surface Water Impact Assessment;
- Hydropedology Assessment ;

- Soil, Land Use and Land Capability Assessment;
- Fauna and Flora Impact Assessment;
- Wetlands Impact Assessment;
- Aquatics Impact Assessment;
- Air Quality Impact Assessment;
- Noise Impact Assessment;
- Heritage Impact Assessment;
- Social Impact Assessment;
- Traffic Impact Assessment;
- Closure and Rehabilitation; and
- Public Participation Process.

The specialist reports will be included as part of the Draft EIA and will be made available for public review before submission to the decision-making authorities.

13.4 Item 2(l)(iv): Description of the Proposed Method of Assessing the Environmental Aspects

The full Impact Assessment methodology is included in Section 12.1.1.

13.5 Item 2(l)(v): Description of Proposed Method of Assessing Duration and Significance

The Impact Assessment methodology is contained in Table 12-3 above. For cumulative analysis, the following will be considered:

- Existing operations in the areas that could contribute, *inter alia,* to air pollution, surface water contamination, noise, air quality and wetland health degradation; and
- Loss of heritage resources.

13.6 Item 2(l)(vi): An Indication of the Stages at which the Competent Authority will be Consulted

The competent authority for this Project is the DMRE who will be informed and kept up to date throughout the Environmental Authorisation Application processes. The DMRE has also been identified as a Key Stakeholder and will be provided all notifications provided to I&APS, throughout the process. The DMRE will also be invited to attend a site inspection and any/all public engagements. A pre-consultation meeting was held with the DMRE on 03 December 2020. The following proposed project dates apply to the Project Schedule:

- Submission of the Application Form: 14 December 2020;

- Assumed submission of the Draft Scoping Report for Public Review: 8 January 2021;
- Assumed submission of Final Scoping Report: 18 February 2021;
- Assumed submission of the Draft EIA: May 2021; and
- Assumed submission of Final EIA: July 2021.

13.7 Item 2(l)(vii): Details of the Public Participation Process to be Followed during the EIA Process

The PPP will be aligned with the regulatory requirements in terms of Chapter 6 of the EIA Regulations, 2014 (as amended) in accordance with the NEMA. Stakeholder comments gathered during the Scoping Phase and outcomes from the focus group meetings will be closely considered for further Public Participation activities and inclusion for specialist studies (where applicable). The main emphasis of stakeholder meetings as part of this phase will be to share results of the specialist impact studies completed and the associated suggested mitigation measures and recommendations.

It is anticipated that the Stakeholder Engagement process to be implemented for the EIA Phase will be similar to the process undertaken for the Scoping phase. The premise of activities is to adhere to various legislative requirements for Public Participation and that a single, integrated process is followed. This will limit stakeholder fatigue and ensure that stakeholders are presented with a single view of the Project. Focus group meetings will be held during the EIA Phase to present the findings of the EIA process.

13.8 Item 2(l)(viii): Tasks which will be Undertaken as part of the EIA Process

The following tasks will be undertaken during the EIA Phase:

- Further define the project activities;
- Further assess the project alternatives based on technical, economic, social and environmental criteria;
- Supplement the legal review of the project;
- Undertake detailed specialist investigations and impact assessment;
- Confirm water requirements for the different phases of the mine and water resource;
- Identification of possible fatal flaws;
- Assess potential impacts using the methodology provided herein;
- Provide detailed and feasible mitigation and management measures in an EMPr; and
- Public participation activities, including public and key stakeholder meetings.

13.9 Item 2(l)(ix): 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 13-1 provides the proposed project activities, potential impacts associated with each activity and proposed preliminary mitigation and residual risk, per environmental aspects.

Table 13-1: Environmental Aspects Preliminary Impacts and Mitigation Measures

Activities	Potential impacts	Mitigation type	Potential for residual risk
Surface Water			
• Site Clearance.	• Sedimentation and siltation of nearby watercourses due to the removal of vegetation for surface preparation; and • Downstream water users (irrigation, livestock watering and domestic uses) will be negatively affected from reduced water quality.	• Control by limiting clearance and soil disturbance to the development footprint.	Medium
• Construction of a haul road (20m width) to gain access to the sand mining area.	• Clearing or removal of vegetation leaves the soils prone to erosion during rainfall events, and as a result, runoff from these areas will be high in suspended solids increasing turbidity in the natural water resources; and • Downstream water users (irrigation, livestock watering and domestic uses) will be negatively affected from reduced water quality.	• Control by limiting clearance and soil disturbance to the development footprint; and • Control through implementing a stormwater management plan including installation of berms.	Low
• Operation and maintenance of infrastructure; and • Use and maintenance of haul roads.	• The operational machinery, transportation and storage at the mine site are potential sources of hydrocarbon and chemical spills and leakages. When not properly managed, hydrocarbon and chemical spills and leakages will be washed away with the runoff generated on site and thereby contaminate surface water resources within and in proximity to the Project area.	• Control by bunding hydrocarbon storage facilities, use of spill kits and accredited vendors for waste disposal, training of personnel in proper hydrocarbon and chemical handling procedures.	Low
• Concurrent rehabilitation (spreading of soil, re-vegetation and profiling/contouring)	• Restoration of pre-mining streamflow regime in nearby watercourses as much as practically possible to benefit the post mining land use. However, it should be noted that pre-mining land use are not likely to be achieved.	• N/A	Medium
Soils			
• Site clearing, removal of vegetation and movement of heavy machinery.	• Exposed areas are susceptible to soil erosion caused by wind and water movement over the exposed soil surface; • The increasing possibility of sedimentation within the lower-lying areas and loss of soil fertility; • The land capability of the soils will decrease as well as changing the land use from agricultural practices to mining activities. Should the area not be rehabilitated to pre-mining land capability after mining operations, the land capability may be reduced to wilderness; and • Changing the current land use; wildlife, natural grassland and fallow land to mining.	• Control through design, management, maintenance and mitigation; and • Remedy through concurrent operation, rehabilitation and monitoring.	High

Activities	Potential impacts	Mitigation type	Potential for residual risk
• Placement of infrastructure, offices and mining equipment.	• Soil compaction causing increased runoff and erosion potential; • Hardened surfaces causing low vegetation growth, high runoff potential and increased erosion potential; and • Soil Contamination through accidental spillage.	• Control through design, management, maintenance and mitigation; and • Remedy through concurrent operation, rehabilitation and monitoring.	High
• Stockpiling of topsoil.	• Major disturbance to the functionality and productivity of the soil; • Stockpiles that are left unused may result in a loss of soil, organic material and soil fertility; and • Erosion and sedimentation within the low-lying areas.	• Control through design, management and maintenance; and • Remedy through concurrent operation, rehabilitation, monitoring and re-vegetation	Medium
• Construction of haul roads, access roads and linear infrastructure.	• Hydrocarbon leaks from vehicles and machinery or hazardous materials such as oil and fuel spills. • Chemical soil pollution and contamination causing loss of basal cover, organic matter and decreased soil fertility; and • Soil compaction causing low vegetation growth, high runoff potential and increased erosion.	• Control through design, management, maintenance and mitigation; and • Remediate using a commercially available emergency clean up kits.	High
• Mining of sand resources including screening.	• Complete removal of soil, therefore, change in soil depth, soil functionality, land use and land capability; and • High erosion and sedimentation potential affecting the low-lying areas such as the river systems.	• Control through design, management, maintenance and mitigation; and • Remedy through concurrent operation, rehabilitation such as silt traps and erosion berms and monitoring.	High
• Transportation of product (sand).	• Soil compaction causing low vegetation growth, high runoff potential and increased erosion; and • Hydrocarbon leaks from vehicles and machinery or hazardous materials such as oil and fuel spills.	• Control through management, maintenance and mitigation; • Remedy through rehabilitation using a commercially available emergency clean up kits.	Low
• Refuelling of machinery and handling of general and hazardous waste.	• Hydrocarbon leaks/spills from vehicles and machinery or hazardous materials such as oil and fuel spills causing soil contamination.	• Remediate using a commercially available emergency clean up kits.	Medium
• Backfilling of the mined excavations with topsoil and waste from the screening plants.	• Soil compaction causing low vegetation growth, high runoff potential and increased erosion; • Water ponding, soil compaction and change to the soil fertility; and • Changing the land use from mining to wildlife, grassland, and fallow land.	• Control through design, management and mitigation; and • Remedy through rehabilitation and monitoring.	Low
• Rehabilitation including topsoil ripping, vegetation establishment, demolishing of infrastructure.	• Soil chemical and physical changes, which can cause decreased soil fertility, compaction or erosion • Soil compaction causing low vegetation growth, high runoff potential and increased erosion; and • Hydrocarbon leaks from vehicles and machinery or hazardous materials such as oil and fuel spills.	• Remediate using a commercially available emergency clean up kits; • Control through design, management and mitigation; and • Remedy through monitoring.	Medium
• Monitoring.	• Soil compaction causing low vegetation growth, high runoff potential and increased erosion.	• Control and remediate through management and mitigation.	Low

Activities	Potential impacts	Mitigation type	Potential for residual risk
Fauna and Flora			
• Site clearance, including the removal of vegetation and topsoil.	• Loss or transformation of habitats; • Fragmentation of habitats; • Loss of SCC species; and • Spread of alien invasive species.	• Development planning must ensure loss of vegetation and disturbance is restricted to within the minimum and designated areas only; • Vegetate and irrigate open areas to limit erosion, but take care not to promote erosion by irrigating; • Protected plant or animal species encountered must be managed in accordance with an accepted management plan for these species. • Removal of vegetation during construction and operation will be minimised to reduce the risk of excessive open areas occurring; and • Disturbed areas must be monitored and maintained to contain and prevent noxious and invasive plants from spreading in the area.	High
• Construction of mine related infrastructure including roads.	• Loss or transformation of habitats; • Fragmentation of habitats; and • Loss of SCC species.	• Adhere to existing roads, and if new roads are constructed, these must not cross sensitive areas such as the ridges or drainage lines; and • Protected plant or animal species encountered must be managed in accordance with an accepted management plan for these species.	High
• Stripping topsoil and soft overburden; Loading, hauling and stockpiling.	• Loss or transformation of habitats; • Fragmentation of habitats; • Loss of SCC species; and • Spread of alien invasive species.	• Protected plant or animal species encountered must be managed in accordance with an accepted management plan for these species; • Remove alien invasive species as per recommendations from an alien invasive plants management plan; and • Removal and storage of all usable soils to be used in rehabilitation.	High
• Use and maintenance of haul roads for the transportation of sand.	• Loss or transformation of habitats; and • Spread of alien invasive species.	• Prevent vehicular and personnel access into undisturbed areas. Due to the compacting of the soil by vehicles or other means it will be necessary to scarify (rip) such affected areas, including haul and access; and Roads, which will no longer be used as such. This is to allow for the penetration of roots and the re-growth of the natural vegetation.	Medium
• Operational activities.	• Mining related activities have the potential to result in encroachment of alien invasive plant species and possible decrease in available groundwater for floral species; and • Mining activities could result in loss of species of conservation concern and their habitat as well as continued displacement, direct mortalities and disturbance of faunal community (including possible threatened species) due to habitat loss and disturbances (such as dust, poaching and noise).	• Limit degradation and destruction of natural environment to designated project areas by keeping the footprint of the disturbed area to the minimum and within designated areas only; • Develop a management plan for the sensitive area if any mining or recreation activities will take place near or in the sensitive area; • Remove exotic and invasive species during mining and closure periods; • The disturbed areas must be monitored and maintained to contain and prevent noxious and invasive plants from spreading in the area; and • Construct a fence around the mining area of the site with a gate for access control.	High

Activities	Potential impacts	Mitigation type	Potential for residual risk
• Rehabilitation of site and dismantling of infrastructure.	• Spread and/or establishment of alien and/or invasive species; and • Improper rehabilitation of compacted soils, resulting in poor vegetation cover.	• Remove alien invasive species as per recommendations of an alien invasive plants management plan; • Control through design, management, maintenance and mitigation; and • Remedy through concurrent rehabilitation and monitoring.	Medium
Wetlands			
• Site clearing, including the removal of vegetation and topsoil.	• Habitat fragmentation; • Spread of alien and invasive species; • Soil disturbance and/or compaction; • Increased incidence of erosion; • Sedimentation of downstream wetlands; • Potential water quality deterioration; and • Disturbance to avifauna and other fauna utilising the freshwater resources thus resulting in an overall loss of biodiversity.	• Control through design, management, maintenance and mitigation; and • Remedy through concurrent rehabilitation and monitoring.	High
• Stripping topsoil and soft overburden; Loading, hauling and stockpiling.	• Increased potential for erosion, sedimentation and deposition impacts; • Loss of water quality; and • Loss of habitat and biodiversity.	• Control through design, management, maintenance and mitigation; • Remedy through concurrent rehabilitation and monitoring; and • Remediate using commercially available emergency clean up kits.	Medium
• Construction of mine related infrastructure including roads.	• Fragmentation of the wetland resources as a result of road crossings; • Loss of wetland habitat (soils and vegetation) due to both direct and indirect impacts; • Potential loss of wetland ecosystems or part thereof; and • Loss of ecological services at the local and catchment scale.	• Control through design, management, maintenance and mitigation; • Remedy through concurrent rehabilitation and monitoring; and • Remediate using commercially available emergency clean up kits.	Medium
• Sand removal by mining, including screening.	• Loss of wetland habitat; • Potential habitat fragmentation; • Increased erosion potential; • Potential impacts as a result of sedimentation; • Loss of water supply; • Impacts to natural flow regimes; • Potential loss of water quality further downstream; • Loss of biodiversity; • Alterations to natural river channels; and • Alterations to water distribution and volume.	• Remedy through concurrent rehabilitation and monitoring.	High

Activities	Potential impacts	Mitigation type	Potential for residual risk
• Use and maintenance of haul roads for the transportation of sand.	• Fragmentation of the wetland resources as a result of road crossings; • Contamination of wetland resources; • Impacts to water quality as a result of spills; • Compaction of soils; • Loss of habitat and biodiversity; • Increased potential for sheet runoff from paved/cleared surfaces; and • Increased potential for erosion.	• Control through design, management, maintenance and mitigation; • Remedy through concurrent rehabilitation and monitoring; and • Remediate using commercially available emergency clean up kits.	Medium
• Decommissioning of site and dismantling of infrastructure.	• Erosion onset; • Sedimentation; and • Establishment of alien plants.	• Control through design, management, maintenance and mitigation; • Remedy through concurrent rehabilitation and monitoring; and • Remediate using commercially available emergency clean up kits.	Low
• Rehabilitation, including spreading of soil, re-vegetation and profiling or contouring.	• Improper infilling and profiling, resulting in the creation of preferential flow paths and thus increasing the potential for erosion; • Improper rehabilitation of compacted soils, resulting in poor vegetation cover; and • Increased potential for the spread; and establishment of alien and invasive species.	• Control through design, management, maintenance and mitigation; • Remedy through concurrent rehabilitation and monitoring; and • Remediate using commercially available emergency clean up kits.	Medium
Air Quality			
• Site clearing (removal of vegetation); • Stockpiling of topsoil; • Construction of haul road; and • Mining of sand resource, including screening.	• Poor air quality due to dust generation and the release of gaseous pollutants from trucks and machinery (tipper trucks, front-end loaders, excavators, water trucks, tractor and bulldozers).	• Minimise the area of disturbance; • Where necessary, wetting agents, dust suppressants or binders will be applied to the exposed areas (including excavated material and open areas); • Speed limits will be adhered to at all times; • Construction should be conducted in phases; • The drop heights when tipping materials will be minimised as far as practicable; and • Switch-off vehicle when not in use.	Low
• Storage, handling, and treatment of hazardous products (including fuel, and oil) and waste	• Spilling and the release of gases via vaporisation.	• Internal floating roofs and seal to minimize evaporation from a diesel storage tank; and • Secondary containment will be provided for all storage tanks for leaks	Low

Activities	Potential impacts	Mitigation type	Potential for residual risk
• Rehabilitation of mined-out areas.	• Poor air quality due to dust generation.	• The area of disturbance will be minimised; • Where necessary, wetting agents, dust suppressants or binders will be applied to the exposed areas (including excavated material and open areas during rehabilitation); • Speed limits will be adhered to at all times; and • The drop heights when tipping cover materials will be minimised as far as practicable.	Low
Noise			
• Site Clearance: Vegetation and topsoil stockpiling; • Construction of a haul road (20m width) to gain access to the sand mining area; • Rehabilitation (reshaping and profiling); and • Post-closure rehabilitation.	• Noise emanating from machinery while conducting these activities can impact the surrounding sensitive receptors.	• Noise control measures; • Design measures; and • Control through management and monitoring.	Low
• Mining of the sand resource (use of the a fleet of tipper trucks, front-end loaders, excavators, water trucks, tractor and bulldozers), including screening; and • Use and maintenance of haul roads.	• Noise emanating from machinery while conducting these activities can impact the surrounding sensitive receptors.	• Noise control measures; • Design measures; and • Control through management and monitoring.	High
Cultural Heritage			
• Surface or vegetation clearing ahead of mining.	• Damage to or destruction of heritage resources generally protected under Sections 34, 35 and 36 of the NHRA (i.e. previously unidentified archaeological and fossiliferous material or burial grounds and graves respectively).	• Reactive – mitigate impacts.	Medium
• Establishment of surface infrastructure (hail roads and office).		• Proactive - avoid	Low to High
Social			
• Site Clearance; • Placement of the offices and associated mining equipment; and • Construction of a haul road (20m width) to gain access to the sand mining area.	• Continuation of employment opportunities.	• Retain existing labour force and ensure secured job opportunities; • Continuation of skills development and training initiatives must be developed and/or maintained which is geared towards supporting career progression opportunities for mine personnel; • Recruitment strategy objectives must aim to ensure that new positions (where applicable) must be directed to local people as first priority; and • Ensure constant engagement with Employee Forums/Trade Unions / external community stakeholders to maintain channels of communication and allow circulation of updated information about the mine.	Low

Activities	Potential impacts	Mitigation type	Potential for residual risk
	• Increased trade /business opportunities especially for Short-Medium and Macro Enterprises (SMMEs) and boost to the local economy.	• Provide a platform for business forums and share information about procurement opportunities for local SMMEs and Mine Community Development initiatives as part of the Social and Labour Plan Commitments of the Mine; and • Ring-fence specific local SMMEs for Enterprise Development to grow such businesses to become sustainable post-sand mining closure.	Low
	• Unlocking of land in the Vaal area; and • Land unlocked for potential future development projects.	• All sand mining community development plans must be aligned with FDD and MLM IDPs Enhancement; and • Enhance mutual public private partnerships with local and regional stakeholders.	Medium
	• Potential for land erosion and general waste pollution and visual impact during construction activities especially of the haul road.	• Ensure that all potential sources of pollution and handling of waste material is properly managed.	Medium
• Mining of sand resources including screening (if required); • Transportation of sand; • Handling of general and hazardous waste; and • Concurrent rehabilitation (topsoil cover, ripping and vegetation establishment) and monitoring of vegetation establishment.	• Increased crime levels during operation.	• Minimise crime by implementing strict safety and security measures in and around the mine areas and support local Community Policing Forums to curb the spread of crime.	High
	• Development of slum/squatter areas if the site is not properly redeveloped.	• Avoid over commitments during stakeholder engagement meetings and establish partnership with Metsimaholo local municipality to support their service delivery initiatives (where possible) to avoid heavy reliance on mine.	High
	• Health and Safety of all mine personnel.	• Observe and ensure compliance with required regulatory laws and legislation and report accordingly pertaining to Labour Laws and Conditions of work for employees; and • Implement strict labour policies and procedures in safe guarding employees and work space environment.	High
	• Increased dust levels during operation.	• Implement strict dust suppression measures and monitor all activities to minimise impact.	High
	• Increased noise levels due to the operation of machinery and movement of vehicles.	• Implement noise monitoring measures to minimise noise. Monitor all receptors.	High
• Dismantling and removal of infrastructure; • Rehabilitation (topsoil cover, ripping and vegetation establishment); and • Post-closure monitoring.	• Removal of infrastructure could be donated to local charity organisations within the community for use. Such as mine temporary offices used for as mobile classrooms/libraries for education purposes.	• Implement Corporate Social Investment initiatives to support local communities in agriculture, educational and infrastructure activities; and • Communicate and provide SMME opportunities during closure. phase to enhance local business in the area.	High
	• Skills Development and Training of labour force and other community beneficiaries.	• Implement skills development and training programmes such as artisanal programmes for labour force and surrounding community in order to ensure that their skills can be transferrable to other sectors of the economy after post-mine closure.	High
	• Continued informal settlement around sand mining areas.	• Enforce strict safety and security measures and work with local municipality on housing strategies for the area.	Low

Activities	Potential impacts	Mitigation type	Potential for residual risk
	• Instability and erosion of surrounding areas - structural damage.	• Implement and monitor rehabilitation and closure plans for all mined areas and surrounding environment.	High

14 Item 2(m): Other Information Required by the Competent Authority

In accordance with the provisions of Regulation 23(3) of the EIA 2014 Regulations (as amended) the EIA should include all information required as set out in Appendix 3 and in terms of Regulation 23(4) the Environmental Management Plan (EMP) should contain all information required as set out in Appendix4. The Competent Authority has not requested any other information. The EIA report must include the following:

- Details of the EAP who prepared the report and the expertise of the EAP, including a curriculum vitae;
- A plan, which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale;
- A description of the scope of the proposed activity;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- 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;
- A full public participation process including a CRR in the EIA report;
- Impact Assessment, including methodology, of the necessary environmental aspects, including the nature, significance, extent, duration and probability of the impacts occurring, positive and negative impacts, including mitigation and monitoring measures;
- An assessment of the proposed alternatives;
- A complete EMPr;
- An impact statement from the EAP, specific information the Competent Authority may require, and conditions for approval; and
- An EAP oath regarding the correctness of information provided in the report.

14.1 Impact on the Socio-economic Conditions of any Directly Affected Person

The positive impacts of the proposed Project can be summarised as follows:

- Prolong the jobs already created from the existing sand mining activities for a further 20 years or more; and
- Provision of sand required for the extensive development activities taking place within the region.

The negative impacts of the proposed Project can be summarised as follows:

The mining of sand potentially increases the possibility of dust and noise related impacts on the receiving environment. The degree of impact as well as the significance of dust and noise generation must be assessed during the EIA process. By nature, these impacts require constant monitoring and mitigation measures to be implemented throughout all the phases of the project.

A social study will be undertaken as part of the specialist studies to be conducted.

14.2 Impact on any National Estate Referred to in Section 3(2) of the National Heritage Resources Act

A full Heritage Impact Assessment will be undertaken during the EIA Phase in compliance with Section 38 of the NHRA. Any resources identified on site will be recorded, labelled and the appropriate mitigations applied. Refer to section 11.11 above for the cultural heritage baseline.

15 Item 2(n): Other Matters Required in Terms of Sections 24(4)(a) and (b) of the Act

Section 24(4)(b)(i) of the NEMA provides that an investigation must be undertaken of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity. Refer to Section 9.1 for alternatives assessed. These alternatives will be further assessed during the EIA Phase.

16 Item 2(o): Undertaking Regarding Correctness of Information

I, Claire Wannenburgh, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.

Signature of the EAP:	
	Claire Wannenburgh
Date:	07 January 2021

17 Item 2(p): Undertaking Regarding Level of Agreement

I, Claire Wannenburgh, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP:	
	Claire Wannenburgh
Date:	07 January 2021

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Appendix A: EAPs CV

Claire Wannenburgh

Environmental Consultant

Environmental and Legal Services

Digby Wells Environmental

1 Education

- Bachelor of Science (BSc) Honours – University of Pretoria (2013)
- Bachelor of Science (BSc) – University of Pretoria (2012)

2 Language Skills

English

3 Employment

January 2016 – Present

Consultant – Digby Wells Environmental (Pty) Ltd | Johannesburg | South Africa

October 2013 – December 2015

Assistant Environmental Consultant – WSP Environmental (Pty) Ltd | Johannesburg | South Africa

January 2013 – August 2013

Geography Tutor– University of Pretoria | Pretoria | South Africa

4 Experience

Claire holds a Bachelor of Science (BSc) in Environmental Science (2010-2012) and has completed her BSc (Honours) in Environmental Management and Analysis (2013-2013) from the University of Pretoria where she majored in Environmental Impact Assessment, Auditing and Environmental Law. Claire is a hard working individual, a good team player and always strives to perform to the best of her abilities. She has seven years' experience and has managed various Performance Assessments and Water Use License Audits and has worked as an Environmental Control Officer. She has also managed high profile Environmental Impact Assessments; Basic Assessments; Water Use License and Permitting Applications; Environmental Management Programme Amendments; Green Star Environmental Management Programmes and Auditing.

She was awarded Golden Key International Membership which recognises the top 15% of students per field of study in any undergraduate and post-graduate degree. Claire is also ISO14001 certified as an internal lead auditor and is registered as an Environmental Assessment Practitioner (EAPASA Ref No. 2019/1013).

5 Project Experience

INTEGRATED ENVIRONMENTAL MANAGEMENT

- Environmental application for the decommissioning of redundant infrastructure at the Vaal River Operations, AngloGold Ashanti – AngloGold Ashanti Limited | South Africa (2013)
- Environmental application for the decommissioning of redundant infrastructure at the West Wits Operations, AngloGold Ashanti – AngloGold Ashanti Limited | South Africa (2013)
- Waste identification and classification, Vaal River and Carltonville– AngloGold Ashanti Limited (Mine Waste Solutions) | South Africa (2013)
- Environmental application for the Envirocin pet crematorium proposed expansion– Envirocin Incineration Systems cc| South Africa (2014)
- Environmental authorisation for the proposed opencast coal mining of Block Z– Anglo American Thermal Coal Isibonelo Colliery| South Africa (2014)
- Environmental authorisation for the proposed establishment of a kraft paper mill - Industrial Development Corporation of South| South Africa (2014)
- Environmental authorisation for the proposed excavation and backfilling of silt material – Silicon Smelters (Pty) Ltd | South Africa (2014)
- Section 24G rectification license - Mabu Casing Soils (Pty) Ltd | South Africa (2015)
- Environmental authorisation for the proposed Hendrina underground coal mine – Glencore Operations South Africa (Pty) Ltd | South Africa (2016)
- Environmental authorisation required for the Agnes Gold Mine - Galaxy Gold Reefs (Pty) Limited | South Africa (2016)
- Section 102 for the amendment and consolidation of the Thubelisha, Trichardtsfontein and Vaalkop EMPr - Sasol Mining (Pty) Ltd | South Africa (2017)
- Environmental authorisation for the proposed closure and rehabilitation at the Eskom Kilbarchan Colliery - Eskom Holdings SOC Limited | South Africa (2017)
- Section 102 for the amendment of the EMPr and renewal of a Mining Right for the Elandsfontein Colliery - Elandsfontein Colliery (Pty) Ltd | South Africa (2017)
- Environmental authorisation for the proposed construction of a pipeline at the Mbali Colliery- HCI Coal (Pty) Ltd | South Africa (2017)

- Closure and final performance assessment for Prospecting Rights, North West Province - Rustenburg Platinum Mines Limited | South Africa (2018)
- Environmental authorisation for the proposed ash backfilling of the underground workings of the Sigma Defunct Colliery where a potential for pillar failure has been identified – Sasol Mining (Pty) Ltd | South Africa (2018)
- Environmental authorisation for the proposed surface mitigation measure project which included a river diversions of the Leeuspruit and Rietspruit located at the Sigma Defunct Colliery – Sasol Mining (Pty) Ltd | South Africa (2018)
- Closure application process of the Sigma Defunct Colliery - – Sasol Mining (Pty) Ltd | South Africa (2018)
- Environmental authorisation and 31 amendment process for the Mooikraal Colliery - – Sasol Mining (Pty) Ltd | South Africa (2018)
- Water Use Licence Application for the Agnes Gold Mine - Galaxy Gold Reefs (Pty) Limited | South Africa (2016)
- Environmental authorisation for the proposed decommissioning of roads, conveyor belt including associated servitudes at the Twistdraai Colliery – Sasol Mining (Pty) Ltd | South Africa (2019)
- Closure Plan to decommission the Twistdraai Colliery Underground Coal Mine – Sasol Mining (Pty) Ltd | South Africa (2019)
- Amendment of a Water Use Licence for the Twistdraai Export Plant – Sasol Mining (Pty) Ltd | South Africa (2019)

GREEN STAR EMP AND COMPLIANCE AUDITING

- Newton retail and office development green star compliance auditing - Nieuw Town Property Development Company | South Africa (2014)
- Green star environmental management programme - Barclays Africa Group Limited | South Africa (2014)
- Green star environmental management programme and auditing - City of Johannesburg | South Africa (2015)

ENVIRONMENTAL LEGAL COMPLIANCE

- Compilation of legal obligation registers for decommissioning mines - Sasol Mining (Pty) Ltd | South Africa (2017)
- High level environmental risk assessment of longwall mining - Sasol Mining (Pty) Ltd | South Africa (2017)

- Legal compliance assessment of the Mapochs Mine to assess the required permits and authorisations needed to mine - Newsight Resources (Pty) Ltd| South Africa (2017)
- Environmental legal compliance audit of activities and processes for Transalloys Clewer Site - Transalloys (Pty) Ltd | South Africa (2017)
- Environmental legal compliance audit – Twistdraai Colliery | South Africa (2019)
- Legal review of the environmental requirements needed to decommission a underground coal mine – Bosjesspruit Colliery | South Africa (2019)
- Third party legal review of the mining contracts for the decommissioning of an Sigma Defunct Colliery Underground Coal Mine - Sasol Mining (Pty) Ltd | South Africa (2019)

COMPLIANCE AUDITING

- Environmental audit for an environmental authorisation – Transnet Pipelines Tarlton Intermixture Refractionator | South Africa (2014)
- Water and waste conservation strategy audit and compilation of management plan - Netcare Limited | South Africa (2015)
- Environmental compliance officer for a decommissioning and rehabilitation project - BHP Billiton | South Africa (2015)
- Environmental audit for the Palesa Coal- HCI Coal (Pty) Ltd | South Africa (2016)
- Environmental audit for the Twistdraai Export Plant - Sasol Mining (Pty) Ltd | South Africa (2017 and 2019)
- Environmental audit for the Middelbult/Shondoni Colliery Block 8 - Sasol Mining (Pty) Ltd | South Africa (2017, 2018 and 2019)
- Environmental audit for the Bosjesspruit Irenedale Colliery - Sasol Mining (Pty) Ltd | South Africa (2017, 2018 and 2019)
- Environmental audit for the Mooikraal Colliery - Sasol Mining (Pty) Ltd | South Africa (2017 and 2018)
- Environmental audit for the Sigma Defunct Colliery - Sasol Mining (Pty) Ltd | South Africa (2017, 2018, 2019 and 2020)
- Environmental audit for Prospecting Rights, Rustenburg Platinum Mines Limited | South Africa (2016, 2017 and 2018)
- Environmental Control Officer to ensure compliance against the 24G authorisation at the Tumelo Coal Mine, Exxaro Coal Central (Pty) Ltd | South Africa (2017)
- Water Use Licence audit, Irenedale Colliery - Sasol Mining (Pty) Ltd | South Africa (2017 and 2019)

- Environmental audit for Prospecting Rights, Rustenburg Platinum Mines Limited | South Africa (2016, 2017 and 2018)
- Environmental audit for the Thubelisha and Trichardtsfontein Colliery - Sasol Mining (Pty) Ltd | South Africa (2017 and 2018)
- Environmental audit for the Twistdraai Colliery - Sasol Mining (Pty) Ltd | South Africa (2017, 2018, 2019 and 2020)
- Water Use Licence audit for the Sigma Defunct Colliery - Sasol Mining (Pty) Ltd | South Africa (2019)
- Water Use Licence audit and Legal Compliance Audit for the Natref Refinery located in Sasolburg and Durban | South Africa (2019)

OTHER

- Land use interactive map demonstrating the change in land use through time (1952 – 2019) for the Sigma Defunct Colliery - Sasol Mining (Pty) Ltd | South Africa (2019)
- Sigma stop pumping project to monitor the water levels of the two Wonderwater Voids to ensure water contained in the voids does not enter the Vaal River, – Sigma Defunct Colliery - Sasol Mining (Pty) Ltd | South Africa (2019)

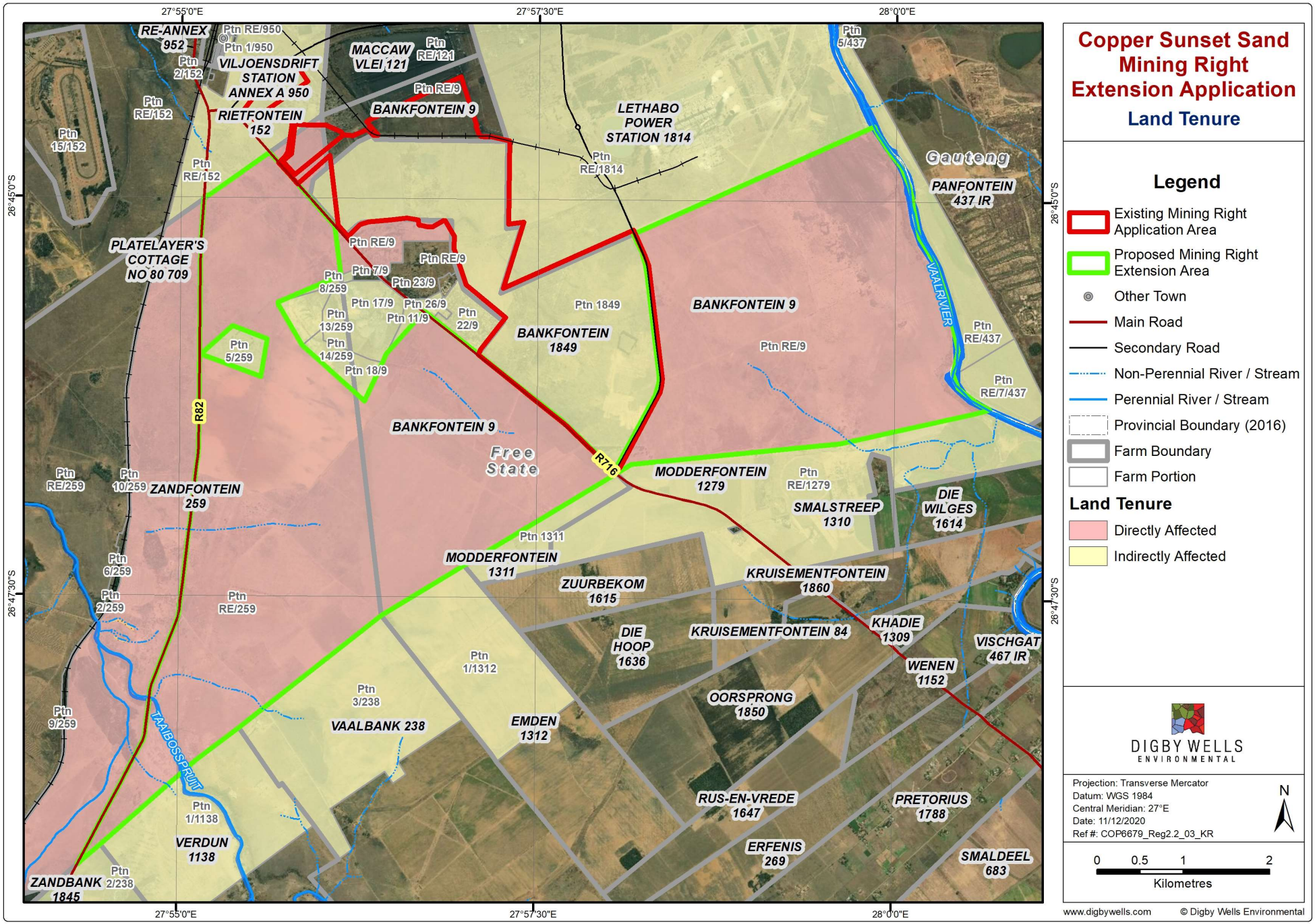
Appendix B: Plans

Plan 1: Land Tenure Map

Plan 2: Regional Setting

Plan 3: Locality Map

Plan 4: Infrastructure Layout Plan



Copper Sunset Sand Mining Right Extension Application

Land Tenure

Legend

- Existing Mining Right Application Area
- Proposed Mining Right Extension Area
- Other Town
- Main Road
- Secondary Road
- Non-Perennial River / Stream
- Perennial River / Stream
- Provincial Boundary (2016)
- Farm Boundary
- Farm Portion

Land Tenure

- Directly Affected
- Indirectly Affected

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Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E
Date: 11/12/2020
Ref #: COP6679_Reg2.2_03_KR

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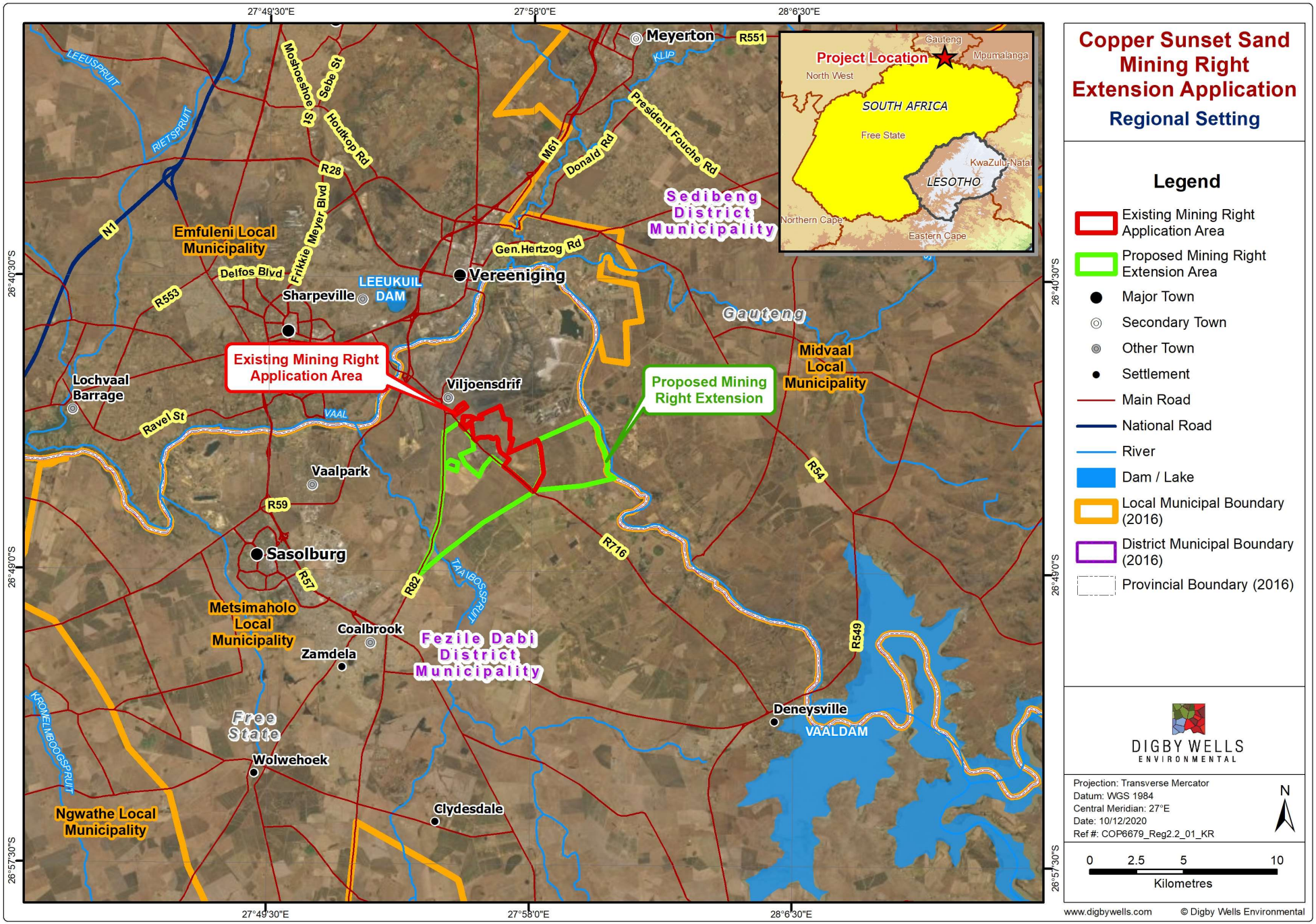
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27°58'0"E
28°6'30"E
26°40'30"S
26°49'0"S
26°57'30"S
Meyerton
R551
Project Location
Gauteng
Mpumalanga
North West
SOUTH AFRICA
Free State
KwaZulu-Natal
LESOTHO
Northern Cape
Eastern Cape
LEEUSPRUIT
RIETSPRUIT
Moshoeshoe St
Sebe St
Houtkop Rd
R28
N1
M61
Donald Rd
President Fouche Rd
Sedibeng District Municipality
Emfuleni Local Municipality
Delfos Blvd
Erikkie Meyer Blvd
Gen.Hertzog Rd
Vereeniging
LEEUKUIL DAM
Sharpeville
R553
Gauteng
Existing Mining Right Application Area
Proposed Mining Right Extension
Midvaal Local Municipality
Lochvaal Barrage
Viljoensdrif
Ravel St
VAAL
Vaalpark
R59
R54
Sasolburg
R57
R82
R716
TAAIBOSSPRUIT
Metsimaholo Local Municipality
Coalbrook
Zamdela
Fezile Dabi District Municipality
R549
Deneysville
VAALDAM
Free State
KROMELMBOOGSPRUIT
Wolwehoek
Clydesdale
Ngwathe Local Municipality
Copper Sunset Sand Mining Right Extension Application
Regional Setting
Legend
Existing Mining Right Application Area
Proposed Mining Right Extension Area
Major Town
Secondary Town
Other Town
Settlement
Main Road
National Road
River
Dam / Lake
Local Municipal Boundary (2016)
District Municipal Boundary (2016)
Provincial Boundary (2016)
DIGBY WELLS ENVIRONMENTAL
Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E
Date: 10/12/2020
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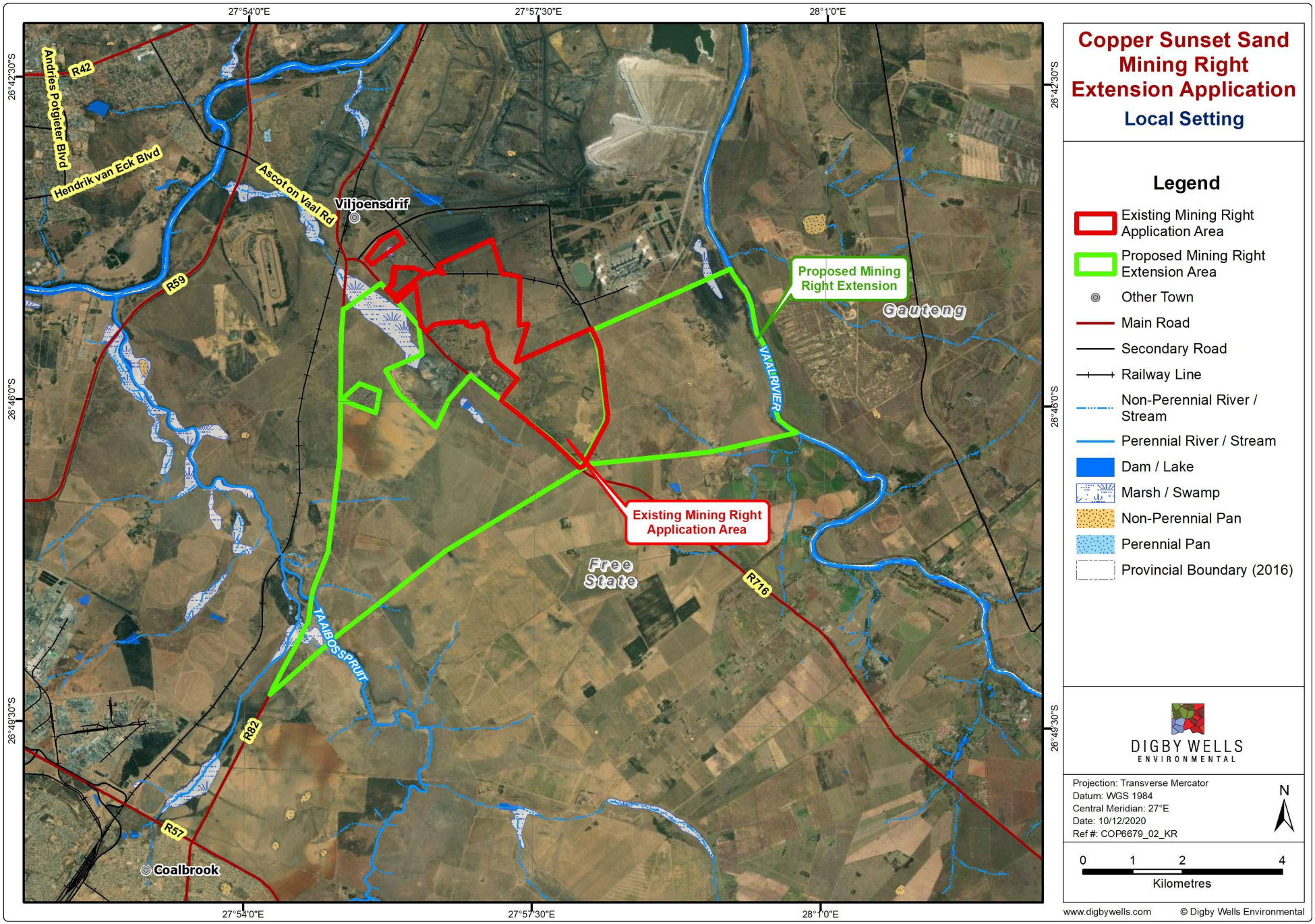

Copper Sunset Sand Mining Right Extension Application

Local Setting

Legend

- Existing Mining Right Application Area
- Proposed Mining Right Extension Area
- Other Town
- Main Road
- Secondary Road
- Railway Line
- Non-Perennial River / Stream
- Perennial River / Stream
- Dam / Lake
- Marsh / Swamp
- Non-Perennial Pan
- Perennial Pan
- Provincial Boundary (2016)

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Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E
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Ref #: COP6679_02_KR

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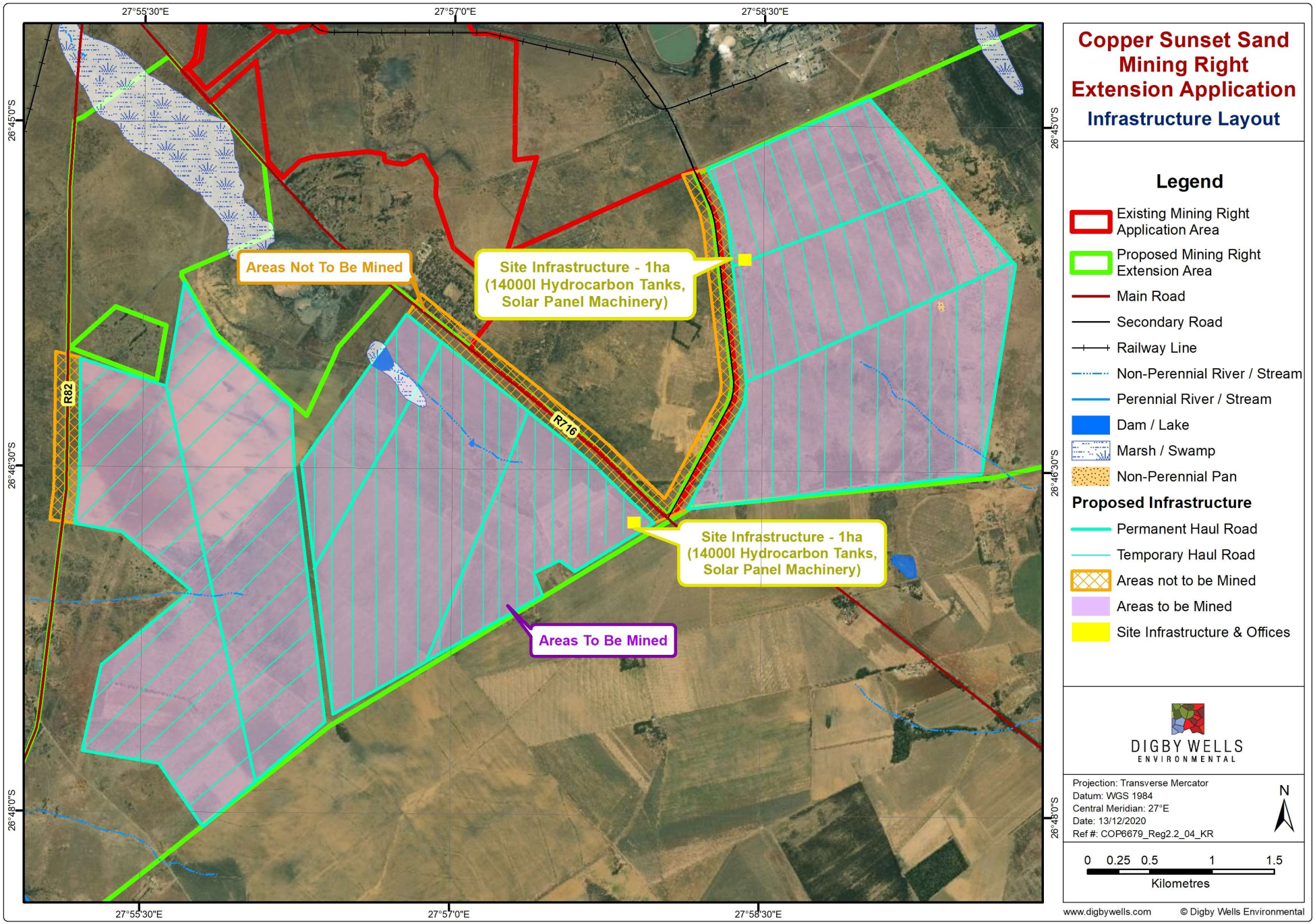

Copper Sunset Sand Mining Right Extension Application

Infrastructure Layout

Legend

- Existing Mining Right Application Area
- Proposed Mining Right Extension Area
- Main Road
- Secondary Road
- Railway Line
- Non-Perennial River / Stream
- Perennial River / Stream
- Dam / Lake
- Marsh / Swamp
- Non-Perennial Pan

Proposed Infrastructure

- Permanent Haul Road
- Temporary Haul Road
- Areas not to be Mined
- Areas to be Mined
- Site Infrastructure & Offices

DIGBY WELLS ENVIRONMENTAL

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E
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Appendix C: Public Participation Material

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Stakeholder Database

Digby Wells and Associates
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Company Registration: 2010/008577/07

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Website: www.digbywells.com

COP 6679: STAKEHOLDER DATABASE

No	Catergory	Department/ Organisation	Name and Last Name	Position
1	National Government	Department of Environmental Affairs (DEA)	Nyiko Nkosi	Principal Environmental Officer
2	National Government	Department of Environmental Affairs (DEA)	Lucas Mahlangu	Control Environmental Officer
3	National Government	Department of Environmental Affairs (DEA)	Sabelo Malaza	Chief Directorate Integrated Environmental
4	National Government	Department of Rural Development and Land Reform (DRDLR)	Mr Harry Maphutha	Regional Land Claims Commissioner
5	National Government	Department of Rural Development and Land Reform (DRDLR)	Mduduzi Shabane	Information Officer
6	National Government	Department of Water Affairs and Sanitation (DWS)	Dakalo Rambuda	Environmental Officer
7	National Government	Department of Water Affairs and Sanitation (DWS)	Phillimon Khwinana	Control Environmental Officer
8	National Government	Department of Water Affairs and Sanitation (DWS)	Lesiba Mabona	Case Officer
9	National Government	Department of Water Affairs and Sanitation (DWS)	Paul Meulenbeld	Regional Head
10	National Government	Department of Mineral Resources (DMR)	Portia Chawane	Environmental Officer
11	National Government	Department of Water Affairs and Sanitation (DWS)	Lerato Maibelo	
12	National Government	Department of Mineral Resources (DMR)	Andre Cronje	Chief Director
13	National Government	Department of Mineral Resources (DMR)	Patricia Gamede	DDG: Corporate Services
14	National Government	Department of Mineral Resources (DMR)	David Msiza	Chief Inspector of Mines
15	National Government	National Nuclear Regulator (NNR)	Elmond Lekota	Senior Specialist
16	National Government	National Nuclear Regulator (NNR)	Patle Mohajane	Session coordinator: Remediation
17	National Government	South African Heritage Resources Agency (SAHRA)	Phillip Hine	Manager: Archaeology, Palaeontology and Meteorites Unit
	National Government	South African Heritage Resources Agency (SAHRA)	Sityhilelo Ngcatsha	Archaeology, Palaeontology and Meteorites Assistant
18	National Government	South African Heritage Resources Agency (SAHRA)	Phanuel Godfrey Tshivhalavhala	Heritage Officer

19	Provincial Governement	Department of Minerals Resources and Energy (DMRE)	Tshifhiwa Makhokha	
20	Provincial Governement	Department of Minerals Resources and Energy (DMRE)	Tuwani Monyai	
21	Provincial Governement	Department of Minerals Resources and Energy (DMRE)	Cedrick Fhedzisani	
22	Provincial Governement	Department of Economic Development, Tourism & Environmental Affairs	T Lekgari	Environmental officer
23	Provincial Governement	Department of Economic Development, Tourism & Environmental Affairs	G Mkhosana	Acting Director
24	Provincial Governement	Department of Economic Development, Tourism & Environmental Affairs	Ntswake Khomo	Environmental Officer
25	Provincial Governement	Department of Rural Development and land Reform (DRDLR)	Khomotso Mahlatsi	Land Claims Commission
26	Provincial Governement	Department of Rural Development and land Reform (DRDLR)	L H Maphutha	Regional Land Claims Commissioner
27	Provincial Governement	Office of the Regional Land Claims Commissioner	Rebaone Ramotswa	Office Assistant: Chief Director's office
28	Provincial Governement	Land Restitution Support (Free State Province)	C Benyane	Chief Director
29	Provincial Governement	Land Restitution Support (North West)	Lengane Bogatsu	Chief Director
30	Provincial Governement	SA National Road Agency (SANRAL)	Khathu Ramavhoya	Environmentalist
31	Provincial Governement	South African Heritage Agency (SAHRA)	Andrew Salomon	Heritage officer
32	Provincial Governement	South African Heritage Agency (SAHRA)	Genna Lavin	Heritage Officer
33	Provincial Governement	Department of Health	Obed Modiko	Director
34	Provincial Governement	Department of Public Works	Nonhlanhla Sgudu	Director
35	District Municipality	Fezile Dabi District Municipality	TH Hlapolosa	Manager: Monitoring and Evaluation
36	District Municipality	Fezile Dabi District Municipality	LM Molibeli	Municipal Manager
37	District Municipality	Fezile Dabi District Municipality	Reatile Ralepeli	LED Manager
38	District Municipality	Fezile Dabi District Municipality	Chakane Sibaya	Director
39	District Municipality	Fezile Dabi District Municipality	Andre van Zyl	Deputy Manager
40	District Municipality	Fezile Dabi District Municipality	Mcebo Mkhatshwa	Senior. Environmental Management Office
41	Local Municipality	Metsimaholo Local Municipality	Philimon Thile	Environmental & Waste Manager
42	Local Municipality	Metsimaholo Local Municipality	Sello Mokoena	IDP Manager
43	Local Municipality	Metsimaholo Local Municipality	Stephen Molala	Municipal Manager
44	Local Municipality	Metsimaholo Local Municipality	Pretty Mbatha	
45	Local Municipality	Metsimaholo Local Municipality	Thakane Nkoli	Secretary:MunicipalManager
46	Local Municipality	Metsimaholo Local Municipality	Sonnyboy Mokgatle	Director
47	Local Municipality	Metsimaholo Local Municipality	Steve Molala	Municipal Manager
48	Local Municipality	Metsimaholo Local Municipality	Brutus Mahlaku	Mayor
49	Local Municipality	Metsimaholo Local Municipality	Alexis Mare	Councillor Ward 19

50	Local Municipality	Metsimaholo Local Municipality	Lucy Mdola	Councillor Ward 20
51	Libraries	Sasolburg Public Library	Estelle Boers	Librarian
52	Libraries	Vereeniging Public library	Adeilen Mokhotho	Principal Librarian
53	Libraries	Zamdela Local Library	Selloane Mohapi	Librarian
54	Environmental NGO's	Endangered Wildlife Trust (EWT)	Reynette Coetzee	
55	Environmental NGO's	Federation of Sustainable Environment (FSE)	Mariette Liefferink	Chief Executive Officer
56	Environmental NGO's	Save the Vaal	Thomas	
57	Environmental NGO's	World Wildlife Fund SA (WWF)	Colleen van Schalkwyk	
58	Environmental NGO's	World Wildlife Fund SA (WWF)	Louise Naude	
59	Environmental NGO's	Birdlife Africa	Simon Gear	Policy and Advocacy
60	Industry and Commerce	Anglo Operations Proprietary Limited	Fanie Stephanus Kitching	Manager:Witbank Estates
61	Industry and Commerce	Anglo Operations Proprietary Limited	Nicola Torley	
62	Industry and Commerce	Omnia Pty Ltd	Michelle Nana	Secretary
63	Industry and Commerce	Sascrete Bricks and Paving		
64	Industry and Commerce	Safripol Pty Ltd		
65	Industry and Commerce	Karbochem Pty Ltd		
66	Industry and Commerce	Senmin	Contact the office	
67	Industry and Commerce	Natref Pty Ltd	Patrick Cebekhulu	Senior Manager: Environment
68	Industry and Commerce	Natref Pty Ltd	Alétia Chapman	
69	Industry and Commerce	Natref Pty Ltd	Carl Scholtz	Vice President: SHERQ
70	Industry and Commerce	Natref Pty Ltd	Dayanand Rajaram	Senior Vice President
71	Industry and Commerce	Eazi Access Sasolburg		
72	Industry and Commerce	Seriti	Kim McCann	Environmental Superintendent
72	Industry and Commerce	Seriti	Carol ann Mocke	Environmental Lawyer
73	Industry and Commerce	Anglo Operations Proprietary Limited	Danelle Tyler	
74	Industry and Commerce	Chamber of Commerce	Konziwe	Free State Representative
75	Industry and Commerce	Eskom Holdings	Benito Wiilams	Senior Environmental Specialist
76	Industry and Commerce	Eskom Holdings	Saba Paseletso	Senior Advisor
77	Business Commerce	New Vaal Colliery	Chantelle Gerber	Mineral and Prospect Rights Manager
78	Business Commerce	Transnet Freight Rail	Phindile Mnguni	
79	Business Commerce	Transnet Freight Rail	Francis Rahlapane	Risk Manager
80	Business Commerce	Maccauvlei Golf Club		
81	Business Commerce	Swift Human Resources (Pty) Ltd		
82	Business Commerce	Stols Vervoer Group	Fanie Stols	Owner
83	Business Commerce	Stols Vervoer Group	Ivan Stols	Owner/ General Manager
84	Business Commerce	Riverside Beach Club		
85	Community Based Organisations	Congress of South African Trade Unions(COSATU)	Monyatso Mahlatsi	Provincial Secretary

86	Community Based Organisations	National Union of Mineworkers(NUM)	Maria Lithlakanyane	
87	Education Sector	Bongani Mabaso Eco Park		
88	Education Sector	Education	Johan Fick	
89	Agricultural Union	Free State Agricultural Union	Jack Armour	Operations Manager
90	Health Sector (Clinic, hospital, doctor)	Sasolburg Clinic	Malatse Virginia	Primary Health Manager
91	Health Sector (Clinic, hospital, doctor)	Zamdela Clinic	Olivia Letsholo	General Manager
92	Industry and Commerce	Seriti	Kim McCann	Environmental Superintendent
93	Eskom	Lethabo Power Station		
94	Business Commerce	Mission Point Mining		
	Business Commerce	Afrimat Clinker Supply Vaal		
95	Education Sector	Pele-Ya-Pele Secondary School		
96	Education Sector	Vaal Christian C0MBINED School	Mr Jonathan Brayshaw	
97	Business Commerce	Isizwe Hospitality: Vaal Racecourse		
98	Business Commerce	Directly Impacted Farmer	Mossie Ferreira	
99	Client	Copper Sunset	Trudie Vosloo CA(SA)	
100	Client	Copper Sunset	Simon Mbem	
101	Client	Copper Sunset	Marius Vosloo CA(SA)	

DIGBY WELLS
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Information Material – Background Information Material

Digby Wells and Associates
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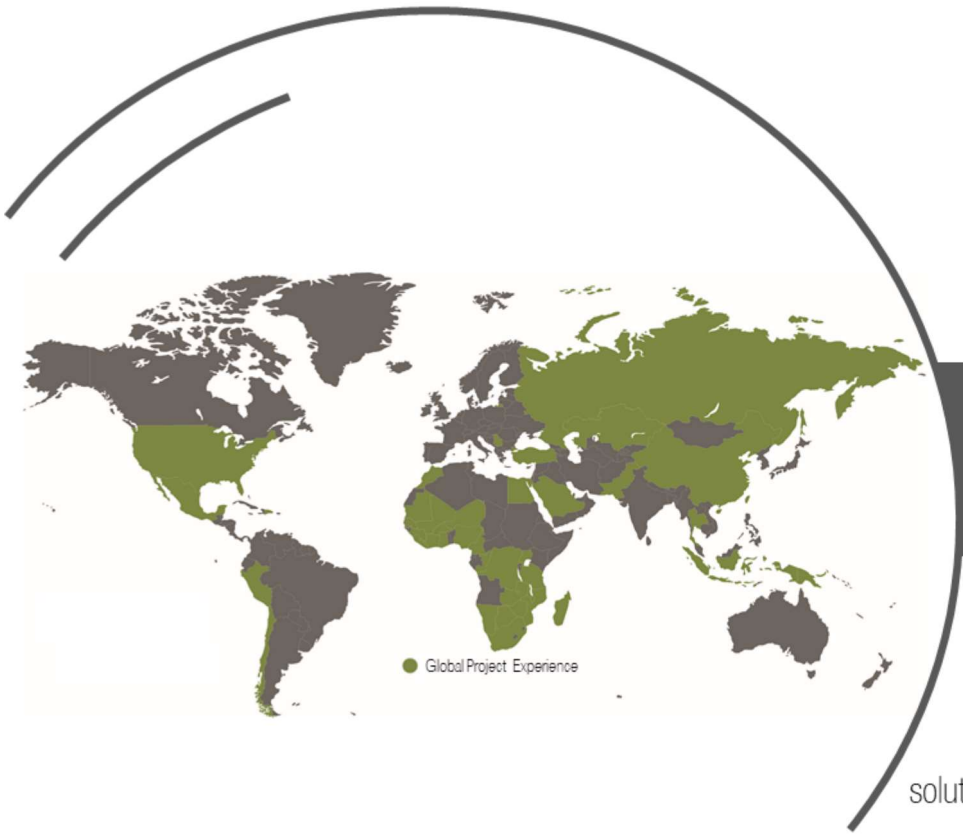

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Environmental Regulatory Process Required for the Proposed Mining Right Extension Project near Vereeniging, Free State Province, FS30/5/1/1/2/164 MR

Background Information Document

Prepared for:
Copper Sunset (Pty) Ltd

Project Number:
COP6679

January 2021

TO REGISTER AND FOR MORE INFORMATION PLEASE USE THE FOLLOWING CONTACT INFORMATION

Ms. Janet Mkhabela/ or Ms. Thembinkosi Zulu
Digby Wells Environmental (Pty) Ltd.
PO Box 10046, Randburg, 2125
Tel: (011) 789 9495
Fax: (011) 789 9498 / (011) 069 6801
Email: sh@digbywells.com
Website: www.digbywells.com /OR data-free link: http://view.datafree.co/PublicDocuments/

1. Purpose of this Document

The purpose of this document is to provide all Interested and Affected Parties (I&APs) with information relevant to the proposed Copper Sunset Sands (Pty) Ltd (Copper Sunset) Mining Right Expansion Project, as well as the required Environmental Authorisation application process. This document aims to:

- Provide a description of the proposed Project;
- Provide an overview of the required regulatory processes;
- Provide details in terms of the regulated Public Participation Process; and
- Invite all I&APs to register as stakeholders, provide comment, raise issues or concerns, and provide suggestions for the enhanced benefit of the Project.

2. Introduction to the Project

Copper Sunset has an approved Mining Right (MR) (DMRE Ref. No. FS30/5/1/1/2/164 MR) and Environmental Management Programme (EMPr), in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), for the mining of sand on the Farm Bankfontein No. 1849. The MR was approved in 2009 and amended in 2011, 2016 and 2017 to incorporate additional areas into the Mining Right Area (MRA).

The applicant intends to expand its MRA to incorporate adjacent properties to extend the Life of Mine (LoM). To amend the Copper Sunset MR and EMPr the following processes is proposed to be undertaken:

- A Section 102 amendment application process as per the MPRDA to amend the MR boundary;
- A Scoping and Environmental Impact Reporting (S&EIR) Process to authorise the new Listed Activities as per the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- An IWULA process in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA); and
- Regulation 31 amendment process to consolidate the Environmental Authorisations (EAs) and EMPrs into one consolidated report as per the NEMA.

3. Project Location

The Copper Sunset Project Area is located within Viljoensdrif under the jurisdiction of the Metsimaholo Local Municipality, which is located in the Fezile Dabi District Municipality, Free State Province near the Vaal River and Lethabo Power Station. Figure 3-1 provides the local setting. Figure 3-2 below presents the land tenure of the Project affected properties.

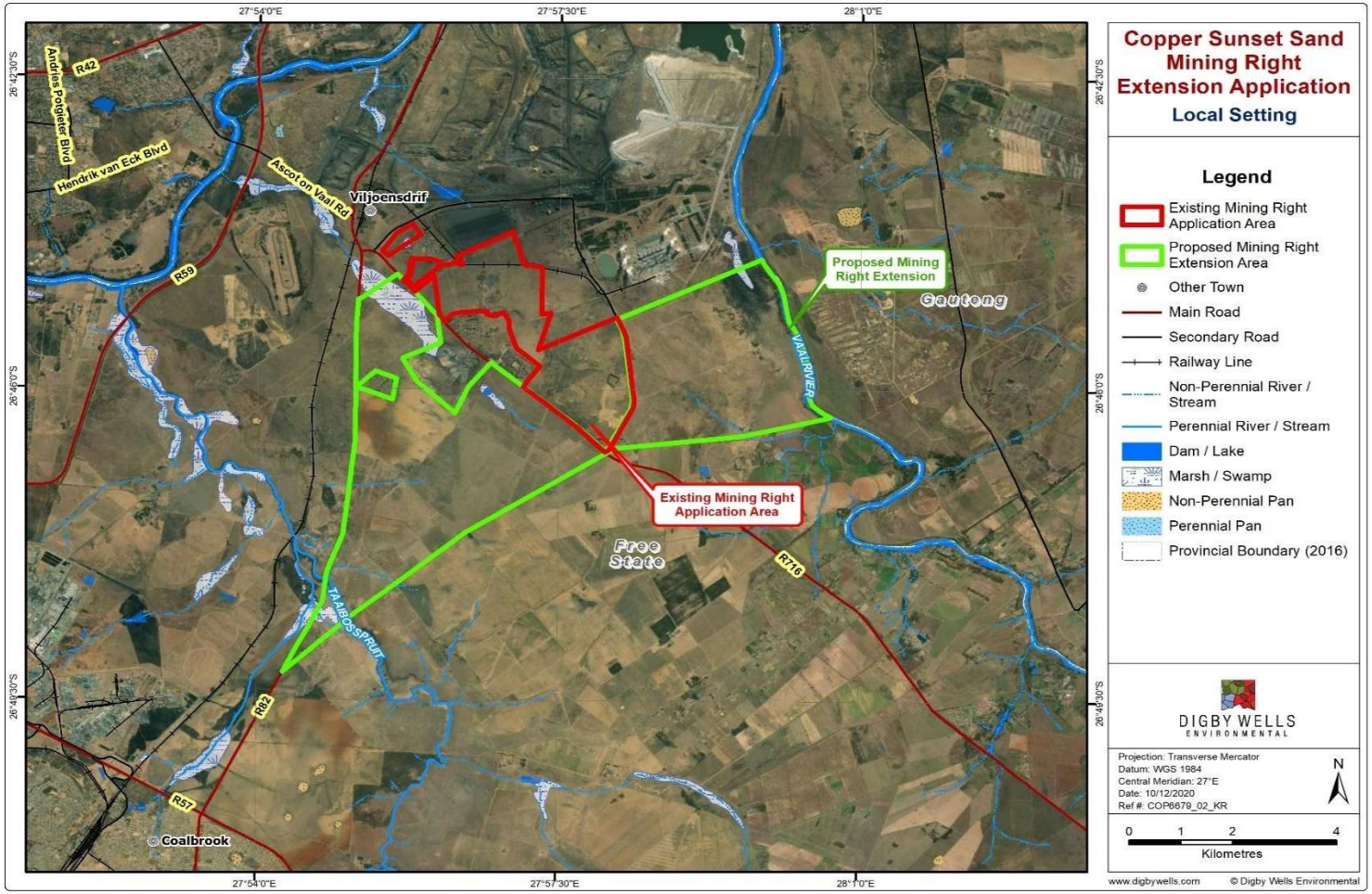

Figure 3-1: Project Locality Map

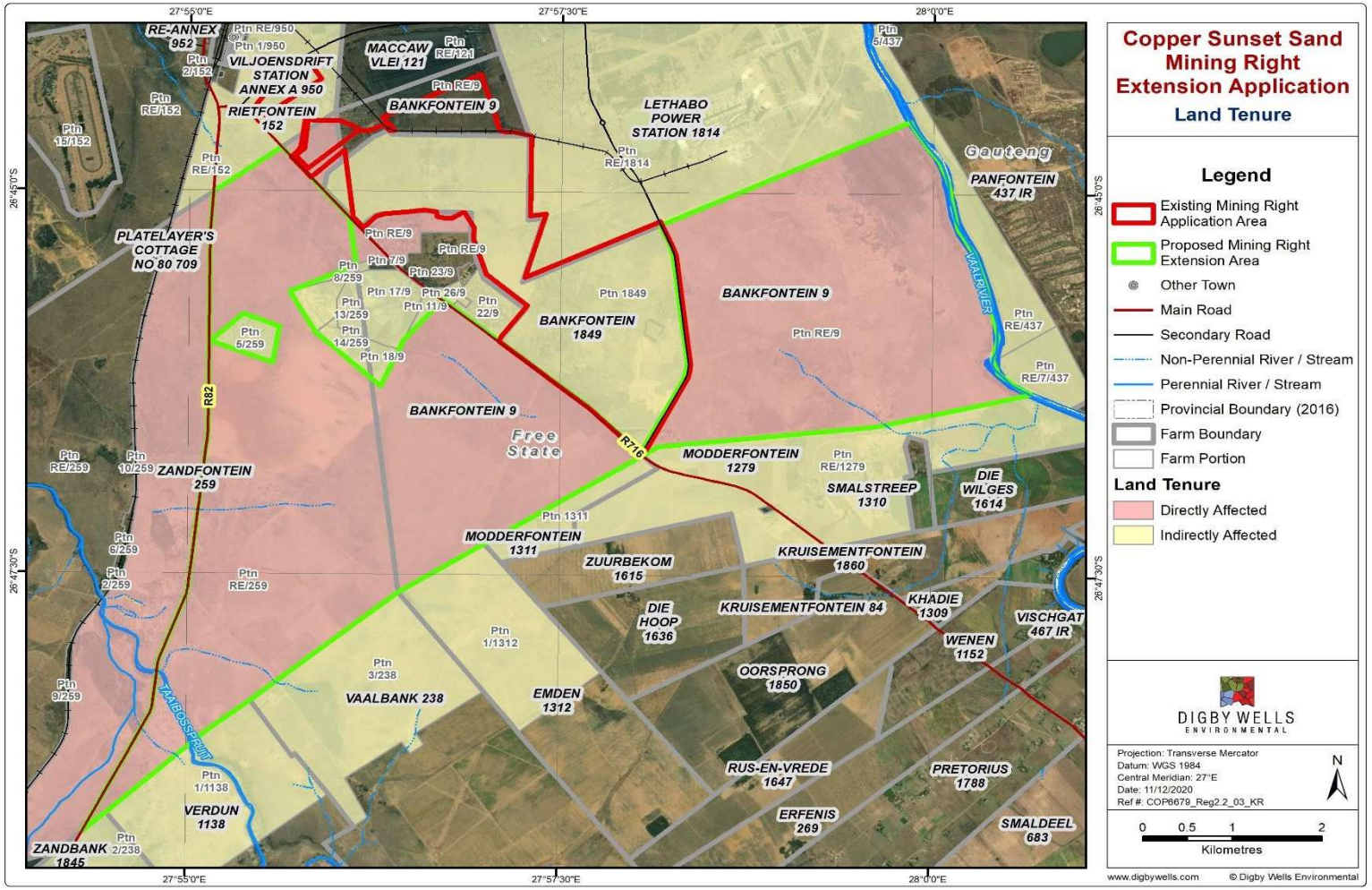

Figure 3-2: Land Tenure map

4. Project Description

Copper Sunset began sand mining in 2009. There is currently about nine months left of the Life of Mine. To maximise the current sand resources on site, Copper Sunset aims to further extend their Mining Right to include additional areas adjacent to the approved MRA which will include the Remaining Extent (RE) of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. The proposed extension of the MRA amounts to approximately 1,642 ha (Bankfontein) and 1,179 ha (Zandfontein) for the mining of sand.

No permanent infrastructure will be constructed on site for the sand mining operation. The mining infrastructure already established at the existing Copper Sunset operation will be used for the expanded areas, however; mobile offices will be established at the entrance to the new mining areas. A total of two new mobile offices each approximately 1 ha will be established at each mining area which will be erected when mining commences in these areas (Figure 4-1). The mobile office areas will include the following:

- Mobile offices;
- Hydrocarbon storage tank (14,000 L) with associated bund. Machinery will be refuelled in the area;
- Waste storage area;
- Parking area for the storage of mobile infrastructure; and
- A generator and solar panels to provide electricity to the offices.

The mining method to be applied includes:

- Stripping and stockpiling of topsoil;
- Construction of a temporary haul road ;
- Mining of the sand resource (including screening of the sand);
- Backfilling of the mined excavations with stockpiled topsoil; and
- Concurrent rehabilitation.

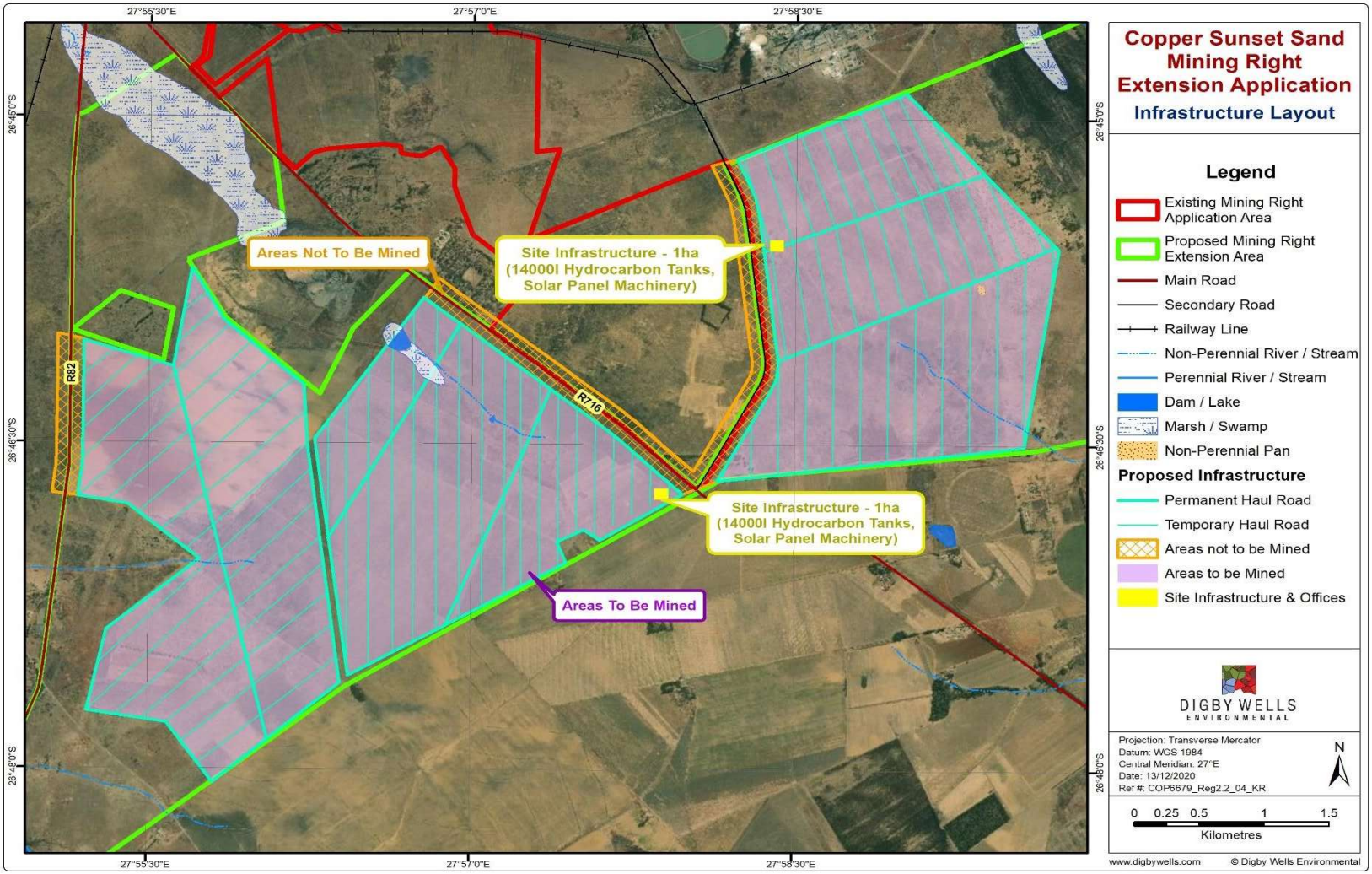

Figure 4-1: Proposed Mine Layout

5. Environmental Authorisation Process

Digby Wells Environmental (Digby Wells) was appointed by Copper Sunset to independently facilitate the Environmental Authorisation Process and submit the required documentation in support of the relevant applications. The extension of the existing MRA triggers activities incorporated in Listing Notice 1 and Listing Notice 2 of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982 of 04 December 2014 as amended), promulgated under the NEMA. The Listed Activities require a S&EIR process to be undertaken as part of the authorisation process. This process requires a comprehensive public consultation process and is dictated by a 300-day timeframe, from the date of submission until the application is either approved or rejected by the competent authority. The timeframes and S&EIR process are shown in Figure 5-1 below.

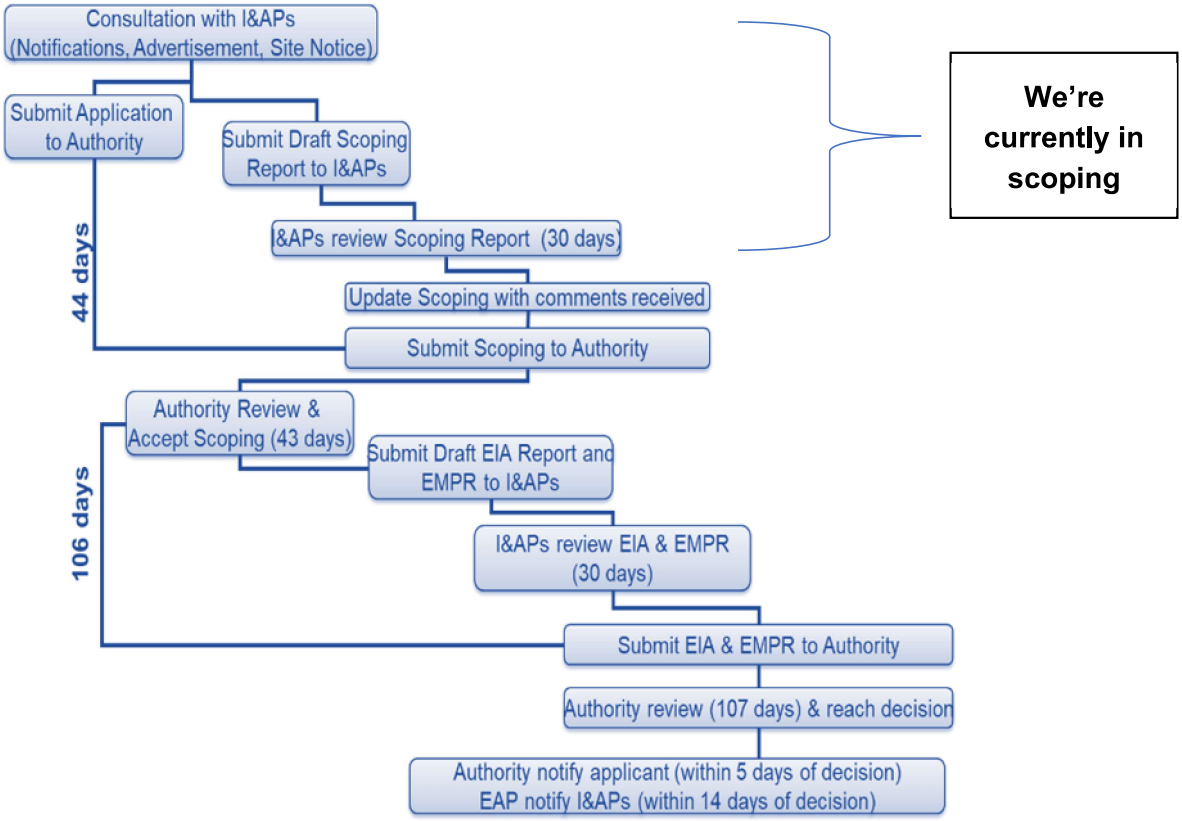

Figure 5-1 : The Full Scoping and EIA process flowchart

6. Public Participation Process

The national South African Regulatory Framework requires a PPP to be undertaken as part of an Environmental Authorisation Application Process. A PPP involves notifying stakeholders of the proposed Project and providing I&APs with sufficient information to enable effective engagement.

To satisfy the requirements of Regulations 40 through 44 of the EIA Regulations, 2014 (as amended), this BID serves to inform you as a potential I&AP of the proposed Project, the

associated Environmental Authorisation Process and the availability of the Draft Scoping Report (DSR) for public review.

All I&APS are invited to register as stakeholders to participate in the PPP. Registered stakeholders will receive notifications regarding the availability of public reports via their preferred means of communication, limited to Short Message System (SMS), email, post or fax. Contributions from stakeholders will assist in informed decision-making for authorities and provide information to be considered by the Project team and specialists conducting the required studies. All comments can be submitted to the contact details provided or as part of the Comment and Registration Sheet.

Method of Communication	Contact Information
Completing Registration and Comment Form	See Attached Document
Write to Digby Wells	Private Bag X10046, Randburg, Johannesburg, 2125 sh@digbywells.com. Telephone: 011 789 9495

The DSR will be available for public comment for a 30-day legislated comment period from 11 January 2021 to 10 February 2021. Additionally, focus group meetings, in line with COVID-19 regulations, will be held to present the project to I&APs. These meetings will be undertaken between the 18 January 2021 and 22 January 2021.

Due to COVID-19 national lock down, the DSR has only been released electronically. To access the report electronically, please refer below:

Electronic Copies
Visit our website: www.digbywells.com (under Public Documents). **Alternatively,** You can access the report via our data-free service: http://view.datafree.co/PublicDocuments/

DIGBY WELLS
ENVIRONMENTAL

Environmental Regulatory Process Required for the Proposed Mining Right Extension Project near Vereeniging, Free State Province

REGISTRATION AND COMMENT FORM

January 2021

Registered Interested and Affected Parties (I&APs) will be informed of ongoing developments via their preferred means of communication (SMS, email, post or fax).

Due to the COVID-19 national lock down, the Reports will be released electronically. To access the report (free of charge/ data-free); please click on the following link http://view.datafree.co/PublicDocuments/ or copy the link onto your *URL* to download the Report for your review and comment or visit our website www.digbywells.com (under Public Documents).

Comments raised by stakeholders will assist in informed decision-making for authorities and provides information to be considered by the project team and specialists conducting the Environmental Impact Assessment process. Please register as an I&AP and provide comments by sending this form, or other written correspondence, to the contact details provided below:

Ms. Janet Mkhabela/ or Ms. Thembinkosi Zulu of Digby Wells Environmental Stakeholder Engagement Office:

Fax: (011) 789 9498, **Telephone:** (011) 789 9495, **Postal Address:** Private Bag X10046, Randburg, 2125; **Email:** sh@digbywells.com

Please formally register me as an Interested and Affected Party (I&AP)	Yes		No	
Do you wish to attend the focus group meetings	Yes		No	
I would like to receive my notifications by	Email	SMS	Post	Fax

Please indicate which sector you represent and also provide a name

Government Department	
Municipality	
Community	
Non-Government Organisation	
Business	

DIGBY WELLS
ENVIRONMENTAL

If you are a *landowner* or *land occupier*, please indicate which farm(s) and portion(s) you reside on

Landowner	
Land occupier	

Please fill in your contact details below for the project database

Title, Full Name					
Designation					
Cellphone		Fax		Tel	
Email					
Postal Address					

Environmental Impact Assessment Regulations of 2014, promulgated in terms of the National Environmental Management Act, as amended, Section 44 (1) requires that we gather comments from I&APs. Please complete the questions below. Should you require assistance in completing these questions please contact the Stakeholder Engagement Office at contact information provided above.

How do you think the project might impact (affect) you?
How do you think the project might impact (affect) your socio-economic conditions? (e.g. livelihoods, farm, business, household)
How can these impacts be managed, avoided and / or fixed?
If you are a landowner or occupier, what is your land currently being used for?

Are there any environmental, social or heritage features on the proposed project area we need to be aware of?
Where are these found?
Do you think the project could impact (affect) infrastructure you might have? (e.g. houses, buildings, roads)
If so how can these impacts (affects) be managed, avoided or fixed?
General Comments

If there are any other stakeholders, we should include onto the stakeholder database for the proposed project, please provide their contact details.

Title, Full Name		Title, Full Name	
Organisation		Organisation	
Cellphone		Cellphone	
Email		Email	

Signature _____ ***Date*** _____

8 January 2021

Project Reference No: COP6679

ENVIRONMENTAL REGULATORY PROCESS REQUIRED FOR THE PROPOSED MINING RIGHT EXTENSION PROJECT NEAR VEREENIGING , FREE STATE PROVINCE

COPPER SUNSET (PTY)

Dear Stakeholder,

1 Introduction

Copper Sunset (Pty) Ltd (Copper Sunset) has an approved Mining Right (MR) (DMRE Ref. No. FS30/5/1/1/2/164 MR) and Environmental Management Programme (EMPr), in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), for the mining of sand on the Farm Bankfontein No. 1849. The MR was approved in 2009 and amended in 2011,2016 and 2017 to incorporate additional areas into the Mining Right Area (MRA).

The applicant intends to expand its MRA to incorporate adjacent properties to extend the Life of Mine (LoM). The intent is to expand the current mining operations to include additional portions of the Remaining Extent (RE) of the Farm Bankfontein No. 9 and a portion of the RE of the Farm Zandfontein No. 259. The proposed extension of the MRA amounts to approximately 1642 ha (Bankfontein) and 1179 ha (Zandfontein), for the mining of sand. The proposed Mining Right Extension Area is located within Viljoensdrif under the jurisdiction of the Metsimaholo Local Municipality, which is located in the Fezile Dabi District Municipality, Free State Province near the Vaal River and Lethabo Power Station.

2 Environmental Authorisation Process

Digby Wells Environmental (Digby Wells) was appointed by Copper Sunset to independently facilitate the Environmental Authorisation Process and submit the required documentation in support of the relevant applications. The extension of the existing MRA triggers activities incorporated in Listing Notice 1 and Listing Notice 2 of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982 of 04 December 2014 as amended), promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The Listed Activities require a Scoping and Environmental Impact Reporting (S&EIR) process to be carried out as part of the authorisation process. This process requires a comprehensive public consultation process to be undertaken. To incorporate these areas into the approved MR and EMPr the following processes will be undertaken:

- A Section 102 amendment application process as per the MPRDA to amend the MR boundary;

- A S&EIR Process to authorise the new Listed Activities as per the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- An IWULA process in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA); and
- Regulation 31 amendment process to consolidate the EAs and EMPrs into one consolidated report as per the NEMA..

3 Public Participation Process

The National South African Regulatory Framework requires a Public Participation Process to be undertaken as part of an Environmental Authorisation application process. A Public Participation Process (PPP) involves notifying stakeholders of the proposed Project and providing Interested and Affected Parties (I&APs) with sufficient information to enable effective engagement.

The PPP must satisfy the requirements of Regulations 40 through 44 of the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) promulgated under the NEMA.

This letter serves to inform you as a potential I&AP of the proposed Project, the associated Environmental Authorisation process and the availability of the Draft Scoping Report (DSR) for public review. All I&APS are invited to register as stakeholders.

The DSR will be available for public comments from 11 January 2021 to 10 February 2021 for a 30-day legislated commenting period

Due to the COVID-19 national lockdown, the DSR will be released electronically only.

Electronic Copies	
www.digbywells.com (under Public Documents) **Alternatively,** You can access the report via our data-free service: http://view.datafree.co/PublicDocuments/	**Contact persons**: Thembi Zulu/Janet Mkhabela **Telephone**: 011 789 9495

4 Public Meeting Notification

Digby Wells and Copper Sunset will host Focus Group meetings to be held between 18 January 2021 to 22 January 2021 with I&APs to discuss the contents of the DSR and obtain I&APs comments. The meetings will be in line with the COVID-19 Regulations requirements. Meetings will be divided into several sessions if the number of attendees is expected to exceed the venue limit. The details pertaining to the meeting will be provided in due course to all I&APs.

Please complete and return the attached registration and comment form to Digby Wells if you wish to register as a stakeholder, as well as indicate your interest in receiving further information regarding the Environmental Authorisation process. Your comments and feedback are highly valued.

You may direct any queries please via the following contact details:

Telephone:	011 789 9495
Fax:	(011) 789 9498 / (011) 069 6801
Postal Address:	Private Bag X10046, Randburg, 2125
Email Address:	sh@digbywells.com.

Yours sincerely

Janet Mkhabela

Stakeholder Engagement Consultant

Digby Wells Environmental

DIGBY WELLS
ENVIRONMENTAL

Information Material – Newspaper Advertisement

Digby Wells and Associates
(South Africa) (Pty) Ltd
Company Registration: 2010/008577/07

Turnberry Office Park,
Digby Wells House.
48 Grosvenor Road,
Bryanston,2191

Phone: +27 (0) 11 789 9495
Fax: +27 (0) 11 789 9495
E-mail: info@digbywells.com
Website: www.digbywells.com

DIGBY WELLS
ENVIRONMENTAL

COPPER SUNSET SAND (PTY) LTD

ENVIRONMENTAL REGULATORY PROCESS REQUIRED FOR THE PROPOSED MINING RIGHT EXTENSION PROJECT NEAR VEREENIGING, FREE STATE PROVINCE

Introduction

Copper Sunset (Pty) Ltd (Copper Sunset) has an approved Mining Right (MR) (DMRE Ref. No. FS30/5/1/1/2/164 MR) and Environmental Management Programme (EMPr), in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), for the mining of sand on the Farm Bankfontein No. 1849. The MR was approved in 2009 and amended in 2011,2016 and 2017 to incorporate additional areas into the Mining Right Area (MRA).

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Environmental Application Process

Copper Sunset appointed Digby Wells Environmental (hereinafter Digby Wells) to independently facilitate the required Environmental Authorisation (EA) Process to expand their existing and approved MR for the mining of sand over the proposed areas. To incorporate these areas into the approved MR and EMPr the following processes will be undertaken:

- A Section 102 amendment application process as per the MPRDA to amend the MR boundary;
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- Regulation 31 amendment process to consolidate the EAs and EMPrs into one consolidated report as per the NEMA.

Public Participation Process

Digby Wells hereby informs Interested and Affected parties (I&APs) of the commencement of the proposed project and that the Draft Scoping Report will be available for public comment for a 30-day legislated period on the Digby Wells website from 11 January 2021 to 10 February 2021. Stakeholders affected by or interested in the EA Process are invited to register as I&APs to ensure continuous involvement in the consultation process. Comments and or questions can be addressed to the Digby Wells Stakeholder Engagement Office (contact details below).

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Digby Wells Stakeholder Engagement Office:
Thembi Zulu/Janet Mkhabela **Tel:** (011) 789 9495 **WhatsApp:** 068 297 8335 **Fax:** (011) 789 9498 **Postal address:** Private Bag X10046, Randburg, 2125 **Email:** sh@digbywells.com
www.digbywells.com (under Public Documents) ***Project No.*** *COP6679*

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18/12/2020

DIGBY WELLS ENVIRONMENTAL

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Email: sh@digbywells.com
www.digbywells.com (under Public Documents)

Project No. *COP6679*

DIGBY WELLS
ENVIRONMENTAL

Information Material – Site Notice

Digby Wells and Associates
(South Africa) (Pty) Ltd
Company Registration: 2010/008577/07

Turnberry Office Park,
Digby Wells House.
48 Grosvenor Road,
Bryanston,2191

Phone: +27 (0) 11 789 9495
Fax: +27 (0) 11 789 9495
E-mail: info@digbywells.com
Website: www.digbywells.com

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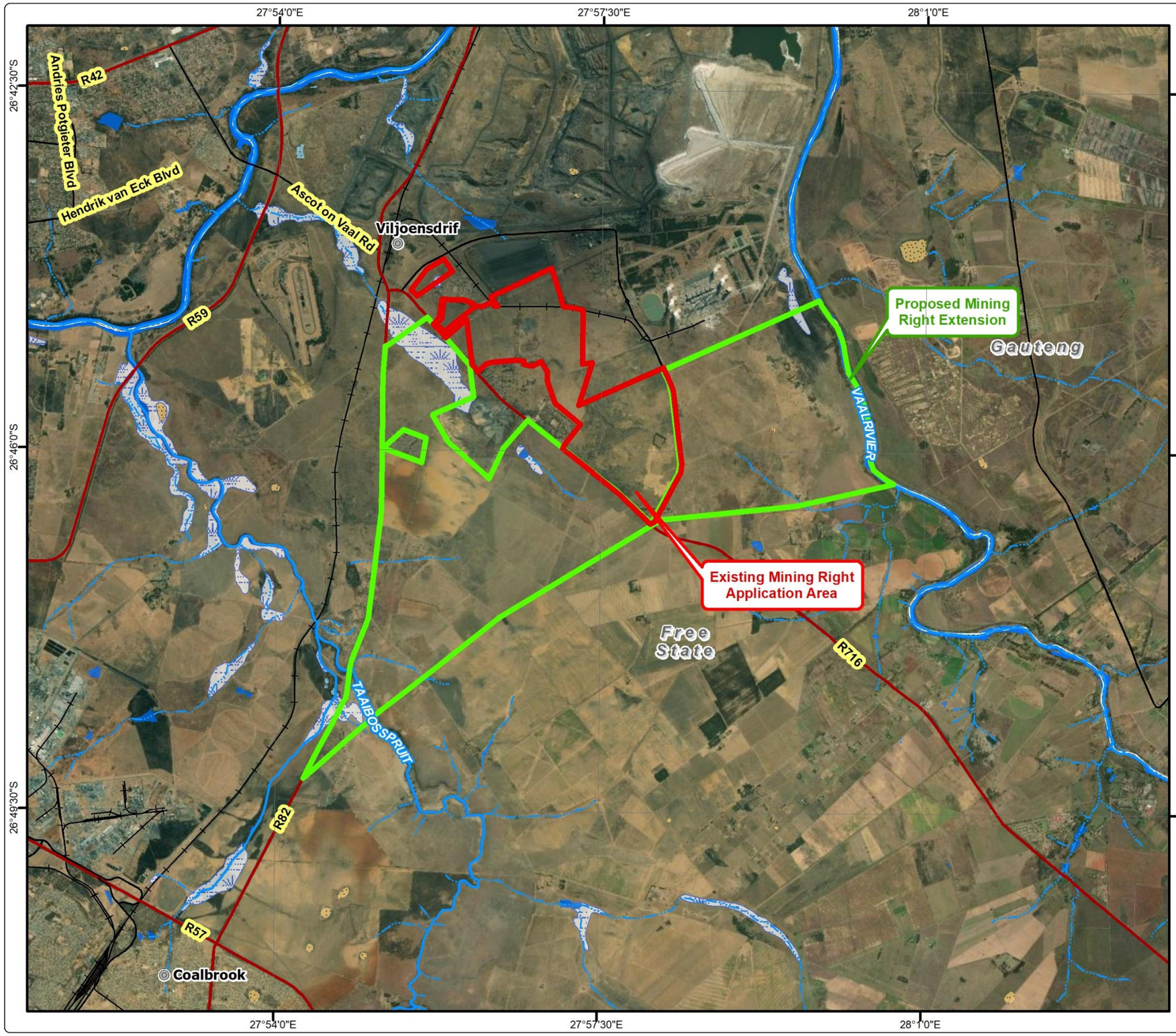
www.digbywells.com (under Public Documents) ***Project No.*** *COP6679*

Copper Sunset Sand Mining Right Extension Application

Local Setting



Legend

- Existing Mining Right Application Area
- Proposed Mining Right Extension Area
- Other Town
- Main Road
- Secondary Road
- Railway Line
- Non-Perennial River / Stream
- Perennial River / Stream
- Dam / Lake
- Marsh / Swamp
- Non-Perennial Pan
- Perennial Pan
- Provincial Boundary (2016)

DIGBY WELLS ENVIRONMENTAL

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E
Date: 10/12/2020
Ref #: COP6679_02_KR

N

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Kilometres