mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: Minerano Resources (Pty) Ltd

TEL NO: 011 594 9159

FAX NO: 011 594 1000

POSTAL ADDRESS: 4th Floor, Fredman Towers, 13 Fedman Drive, Sandton, Johannesburg, 2196

PHYSICAL ADDRESS: 4th Floor, Fredman Towers, 13 Fedman Drive, Sandton, Johannesburg, 2196

FILE REFERENCE NUMBER SAMRAD: NW 30/5/1/1/2/111848 EMP

1 IMPORTANT NOTICE

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

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

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

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

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

2 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process─

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

TABLE OF ACRONYMS

Acronym	Expanded Name
AEL	Atmospheric Emission License in terms of NEM:AQA
BA	Basic Assessment (process or report)
BID	Background Information Documents
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983) as amended
COP	Codes of Practice
DMR	Department of Mineral Resources
DWS	Department of Water Affairs and Sanitation
EA	Environmental Authorisation in terms of NEMA
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act (Act 73 of 1989) as amended
EIA	Environmental Impact Assessment (process or report)
EIA Regulation	Environmental Impact Assessment Regulation published under NEMA
EMPr	Environmental Management Programme report
GDP	Gross Domestic Product
GIS	Geographical Information Systems
GN	General Notice (issued under an Act, providing notice or information)
GNR	General Notice Regulation (issued under an Act, providing instruction)
I&AP	Interested and Affected Parties
IAIA SA	International Association of Impact Assessment South Africa
MHSA	Mine Health and Safety Act (Act 29 of 1996) as amended
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002) as amended
MR	Mining Right in terms of the MPRDA
MRA	Mining Right Application in terms of the MPRDA
NAEIS	National Atmospheric Emissions Inventory System
NEM:AQA	National Environmental Management: Waste Act (Act 39 of 2004) as amended
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004) as amended
NEM:PAA	National Environmental Management: Protected Areas Act (Act 57 of 2003) as amended
NEM:WA	National Environmental Management: Air Quality Act (act 59 of 2008) as amended
NEMA	National Environmental Management Act (Act 107 of 1998) as amended
NFEPA	National Freshwater Ecology Priority Areas
NHRA	National Heritage Resources Act (Act No. 25 of 1999) as amended
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act (Act 35 of 1998) as amended
PPP	Public Participation Process
PRA	Prospecting Right Application in terms of the MPRDA
PR	Prospecting Right in terms of the MPRDA
PWP	Prospecting Work Programme
RoD	Record of Decision (for specific application)
S&LP	Social and Labour Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resource Agency
SAMRAD	South African Mineral Resources Administration System

SANBI	South African National Biodiversity Institute
SANS	South African National Standard (followed by standard number)
SAWIS	South African Waste Information System
SEMA	Specific Environmental Management Acts
SOP	Standard Operating Procedure
SPLUMA	Spatial Planning and Land Use Management Act (Act No.16 of 2013)
Stats SA	Statistics South Africa
WMA	Water Management Area
WML	Waste Management Licence in terms of NEM:WA

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PART A
SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3 CONTACT PERSON AND CORRESPONDENCE ADDRESS

(a) Details of:

(i) Details of the EAP (author of the report)

This reported was written by Lauren Flinders, Project Manager at Menar Holding (representing Minerano Resources (Pty) Ltd in the application). The document was then sent to an external, independent EAP for the purposes of review and sign off.

Name: **Lauren Flinders**

Tel No.: **011 594 9100 / 060 5085 065**

Fax No. : **011 594 9159**

e-mail address: l.flinders@menarholding.com

Summary of Qualifications:

- BSc in Ecology, Environment and Conservation (With Distinction)
- BSc Honours in Ecology, Environment and Conservation (With Distinction)
- Post-graduate certificate in Environmental Law;
    - Certificate 1: Environmental and Sustainability Law; and
    - Certificate 2: Land and Water Law.

Summary of Experience:

Lauren's experience includes the founding and management of a small environmental advisory company, leadership at the Executive Committee level for a JSE listed mining corporate operating in twelve countries across Africa, technical and project management of exploration programmes, stakeholder management, GIS mapping and analysis, environmental management and sustainability reporting. In addition, she has comprehensive knowledge and experience with mining and environmental legislation applicable in the International, South African and the African context, as well as of the ISO 9001, 14001 and OHSAS 18001 standards.

Projects she has been involved in include:

- Tweefontein Optimisation Project
- Blackhill Siding IWULA
- Flexilube EIA
- Leeufontein IWULA
- Nkomati Anthracite

- Coal Portfolio including Bankfontein Project, Goodvetroud Project and Schoongezicht Projects in South Africa , Mulungwa Project (Zambia), Tete Project (Mozambique).
- Strategic legal advisory and consulting on specific challenges relating to water management at the Zonnnebloem Colliery.
- Trollope Holdings (Pty) Ltd: Renewal application for a Mining Right.
- Eyethu Coal including Burgh Group and Iyanga Mining (Environmental and Technical Management)

CV attached **as Appendix 1.**

(ii) Details of the external EAP (review of the report)

Michelle Venter: Qualifications

- BSc in Environmental Management: Zoology stream ;
- BSc Honours in Geography;
- Member of SACNASP, Certificated Natural Scientist

Summary of Experience:

Michelle Venter has five years' experience in the environmental field, and has been involved in numerous projects ranging in scope from environmental training to environmental management.

The following is a short list of projects which she has been involved in over recent years: Afrisam- Ulco, Northern Cape:

  - Water use license audit,
  - Air emission license audit, and
  - Environmental Management Plan report.

- Corobrik- Olifantsfontein, Driefontein, Rietvlei and Springs:
  - Water use license audit, and
  - Alien invasive identification and management plan.
- SPX: a division of DB Thermal- Nigel:
  - Water use audit,
  - Creation and upkeep of environmental management system,
  - Internal environmental audits, and
  - Environmental awareness training.
- Sedibeng Brewery- Meyerton:
  - Closing of ISO14001 findings,
  - Creation and upkeep of environmental management system, and
  - Water use audit.
- Polokwane High Court construction:

- Environmental Management Plan report; and
- Environmental Monitoring and Compliance.

CVs attached as **Appendix 1**.

(b)Location of the overall activity

The Rhenosterdrift Prospecting Area is situated 44km South West of Bela Bela in the North West Province. The table below has been duplicated for each of the farms included in the application. The total area affected is 6473.3 Ha.

The project area falls within a mixed bushveld biome. The predominant land uses in the Moretele Local Municipality are residential (mostly rural communities) and subsistence farming with a few mines situated to the east of the Local Municipality.

Table 1: Farms included in the prospecting right application

Farm Name:	Rhenosterdrift
Application area (Ha)	725.12 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200001

Farm Name:	Rhenosterdrift
Application area (Ha)	712.79 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200002

Farm Name:	Rhenosterdrift
Application area (Ha)	730.2 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200003

Farm Name:	Rhenosterdrift
Application area (Ha)	773.83 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200004

Farm Name:	Rhenosterdrift
Application area (Ha)	725.56 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200005

Farm Name:	Rhenosterdrift
Application area (Ha)	714.58 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200006

Farm Name:	Rhenosterdrift
Application area (Ha)	536.46 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200007

Farm Name:	Rhenosterdrift
Application area (Ha)	739.68 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200008

Farm Name:	Rhenosterdrift
Application area (Ha)	168.54 ha
Magisterial district:	Moretele
Distance and direction from nearest town	44km South West of Bela Bela
21 digit Surveyor General Code for each farm portion	T0JQ00000000017200009

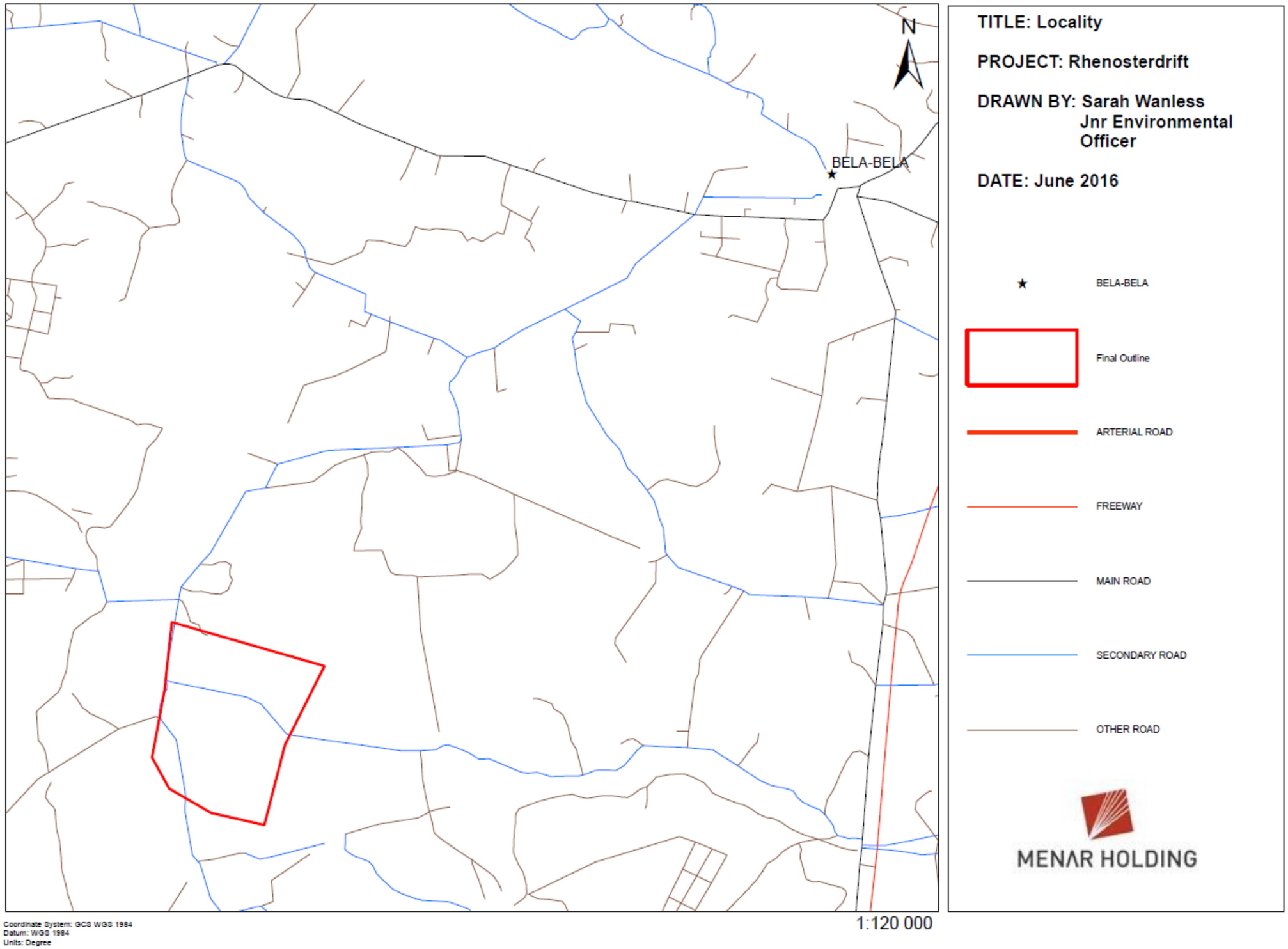


Figure 1: Regional Locality

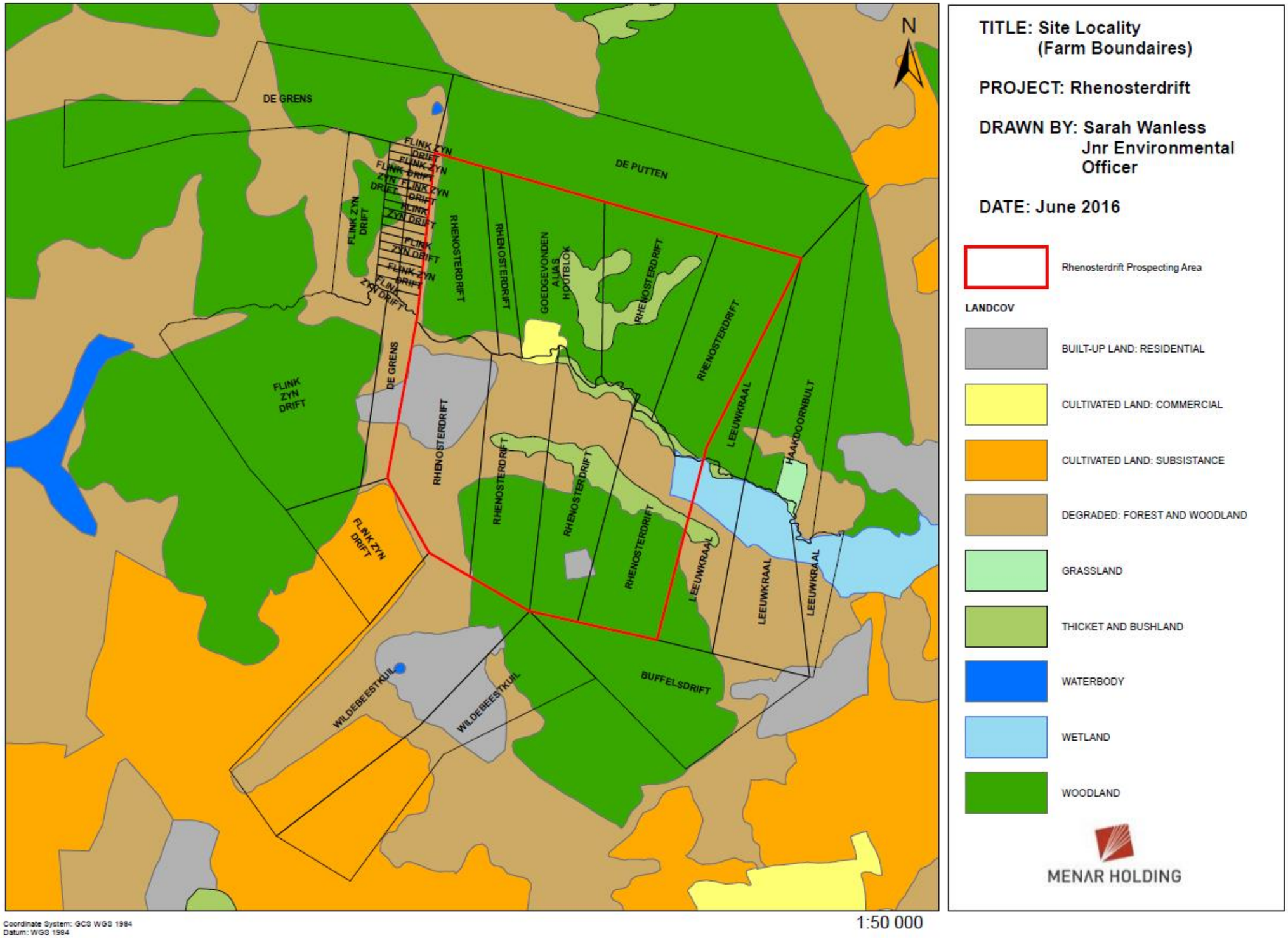


Figure 2: Site Locality (Farm Boundaries)

(c) Description of the scope of the proposed overall activity

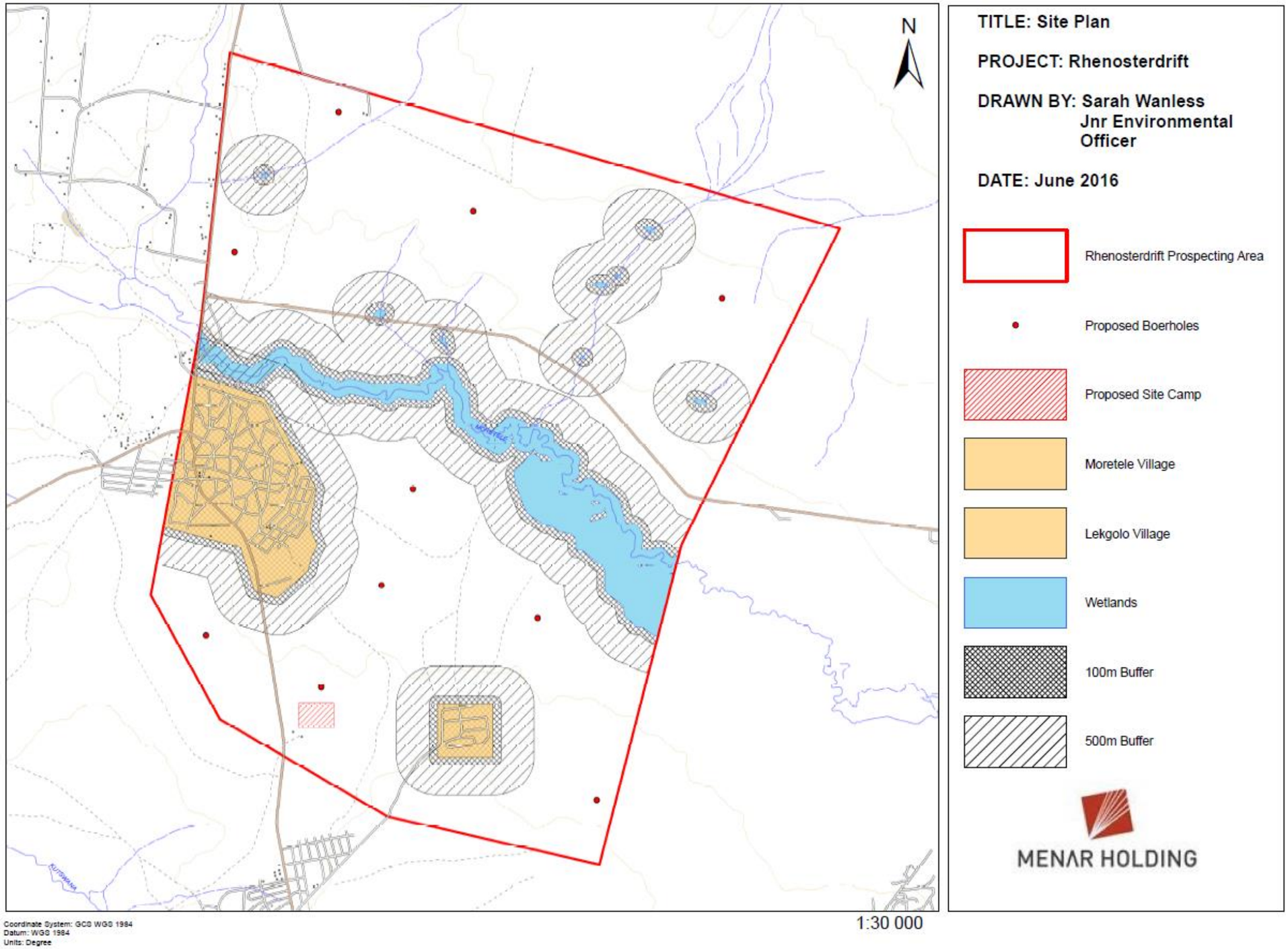


Figure 3: Prospecting Area, indicating preliminary position of prospecting boreholes in relation to wetland buffer zones

(i) Listed and specified activities

NAME OF ACTIVITY (**E.g. For prospecting** - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc. **E.g. for mining,-** excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY Mark with an X where applicable or affected.	APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)/NOT LISTED
Access routes	Farm roads will be used as far as possible. No additional roads will be constructed.		
Drilling	20m^2 per borehole. It is anticipated that10 boreholes will be drilled.	X	GNR 983 Activity 20
Casing of boreholes	4m^2 per borehole. It is anticipated that10 boreholes will be drilled.		
Ablution facility (portable toilets)	Portable toilets will be used		
Temporary core/equipment store and site office; comprising of shade and seating for meals may be established. Staff will be accommodated in town.	0.05 Ha		
Hydrocarbon Storage	Less than 80m^2		
Rehabilitation of boreholes	700m2 total.		

(ii) Description of the activities to be undertaken

The proposed activities on site will include:

Non-invasive prospecting, which will consist of:

- A desktop study and literature review;
- Obtaining historical borehole data and resource information;
- Feasibility studies;
- Geophysical site visit and survey will be conducted by a field geologist and a geophysics team; and
- Data will be extracted and plotted into geological maps. Areas for invasive prospecting will be identified for resource determination.

Invasive prospecting:

Core drilling will then be targeted for areas identified through the non-invasive techniques described above for reserve determination and mine planning. Drilling activities will disturb an area of approximately 20m^2 per borehole; however the number of boreholes required can only be finalised once the non-invasive prospecting as detailed above is completed; however, preliminary positions have been proposed in Figure 3 above (total of ten boreholes currently envisaged):

- Cores will be sampled and assessed by the on-site geologists and core logs will be maintained.
- Casing will be removed from the borehole on completion thereof and the borehole sealed in accordance with “Standard Borehole Sealing Procedure” i.e.: each borehole certificated in terms of this procedure.
- Existing farm roads and tracks will be utilised as far as possible.
- The proposed timeframe associated with the invasive prospecting is expected to be no more than 5 years.

Analytical assessment of prospecting data:

- Data will be assessed in a pre-feasibility study to determine resource estimates to commence with prefeasibility and feasibility assessments for mine planning and Mining Right Application processes.

(d) Policy and Legislative Context

This prospecting application is being sought by Minerano Resources (Pty) Ltd as an initial application for exploration over the nine listed farms for the extraction of Platinum Group Metals, Copper Chrome, Vanadium, Nickel, Magnesite and Manganese. The legislative summary below is specific for the proposed prospecting activities to which this application relates.

Table 2: Summary of Applicable Legislation

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
National Environmental Management Act, Act 107 of 1998 (NEMA) NEMA Regulation GNR982 – EIA Regulations NEMA Regulation GNR983 – Listing Notice 1 NEMA Regulation GNR807 – PPP guideline NEMA Regulation –GNR 1147 – Financial Provision for Prospecting, Mining, Exploration and Production Operations	This entire report has been compiled in terms of NEMA Basic Assessment (BA) requirements as only GNR983 scheduled activities are triggered – Part A Section 3(d) (i). PPP completed in terms of NEMA regulation – Part A Section 3(h) (ii) and Table 1.	This report forms the BA and EMP Report as required for a BA process under NEMA for an EA.
Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) and associated Regulation GNR 527.	EMP section of this report (Part B) has included regulation requirements where relevant.	The application for EA is being done in terms of a Prospecting Right (PR) application already submitted to the DMR.
Mine Health and Safety Act, Act 29 of 1996 (MHSA) and associated Regulations	Although not directly addressed in the EMP section of the report, protecting the environment contributes to a safe working environment.	The company will employ a SHE officer to ensure regulation is enforced during prospecting as well as adherence to COP and SOPs. Where these procedures apply to prospecting contractors this will be communicated through induction training.
National Environmental Management: Waste Act (NEM:WA), Act 59 of 2008 as amended and its associated regulations In terms of the Act, all mine residues are listed under the hazardous category in schedule 3 of NEM:WA. NEM:WA Regulation GNR921 – List of Waste Management Activities – consulted but no activities relevant NEM:WA Regulation GN926 – National Norms and Standards for the Storage of Waste NEM:WA Regulation GN 1005 – Proposed regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation	General waste management has been incorporated into Part B, the EMP report. No landfills will be established on site. No mine residue deposits are applicable to this application.	Implement management measures as per the EMP. No Waste Management License required.
National Water Act (NWA), Act 36 of 1998 as amended and its associated regulations GNR704 has been incorporated into storm water management on site where relevant.	The water management plan has been incorporated into Part B, the EMP report.	GN704 regulations will apply, including remaining outside wetlands and their 100m buffer zones and outside river and river buffer zones (100m or 1:100 year floodline, whichever is greatest). Applications will be made and approved prior to any activity in these areas.
National Environmental Management: Air Quality Act. Act 39 of 2004 (NEM:AQA) Also deals with noise levels – to be read with Environment Conservation Act, Act 73 of 1989 (ECA)	N/A. Prospecting does not trigger the need for an AEL. Noise management has been incorporated into Part B, the EMP	AEL is not applicable. Noise levels will be maintained within baseline levels in the area or to the SANS standards.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
South African National Standard: SANS 10103:2004 – The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication	report.	
National Environmental Management: Biodiversity Act, Act 10 OF 2004 (NEM:BA) Various regulations pertaining to protected species Various regulations pertaining to alien and invasive species – to be read with CARA and regulations NEM:BA Regulation GNR1002 – National list of ecosystems that are threatened and in need of protection	General management regarding protected species and alien and invasive species has been incorporated into Part B, the EMP report.	No listed activities under GNR 985 applicable – no EA required. The company will implement alien invasive management with regards to preventing spread of alien invasive species over areas disturbed by prospecting activities. Protected species will be preserved *in situ* and invasive prospecting will maintain 50m buffer from protected species, or the relevant permits will be applied for destruction or relocation of said species.

(e) Need and desirability of the proposed activities

Whilst the activity of prospecting itself will not benefit the surrounding communities or create employment, it will confirm the geology and feasibility of future mining prospects in line with the MPRDA.

Combating unemployment is considered to be a high priority goal by the Moretele Local Municipality and the establishment of any future mine would provide job opportunities for unskilled, and potentially skilled, labour from the surrounding areas.

During the prospecting activities, local services (drilling company, laboratory etc.) will be utilised as far as possible.

(f) Motivation for the overall preferred site, activities and technology alternative.

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e. not held by another company) and the geology of the area. The preliminary positions of the proposed prospecting boreholes have been sited to give a representative sample for the project area. The positions of these have taken into account the various water resources and their applicable buffers. Alternatives may be considered based on the findings of the geotechnical investigations.

No activity alternatives are considered. Drilling is still the most effective way and an industry norm to complete resource evaluation as required for the mine works programme to be submitted in terms of a Mining Right Application (“MRA”).

The use of aerial geological mapping as an initial non-invasive technique to delimit areas for invasive drilling is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technology alternatives are therefore

also not assessed further.

(g) <u>Full description of the process followed to reach the proposed preferred alternatives within the site.</u>

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

(i) Details of the development footprint alternatives considered.

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

Not applicable. Properties are delimited by the properties available for prospecting (i.e. not held by another company); and the geology of the area.

b) the type of activity to be undertaken;

No activity alternatives are considered. Prospecting is a pre-requisite to mining and is governed by legislative requirements for mining.

c) the design or layout of the activity;

Existing farm roads and tracks will be utilised. No additional roads will be constructed.

It is possible that no site camp will need to be erected within the Prospecting area and this will minimise disturbance to the land. The Prospecting Area is potentially close enough to Bela Bela that accommodation will be provided for in town. However, as the land use in the area is dominated by subsistence farming and residential community's storage facilities may have to be established for the drilling and sampling equipment. Areas comprising of shade and seating for meals may also be established.

The preliminary positions of the proposed prospecting boreholes have been sited to give a representative sample for the project area. The positions of these have taken into account the various water resources and their applicable buffers. Alternatives may be considered based on the findings of the geotechnical investigations.

d) the technology to be used in the activity;

The use of desktop studies and literature reviews are viewed as an initial non-invasive technique to delimit areas for invasive drilling prospecting and is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technology alternatives are therefore also not assessed further.

e) the operational aspects of the activity; and

Drilling is still the most effective way as well as an industry norm to complete resource evaluation as required for the mine works programme to be submitted in terms of a MRA. No further alternatives are relevant.

f) the option of not implementing the activity.

Should the prospecting activities not be granted to Minerano then the potential reserves may not be defined and ultimately utilised.

(ii) Details of the Public Participation Process Followed

Section 41 of NEMA Regulation 982 set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and will be followed at all times and will be based on reciprocal dissemination of information.

Due to the delay in receiving in the acceptance letter from the DMR, the PPP is still on-going.

The following was/will be undertaken during the PPP:

1. Background Information Documents (BIDs) were left at the Makapanstad Tribal Authority Offices in order to be all landowners and lawful occupiers;

2. Directly affected parties, including the Tribal Council, were visited in order to deliver Background Information Documents (BIDs) and were directly informed in this manner;

3. Organs of state and other regulatory stakeholders were identified and notified by means of the BID;

4. Posters / Notices were erected on site as well as at numerous other public locations on the 29th of June 2016;

5. An advertisement was placed in the Sosh Times newspaper and will appear in their next addition that will be published on the 7th of July 2016

6. Two copies of the Basic Assessment report were left at the Makapanstad Tribal Authority Offices on the 10th of June 2016 for public review and comment;

7. Registered Interested and Affected Parties (I&APs) will be given the opportunity to review and comment on the BA and EMP concurrent to the authorities review period – this process is still ongoing and once the period for comment has close a new Basic Assessment will be drafted incorporating if any comments and changes brought up by the I&APs

The above process has been detailed in the PPP report attached as Appendix 2, copies of the BID, notices and correspondence received from the I&APs to date are included in the Appendix. Should any additional comments/ issues be forthcoming during the public review period (concurrent to the authorities review period), these will be forwarded to the DMR for consideration.

The table below summarises the issues and responses raised during the PPP to date.

(iii) Summary of issues raised by I&APs

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	X				
Bakgatlha BA Mosethla Traditional Council	X	10-06-2016	The main land use in the area is livestock farming and overgrazing coupled with the recent drought has resulted in a shortage of grazing and grazing space. Water is a challenge in the area	Ms Flinders explained that drilling is a small scale activity and will not take up a lot of space. Rehabilitation will be done concurrently and therefore disturbance will be relatively small. Noted. Ms Flinders Stated that this is a prospecting application and thus represents relatively small volumes. Water may be	See Appendix 2(d) for the minutes of the meeting

				trucked onto site in the event of there being a lack of available water supply for workers and prospecting activities.	
Lawful occupier/s of the land					
The lawful occupiers are those living in the villages of Lekgolo and Moretele, who have been given permission to live there by the Bakgata BA Mosethla Traditional council		10-06-2016 & 29-06-2016	The Bakgatla BA Mosethla Traditional Council (who represent the community) have been informed and as such no comments from individual community members have been received.	-	
Landowners or lawful occupiers on adjacent properties	X				
N/A	X		-	-	
Municipal councillor	X				
Lawrence Maimane	X	29-06-2016	No comments received to date	Called on 29-06-2016 at 9:40 and the call went straight to the automated voicemail system. Will continue to call.	
Municipality	X				

Mr Innocent Sirovha (Municipal Manager) –Bojanala District Municipality	X	29-06-2016	No comments received to date.	-	
Tsholofelo B Dikgole (Executive Secretary of Municipal Manager) – Bojanala District Municipality					
Bojanala District Municipality	X	29-06-2016	No comments received to date.	-	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Mr C Lobakeng, Mr S Matsheka, Mr L Bogopa, and Ms W Ralekoa (Department of Water Affairs & Sanitation)	X	29-06-2016	No comments received to date	-	
North west department of Rural, environmental and agricultural development	X	29-06-2016	No comments received to date	-	
Department of roads, police and transport (North West	X	29-06-2016	No comments received to date	-	

Department)					
South Africa Heritage Resources agency	X	29-06-2109	No comments received to date	-	
Communities					
The local communities have been notified through their tribal authority and as such no comments from individuals have been received to date	X	10-06-2016	No comments received to date	-	
Dept. Land Affairs					
N/A			-	-	
Traditional Leaders					
Bakgatla BA Mosethlha Traditional Council	X	10-06-2016	Same as Landowners – see comments above	-	
Dept. Environmental Affairs					
N/A	X		-	-	)
Other Competent Authorities affected					

Mr Hugh Zackey (Department of Rural Development and Land Reform)	X	29-06-2016	No comments received to date	-	
Ms Matshidiso Collins (Department of Rural Development and Land Reform)	X	29-06-2016	No comments received to date	-	

(iv) The Environmental attributes associated with the sites

(1) Baseline Environment

The bulk of the information below was obtained from the existing Rhenosterdrift PGM PWP, the Rhenosterdrift NEMA Application, the 2013 North West Environmental outlook report, the SANBI GIS tools and associated information; and a general desktop assessment of the site. This was then confirmed by a site visit, undertaken on the 10th of June 2016.

a) Type of environment affected by the proposed activity.

Geology: The Prospecting Area is located on the South Eastern side of the Western Limb of the Bushveld Complex. The Bushveld Complex is an extremely large (66 000km2), two billion year-old layered igneous intrusion occurring in the northern part of South Africa. Rock types range in composition from ultramafic to felsic. The complex is not only unique in size, but also in the range and economic significance of its contained mineral wealth. In addition to the platinum group metals (PGMs) and associated base metals, vast quantities of chromite, vanadium and dimension stone are also produced.

Climate: The climate of the prospecting area is typical of that of a local Steppe climate. The area experiences warm, wet summers and cool, dry winters. Maximum rainfall is received in summer month (December to February) with maximum temperatures reaching the low thirties in the summer months and minimum temperatures reaching single digits in the winter months.

Topography: The topographic profile of the area is characterised by flat and slightly undulating plains.

Soils & Land Capability: there are two soil types within the Prospecting Area, the first is red with favourable physical soil properties namely; massive or weakly structured with a high base status. The soil has potentially restricted depth with excessive drainage, high erodibility and low natural fertility. The second soil is more clay like in substance with higher favourable properties than the first, including high natural fertility, restricted depth and is plastic and sticky. The land capability should be suitable for farming and grazing.

Natural vegetation: The broad vegetation type within and surrounding the prospecting area is classified as “mixed bushveld” which is composed of several, smaller vegetation units, mainly; Woodland, thicket and bushland, Springbokvlakte Thornveld which is characterised by dense to open, low thorn savanna plains, dominated by Acacia species and shrubby grassland with a consistent low shrub layer.

A site visit determined that the majority of the natural vegetation has been degraded due to overgrazing and firewood collection. The drought conditions that the province is experiencing is also contributing to the dry conditions in the area that are not conducive to promoting new plant growth in the area. While many of the natural tree species remain the majority of the grassland species have been eliminated completely due to cattle grazing. (see **Appendix 5** for photographs of some of the plant species documented on site).

Fauna: There are an estimated 120 mammal species that occur within the North West Province with only 11 of those being considered threatened. As the Moretele Local Municipality is predominantly rural it can be expected that some of the smaller mammal species may occur within the prospecting area in the remaining areas of natural vegetation. It is likely that many of the bigger, naturally occurring mammal species prevalent in grassland and bushland conditions are generally confined to nature reserves, lodges and hunting farms. Several carnivorous mammal species have been identified as problem species due to the loss of stock. No mammal species were noted during the site visit, the area has been overgrazed due to extensive livestock farming in the area therefore it is likely that the majority of naturally occurring mammal species in the area are situated elsewhere where there is a more abundant food source.

A total of 480 bird species occur in the area due to the range in topography and vegetation units. Only 20 of those species are considered threatened. Several bird species were noted during the site visit, such as The Southern Yellow Billed Horn Bill, other common garden variety small birds, such as weavers and a Greater White Egret and a Glossy Ibis were noted in the areas surrounding one of the wetlands on site (see **Appendix 5** for photographs of some of the bird species documented on site).

As there are a number of water resources within the Prospecting Area, it is likely that a number of amphibian species will be present. However no IUCN listed species has been listed as occurring within the NFEPA wetlands within the prospecting area. No amphibian species were noted during the site visit.

Surface water: The prospecting area falls within the Limpopo Catchment Management Area and the Crocodile (west) & Marico Water management area. The Moretele River runs through the property and an abundance of wetlands run along the river banks (See **Figure 4).** Several wetlands were noted on site, however these appear to be impacted on through cattle grazing and human activities

Groundwater: Groundwater resources in the area vary spatially throughout the Moretele Local Municipality. There is increased potential for groundwater exploration and extraction with an estimated extraction rate of 448m^3/a.

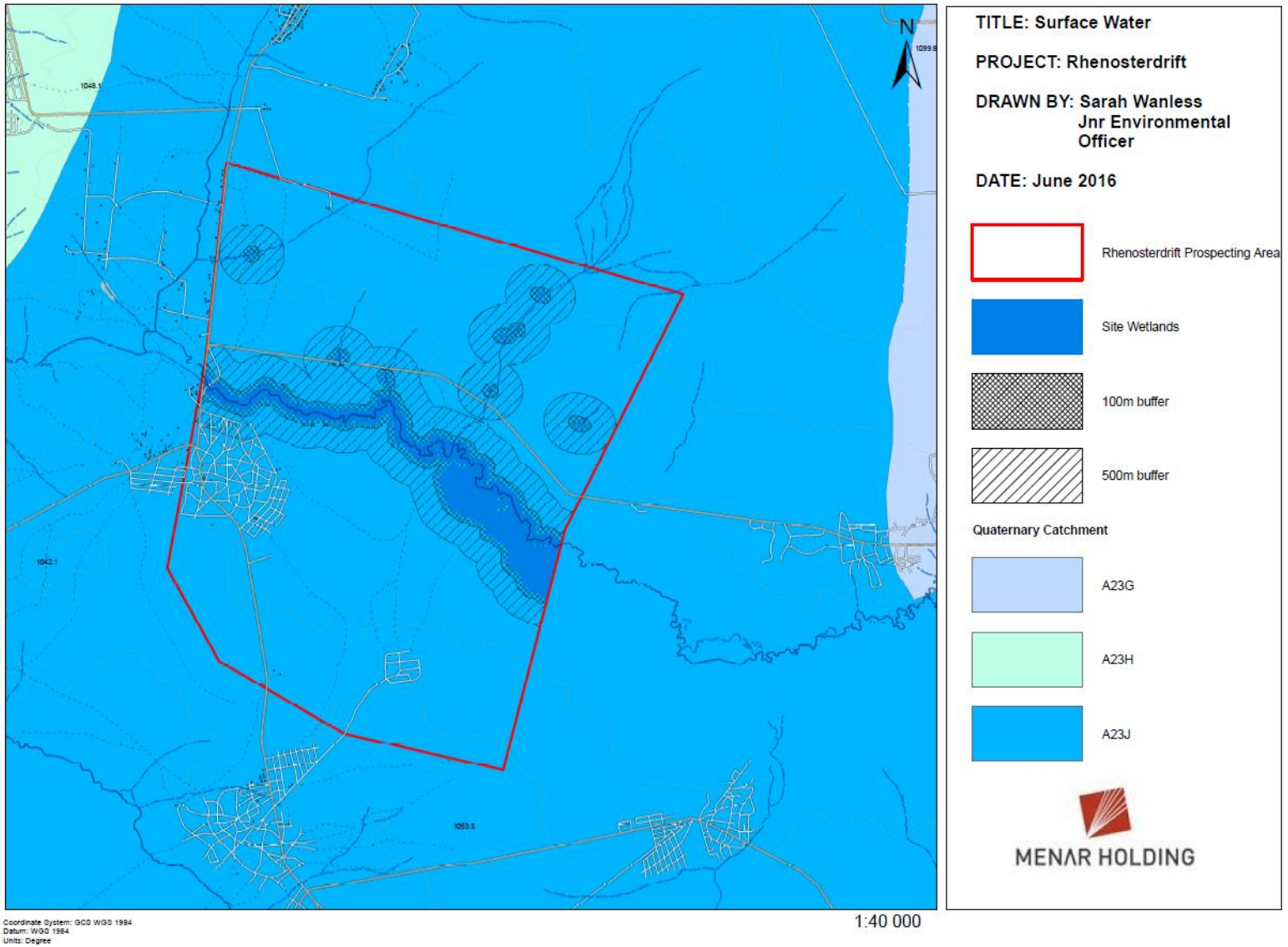


Figure 4: Surface water resources within the Prospecting Area and its location in relation to quaternary catchments

Air quality & noise:

There is limited information available for determining air quality within the Moretele Local Municipality. The rural nature of the area should result in a generally good air quality, with an increase in dust during the dry winter months arising from dirt roads and agricultural activities.

The rural nature of the area should result in a generally low to moderate noise levels with the majority of noise pollution arising from agricultural activities and machinery which can be expected to peak during harvest and planting seasons. An atrial road traverses the property and may also contribute to noise pollution from traffic especially during peak periods.

Sites of archaeological and cultural interest: While there are some areas surrounding the prospecting area that have been noted for Heritage cases (SAHRIS) the initial literature review and desktop study indicates that there are no registered sites of archaeological and cultural significance within the prospecting area. However the land subject to the prospecting application is considered tribal land and there are two rural settlements situated within the prospecting area and it is anticipated that there will be a number of graves and possibly sites of cultural interest situated within the prospecting area. During the site visit a graveyard was noted along the outskirts of Lekgolo village. It has been documented through pictures and the location will be included in our maps and buffered.

Regional socio-economic structure: The project is located within Moretele Local Municipality which falls under Bojanala Platinum District Municipality of North West Province. Moretele Local Municipality is located approximately 44km south west of Bela Bela. The area constituting 65 villages spread over 1369 km^2 area. Most villages are ruled by 4 traditional leaders (Dikgosi) who all represent their respective communities in council. There is no major economic centre demarcated in the Moretele Local Municipality due to the fact that 96% of settlement type in the area are categorised as tribal/traditional areas with only 4% of the area categorised as urban.

The proposed prospecting area is approximately 6473.3 ha, consisting of the Moretele village and the Lekgolo village, agricultural fields, predominantly for subsistence farming, veldt which is likely to be used for grazing and some remaining areas of natural vegetation and a water bodies.

Location, Population and distribution: The Moretele Local Municipality has a total population of 186 947 people, and is the smallest populated municipality in the Bojanala Platinum District Municipality. There is no urban centre in the Local Municipality and so the population is spread out into the 65 villages and small holdings across the municipality.

Major economic activities and sources of employment: For the most part, the economic potential in the area is underdeveloped and underutilised. Agriculture is the main focal point for all future economic development for the municipality and shapes the spatial development framework for the municipality.

Tourism is a developing activity in the form of bed and breakfasts, game reserves, leisure businesses with heritage tourism, an up and coming form of tourism in the area. Small start-up enterprise businesses are developing throughout the Local Municipality, however as most of them are still in the start-up phase they are not considered a major economic activity yet.

Unemployment estimate for the area: Unemployment for the local municipality is estimated at 45.9%.

Social infrastructure: There are no major towns situated within the Moretele Local Municipality, and as such, social infrastructure isn't as well established as in the other Local Municipalities within the District Municipality.

There are 21 clinics situated throughout the Local Municipality as well as 20 mobile clinics. However there are no established hospitals and certain clinics are equipped and train to operate when necessary. There are numerous government primary, middle and high schools spread out throughout the local municipality. However the majority of these schools are located in the Makapanstad and Rekopantswe areas and are therefore schools are not evenly distributed throughout the local municipality. Social initiatives including building RDP houses and working to better recreational facilities are being undertaken but are limited and due to the lack of a central urban area many of these initiatives are mobile and aim to include as many areas and people as possible.

Basic services and service delivery are a concern within the Moretele Local Municipality. While most households (92%) have access to electricity for lighting, cooking and heating, major challenges remain around sanitation, water supply and refuse removal. Only 17% of households have access to flush toilets connected to a sewage system with the remainder of the households having to use pit toilets (27.3% have no ventilation and 64.2% have ventilation). While 75.8% of water in the area is provided by a regional/local water scheme and 9.1% is provided by local boreholes,6000 households do not have access to water..89.5% of households in the Local Municipality have access to refuse dumps, while 7.9% have no method of refuse removal. Only 1% of households have their refuse removed at least once a week by a local/private company.

Water supply: The Temba Water Treatment Plant is a 60 mega litre plant that provides water to parts of the North West Province (including the Moretele Local Municipality) as well as the Tshwane Municipality. However the Temba treatment plant has in recent times experienced a lack of adequate water supply, exacerbating the lack of water supply in the Moretele Local Municipality.

Power supply: Power supply to the region is from the Eskom grid.

b) Description of the current land uses.

Land uses in the region are dominated by agriculture and residential land. **Figure 5** illustrates the municipal land use map for the Prospecting Area and surrounding farms. The Environmental Outlook Report and the Land cover map indicate that the main forms of land cover in the area are agricultural, residential, untransformed and water bodies. The types of natural land cover consists of Thicket and Bushland, Woodland and Degraded Forest and woodland. **Figure 5** illustrates the different types of land use in the area and indicates that the dominant land cover is woodland (darker green), followed by the transformed areas which consist of residential (light grey), degraded forest and woodland (tan brown) and the singular patch of commercial cultivated land (the speckled green) with the remainder of the natural land areas consisting of wetland (blue) and thicket and bushland (light green).

A site visit will confirm the actual status of the current land use and how much natural land is remaining.

The current land use will not be altered, and these can continue alongside the prospecting activities

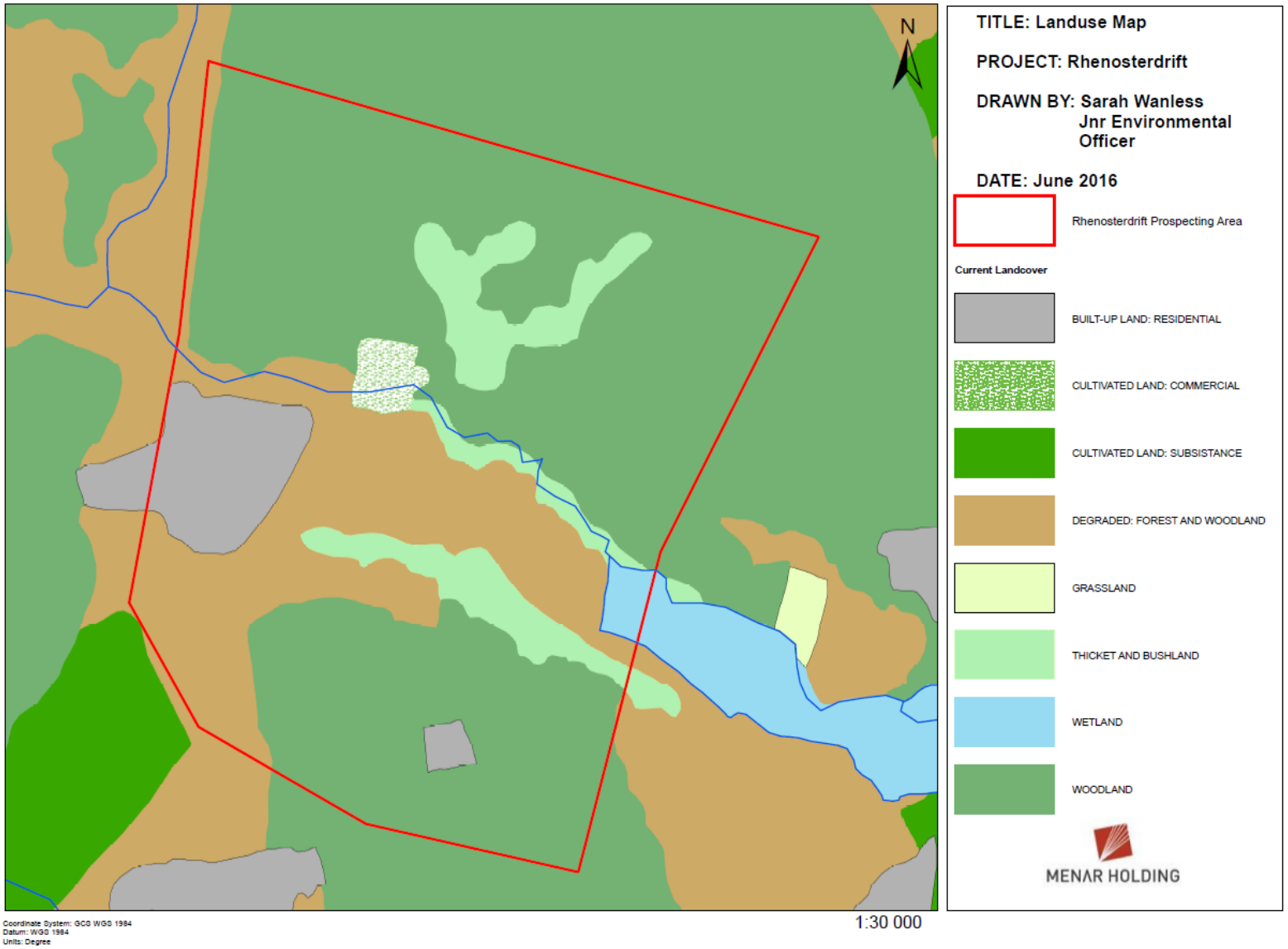


Figure 5: Land cover map showing the different types of land cover within and around the prospecting area

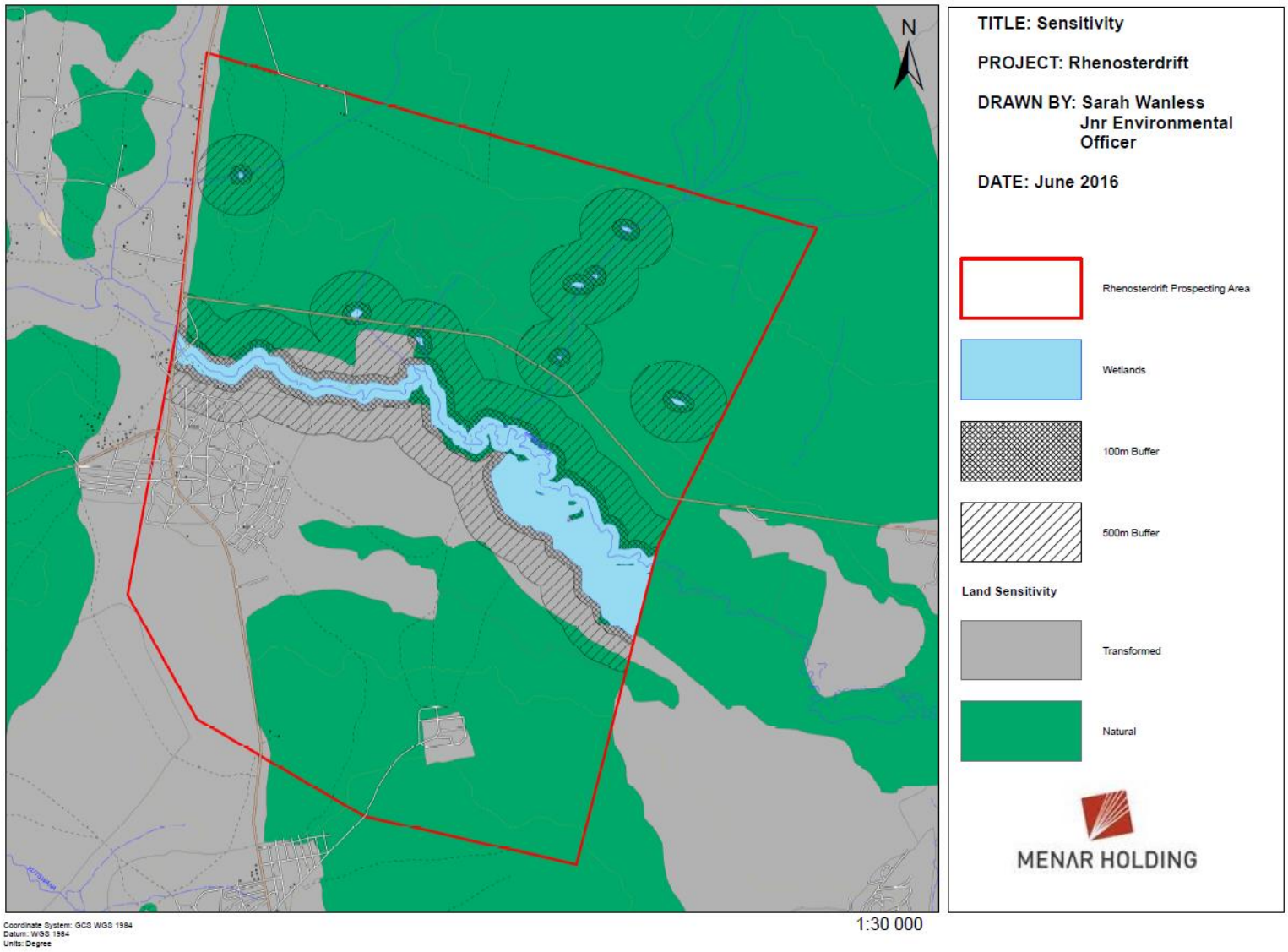
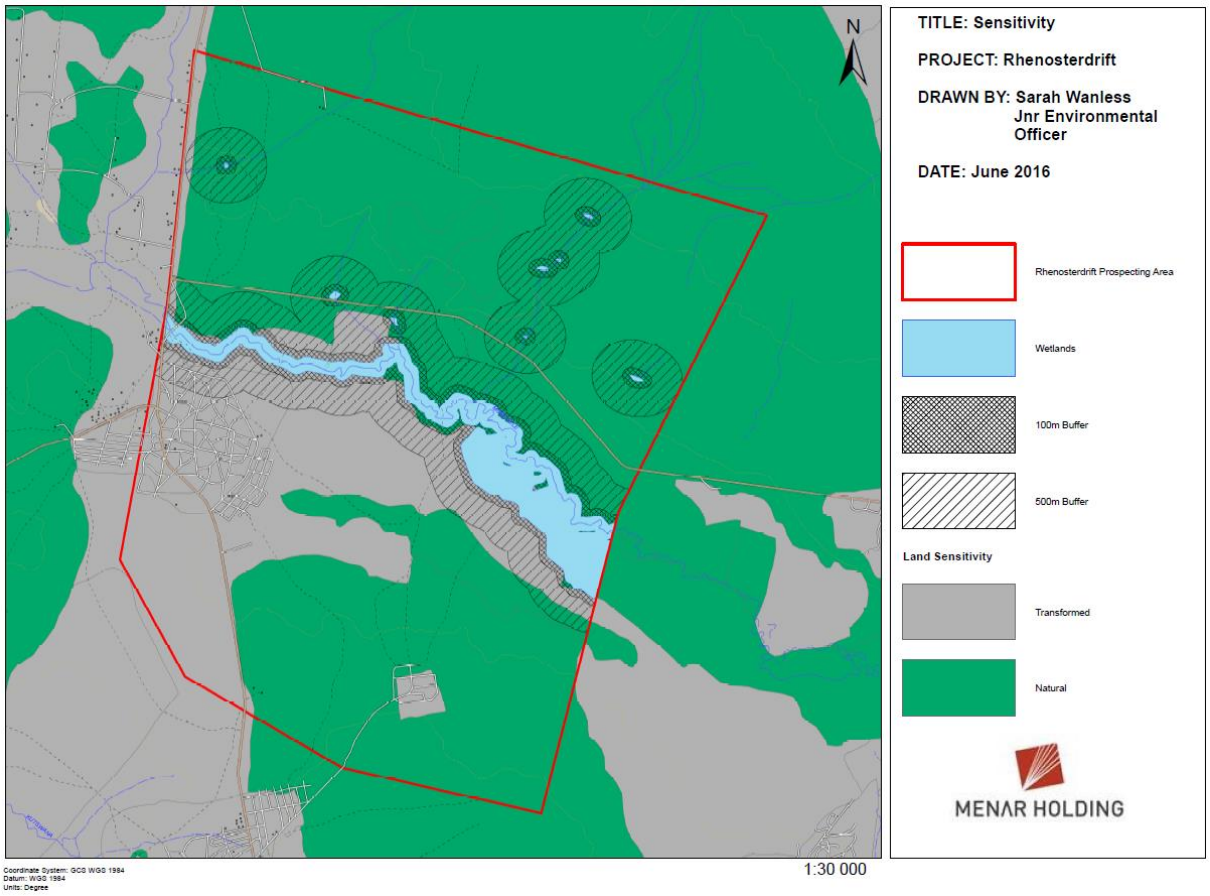


Figure 6: Land sensitivity and natural and transformed land within the Prospecting Area

c) *Description of specific environmental features and infrastructure on the site*.

Prospecting will allow for enough flexibility in drilling to avoid rivers, wetlands and associated buffer zones. If there is a need to conduct activities in any of these areas then the necessary applications will be sought and approved prior to conducting activities in these areas.

d) Environmental and current land use map.



(v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

A summary of impacts and their duration, probability and significance is provided below.

- Localised dips in topography if boreholes collapse after material is replaced. The impact is probable, of long-term duration if untreated and significance is moderate to low. The impact can be reversed with rehabilitation.
- Cracks and disruption to geological layers. The impact is possible, of short- to medium-term duration and significance is moderate to low.
- Potential for compaction of soils. The impact is highly probable, of short- to medium-term duration and significance is moderate to low. The impact can be reversed with remediation. The degree of loss of resource is low.

- Potential hydrocarbon contamination from vehicles and traffic to surface water, soils and groundwater. The impact is probable, of short- to medium-term duration and significance is moderate to low. The impact can be reversed with some remediation. The degree of loss of resource is low.
- Alteration to soil characteristics and potential loss of soil. The impact is probable, of short- to medium-term duration and significance is moderate to low. The impact can be reversed with some remediation. The degree of loss of resource is low.
- Potential contamination of soil with sewage from the portable toilets. The impact is possible, of short- to medium-term duration and significance is low. The impact will recover on its own. The degree of loss of resource is low.
- Potential contamination of soil with indiscriminately dumped waste or littering. The impact is possible, of short- to medium-term duration and significance is low. The impact will recover with remediation. The degree of loss of resource is low.
- Irresponsible use of water and water wastage. The impact is unlikely, of short- to medium-term duration and significance is low. The impact will recover with time. The degree of loss of resource is low.
- Potential contamination of surface water bodies with sewage from the portable toilets. The impact is possible, of short- to medium-term duration and significance is low. The impact will recover with time. The degree of loss of resource is low.
- Cracks and disruption to aquifers. The impact is unlikely, of short- to medium-term duration and significance is low. The impact will recover with time and some rehabilitation. The degree of loss of resource is low.
- Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter. The impact is unlikely, of short- to medium-term duration and significance is low. The impact will recover with time and some rehabilitation. The degree of loss of resource is low.
- Alien invasive encroachment. . The impact is possible, of permanent duration and significance is moderate to low. The impact will recover with remediation. The degree of loss of resource is moderate.
- Alienation of, and disturbance to, animals. The impact is possible, of short- to medium-term duration and significance is low. The impact will recover with time and some rehabilitation. The degree of loss of resource is low.
- Generation of dust on gravel roads and prospecting sites. The impact is definite, of short- to medium-term duration and significance is moderate to low. The impact will recover with time. The degree of loss of resource is low.
- Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. The impact is definite, of short- to medium-term duration and significance is moderate to low. The impact will recover with time. The degree of loss of resource is low.

- Increased noise levels. The impact is highly probable, of short- to medium-term duration and significance is moderate to low. The impact will recover on cessation of activities.
- Increased potential for road incidences and road degradation. The impact is probable, of short- to medium-term duration and significance is moderate to low. The impact is irreversible if road incidents resulting in loss of life.

Positive Impacts:

- Topographical nature of the area will be restored through rehabilitation.
- Potential for more employment & associated multiplier effect.

(vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

The full methodology utilised is described below. Impact assessment methods were developed to: (1) identify the potential impacts of a proposed development on the social and natural environment; (2) predict the probability of these impacts and (3) evaluate the significance of the potential impacts. The methodology used is as follows:

The status of the impact		
Status		Description
Positive:		a benefit to the holistic environment
Negative:		a cost to the holistic environment
Neutral:		no cost or benefit
The duration of the impact		
Score	Duration	Description
1	Short term	Less than 2 years
2	Short to medium term	2 – 5 years
3	Medium term	6 – 25 years
4	Long term	26 – 45 years
5	Permanent	46 years or more
The extent of the impact		
Score	Extent	Description
1	Site specific	Within the site boundary
2	Local	Affects immediate surrounding areas
3	Regional	Extends substantially beyond the site boundary
4	Provincial	Extends to almost entire province or larger region
5	National	Affects country or possibly world
The reversibility of the impact		
Score	Reversibility	Description
1	Completely reversible	Reverses with minimal rehabilitation & negligible residual affects
3	Reversible	Requires mitigation and rehabilitation to ensure reversibility
5	Irreversible	Cannot be rehabilitated completely/rehabilitation not viable

The magnitude (severe or beneficial) of the impact		
Score	Severe/beneficial effect	Description
1	Slight	Little effect - negligible disturbance/benefit
2	Slight to moderate	Effects observable - environmental impacts reversible with time
3	Moderate	Effects observable - impacts reversible with rehabilitation
4	Moderate to high	Extensive effects - irreversible alteration to the environment
5	High	Extensive permanent effects with irreversible alteration
The probability of the impact		
Score	Rating	Description
1	Unlikely	Less than 15% sure of an impact occurring
2	Possible	Between 15% and 40% sure of an impact occurring
3	Probable	Between 40% and 60% sure that the impact will occur
4	Highly Probable	Between 60% and 85% sure that the impact will occur
5	Definite	Over 85% sure that the impact will occur
The Consequence		= Magnitude + Spatial Scale + Duration + Reversibility.
The Significance		= Consequence x Probability.

The rating is described as follows:

Score out of 100	Significance
1 to 20	Low
21 to 40	Moderate to Low
41 to 60	Moderate
61 to 80	Moderate to high
81 to 100	High

Will mitigation be possible (yes or no)?

Finally the negative impacts are rated according to the degree of loss of a resource due to the particular impact. This is only assessed from the pre-mitigation perspective of the impact. The degree of loss of a resource is evaluated in terms of:

- Low degree of loss: where the resource will recover on its own with no/limited rehabilitation over an observable period of time;
- Moderate degree of loss: where the resource will recover over extended period or with rehabilitation or remedial measures to assist recovery of resource; and
- High degree of loss: Where the resource cannot be recovered, or the resource will recover over extended time periods.

(vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the

community that may be affected

Table 2: Advantages and disadvantages of alternatives

Alternatives	Advantages	Disadvantages
Final proposed project layout		
No alternatives have been considered (please see alternatives discussion in Part A Section 3(h)(i)		
Other alternatives proposed by I&APs		
No alternatives have been proposed by the I&APs to date.	-	-

(viii) The possible mitigation measures that could be applied and the level of risk.

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

Table 3: Possible mitigation measures to issues raised by I&APs

Issue raised	Mitigation measures considered including alternatives	Risks associated with proposed mitigation measure
Water is scarce in the area	Minerano are aware of the current drought situation and will truck in water for onsite activities where necessary, as not to add to the strain on the limited water resources in the area	N/A
Due to the current drought and overgrazing there is currently a shortage of grazing and grazing space	Minerano are aware of the current situation, however drilling is a small scale activity and will not take up a lot of space. Rehabilitation will be done concurrently and therefore disturbance will be relatively small.	N/A

(ix) Motivation where no alternative sites were considered.

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e. not held by another company) and the geology of the surrounding area.

The preliminary positions of the proposed prospecting boreholes have been sited to give a representative sample for the project area. The positions of these have taken into account the various water resources and their applicable buffers. Alternatives may be considered based on the findings of the geotechnical investigations.

No activity alternatives are considered. Drilling is still the most effective way and an industry norm to complete resource evaluation as required for the mine works programme to be submitted in terms of a MRA.

The use of desktop study and literature review as an initial non-invasive technique to delimit

areas for invasive drilling is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technology alternatives are therefore also not assessed further.

(x) Statement motivating the alternative development location within the overall site.

The final layout of the drilling can only be completed once the non-invasive activities have been undertaken. It can only be stated that invasive prospecting (drilling) will avoid the wetlands and, rivers and 100m buffer zones / 1:100 year floodlines (whichever is greatest), and 50m buffer zones from potential historical sites, graves and identified protected plants.

(h) <u>Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.</u>

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

The impact identification process commenced by identifying all environmental aspects on site, whether sensitive or not. General environmental aspects that were considered include:

- Topography
- Geology
- Soil & Associated Land Capability
- Surface Water, Associated Wetlands and Aquatic Ecosystems
- Groundwater
- Floral and Faunal Ecosystems
- Air Quality
- Ambient Environmental Noise
- Archaeological and Cultural Sites
- Local Traffic and Safety
- Socio-Economics
- Health and Safety

All potential impacts that may occur to the various environmental aspects as a result of the activities listed in Part a Section 3(d)(i) of this report were listed for each of the aspects.

Where impacts/issues were raised by I&APs these have been included as potential impacts. All these impacts were then assessed as per the methodology described above and their significance determined.

It must be noted however that the PPP is still on-going and thus additional issues may still be forthcoming from I&APs.The impacts are listed with their significance and possibility for mitigation under Part A Section 3(h) (v). Other impact details are also elaborated under Part A Section 3(j) below.

(i) Assessment of each identified potentially significant impact and risk

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Access routes	Potential for compaction of soils. Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Potential for damage of any red data flora or heritage sites via the use of unauthorised off road routes Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Potential for disturbance of heritage sites and graves if activity proceeds indiscriminately. Generation of dust on gravel roads. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Increased potential for road incidences. Road degradation.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Groundwater Air Quality Noise Traffic & Safety Flora Heritage sites	Operation, Decommissioning	Mostly impacts are of moderate to low significance. Most significant impact would be to wetlands if routes are not properly planned and assessed. The impact is of moderate significance.	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. Surveying any off road routes prior to use to prevent damage to red data plants and heritage sites CONTROL THROUGH: Remaining in designated roads / routes / activity areas. Maintaining all vehicles, equipment, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubrication Equipping vehicles on site with drip trays to place under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads Noise buffering measures on noisy equipment. Regular communication with nearby I&APs. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so.	Significance can mostly be reduced to low; or moderate to low through proposed mitigation measures.
Drilling	Localised dips in topography if boreholes collapse after material is replaced. Cracks and disruption to geological layers and aquifers.. Potential for compaction of soils. Potential hydrocarbon contamination of soils, surface water (through runoff) and groundwater (seepage) environment. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Irresponsible use of water and water wastage. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Loss of and disturbance to archaeological / heritage / grave sites that may be encountered	Topography Geology Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Groundwater Air Quality Noise Archaeological/Cultural Sites	Operation, Decommissioning, Closure	Mostly impacts are of low significance. Most significant impact would be to heritage sites (high significance) and wetlands (moderate to high significance) if sites are not properly planned to avoid these sites.	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Planning invasive prospecting sites properly to avoid sensitive features. Remaining in designated roads / routes / prospecting areas. Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant Placing drip trays under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment or conducting activities during a convenient time of day when near to sensitive receptors. Responsible water use. Regular communication with nearby I&APs. Contracting necessary specialists as needed. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Maintaining a buffer around the ruins/graves at all times during the prospecting activities	Significance can mostly be reduced to low or moderate to low through proposed mitigation measures.
Casing of boreholes	Localised dips in topography if boreholes collapse after material is replaced.	Topography	Operation, Decommissioning, Closure	Impact significance is low.	REMEDY THROUGH: Rehabilitating and repairing any damage. Inspection and immediate action.	Impact significance is low.
Ablution facility (portable toilets)	Potential contamination of soil with sewage. Potential contamination of surface water bodies with sewage.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems	Operation	Impact significance is low.	REMEDY THROUGH: Inspection and repair / replace of damaged toilets. CONTROL THROUGH: Contracting necessary reputable contractor to manage portable toilets.	Impact significance is low.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					Proper housekeeping and hygienic practices. Inspection and immediate action.	
Temporary core/equipment store and site office; comprising of shade and seating for meals may be established. Staff will be accommodated in town.	Potential of compaction of soils Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Alienation of, and disturbance to, animals. Potential contamination of soil and surface water features with indiscriminately dumped waste or littering. Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter. Disturbance/damage to vegetation	Soil & Land Capability Surface Water & Associated Wetlands and Aquatic Ecosystems Groundwater Fauna Flora	Operation, Decommissioning, Closure	Impact significance is generally moderate to low.	REMEDY THROUGH: Ripping up of compacted soils Clearing all litter and waste. Reporting any non-compliant incidences to the relevant authorities and following their requirements. Inspection and immediate action. CONTROL THROUGH: Collecting waste for disposal to the relevant waste stream at the PA. Clear all vehicles coming to site of any vegetative material. Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals. Noise control measures. Visually surveying prospecting sites for any protected species or heritage sites. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Preventing activities within areas supporting protected species and preserve such species in situ, or obtain the necessary authorisation to remove / destroy such species if necessary.	Impact significance is low
Hydrocarbon Storage	Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment.	Soil & Land Capability Surface Water & Associated Wetlands and Aquatic Ecosystems Groundwater	Operation, Decommissioning, Closure	Mostly impacts are of low significance. Most significant impact would be to wetlands (moderate to high significance) if sites are not properly planned to avoid these sites.	REMEDY THROUGH: Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant Placing drip trays under leaky equipment. The area is less than $80m^2$ Plastic lining or mobile bunding will be used Spill kits will be on hand in the event of a spillage Safe work procedure will be adhered to when refuelling vehicles and machinery	Impact significance is low
Rehabilitation of boreholes	Topographical nature of the area will be restored through rehabilitation.	Topography Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems	Operation, Decommissioning, Closure	Impact significance is moderate to low.	No mitigation necessary. Impact is positive.	Impact significance is moderate to low.
General overall prospecting activities	Alien invasive encroachment.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Flora & Fauna	Operation, Decommissioning, Closure	Impact significance is generally low	REMEDY THROUGH: Removal of alien and invasive species that may establish around prospecting sites. CONTROL THROUGH: Clear all vehicles coming to site of any vegetative material.	Impact significance can be mitigated to be of low significance.
General overall prospecting activities	Potential for more employment & multiplier effect.	Socio-economic, Health & Safety	Operation	Impact significance is moderate to low.	No mitigation necessary. Impact is positive	Impact significance is moderate to low.

(j) Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
No specialist reports were completed for this BA report.			

(k) Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment;

Due to the nature of prospecting activities the cumulative noise and visual impacts are rated with a moderate to low significance.

Other impacts were rated to be of either moderate to low significance or of low significance.

All mitigation measures will maintain impacts to acceptable and recoverable levels and no impacts expected to exceed a significance of moderate to low with implementation of proposed mitigation measures.

(ii) Final Site Map

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

Please see **Figure 3**.

(iii) Summary of the positive and negative implications and risks of the proposed activity and identified alternatives;

The majority of the negative implications associated with the Prospecting Application are related to access roads and drilling, contamination from portable ablution facilities and general prospecting activities and their associated impacts on the surrounding environment.

Positive impact is associated with the brief creation of jobs and is considered of moderate to low significance. This has been assessed in terms of the prospecting operation on its own; however should this prospecting right be converted into a MR then the social benefits will be of moderate to high significance.

Positive impact is also associated with rehabilitation once the prospecting activity has been concluded. This is especially true for areas of land that have been degraded due to overgrazing and soil erosion.

(l) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

The objectives of impact mitigation and management are to:

- Primarily pre-empt impacts and prevent the realisation of these impacts – PREVENTION.
- To ensure activities that are expected to impact on the environment are undertaken and controlled in such a way so as to minimise their impacts – MODIFY and/or CONTROL.

- To ensure a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity – REMEDY.
- Implement an adequate monitoring programme to:
    - Ensure that mitigation and management measure are effective.
    - Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
    - Reduce duration of any potential negative impacts.

Environmental impact management outcomes are:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands and riverine areas and any protected species observed on site.
- Protect the water resources in the area as far as possible.
- Ensure atmospheric pollution is kept to a minimum:
- Ensure adequate rehabilitation to allow continued land use.
- Ensure socially responsible activities.
- Protect historical and cultural sites if they are observed on site.

(m) Aspects for inclusion as conditions of Authorisation.

No activity is to occur within wetlands and their 100m buffer zones, within rivers and their 100m buffer zone / 1:100 year flood line without the necessary authorisation under NEMA and NWA.

Protected species must remain *in situ* until the necessary permits are obtained under NEM:BA.

Heritage sites and 50m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.

Planning before carrying out prospecting activities in a particular area, and surveying the area before conducting invasive prospecting, is critical to ensure any sensitive areas are preserved and to ensure prospecting proceeds in a manner compliant with national legislation.

Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data.

(n) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The preliminary positions of the proposed prospecting boreholes have been sited (ten in total), these may however vary based on the findings of the geophysical investigations. This is not seen as a major gap as the lack of this knowledge has been worked into the EMP as well as

the proposed conditions stipulated above. In general, the approach will be as follows for invasive prospecting:

- In general most of the area is still in its natural state and dominated by woodland, followed by degraded land, residential, commercial agriculture, wetlands and thicket and bushland.
- The areas where natural vegetation occurs must be surveyed by a specialist for potential protected species relevant to the region prior to commencing invasive prospecting. Any protected species identified on site must be avoided or the necessary permits applied for (to destroy / remove / relocate).
- Areas will be visually surveyed for heritage sites prior to commencing with invasive prospecting. These must then be avoided with appropriate buffer zones or the necessary permits applied for.
- Activities must remain outside all wetland areas until authorisation has been obtained under NEMA and NEM:WA.

(o) <u>Reasoned opinion as to whether the proposed activity should or should not be authorised</u>

(i) Reasons why the activity should be authorized or not.

Authorisation of the activity should be granted.

The risks of the particular prospecting activity are minimal and can be easily mitigated by following the EMP, which will reduce impacts significantly to acceptable levels and which will easily recover.

(ii) Conditions that must be included in the authorisation

No activity is to occur within wetlands and their 100m buffer zones, within rivers and their 100m buffer zone / 1:100 year flood line without the necessary authorisation under NEMA and NWA.

Protected species must remain in situ until the necessary permits are obtained under NEM:BA.

Heritage sites and 50m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.

Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data.

(p) <u>Period for which the Environmental Authorisation is required.</u>

Prospecting activities are likely to require 3 years, including initial data assessment. The EA is requested for a period of 5 years in the event that additional permits or authorisations may be required once invasive prospecting activities commence.

(q) <u>Undertaking</u>

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

Management Programme report.

Undertaking at the end of the BA and EMP has been fully completed and signed.

(r) <u>Financial Provision</u>

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

The Financial provision required for the prospecting programme has been calculated at of R65 736.91

(i) Explain how the aforesaid amount was derived.

The financial provision was calculated using the DMR's rules based assessment.

Environmental management and monitoring, as per the EMP will be conducted by Minerano's environmental managers, where needed, and will inform part of their operational running costs.

Confirm that this amount can be provided for from operating expenditure.

The amount of R12, 760, 000.00 has been allocated to the prospecting programme over the three year period (this includes costing of in-filling and rehabilitation of the boreholes and other disturbed areas). This will be provided in cash by Menar Holding. Please refer to Appendix C of the PWP for evidence of funding. The table below is an extract from the PWP and indicates overall costs estimated for the three year life of prospecting.

Remaining costs are part of Minerano Resources (Pty) Ltd running costs.

Table 5: Budget

ACTIVITY	YEAR 1 Expenditure (R')	YEAR 2 Expenditure (R')	YEAR 3 Expenditure (R')	YEAR 4 Expenditure (R')	YEAR 5 Expenditure (R')
Phase 1 (0-12 months)					
Desktop Studies and Literature Review	60 000				
Data/borehole acquisition	100 000				
Geophysics surveys	150 000				
PHASE 2 (12 - 24 months)					
Site establishment/de-establishment		50 000			
Boreholes (including rehabilitation) for infill drilling if required		10 000 000			
Laboratory and analysis		100 000			
PHASE 3 (24 – 36 months)					
Resource Modelling			300 000		
Pre-feasibility Studies			500 000		
Phase 4 (36 – 60 months)					
Environmental Studies				1 500 000	
Annual Total					
				Total Budget	**12 760 000**

(s) Specific Information required by the competent Authority

(i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-

(1) Impact on the socio-economic conditions of any directly affected person.

Impact is seen as minimal if EMP is applied to prospecting activities and prospecting sites. It is not anticipated that the drilling activities will impact on the socio-economic conditions of the landowner / occupier, as the current land use can continue alongside the prospecting.

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

No specialist studies were deemed necessary as the project sensitivity is seen to be low. The

management plan has made allowance for mitigation measures to ensure avoidance of these sites should they be encountered, as the prospecting locations will have some degree of flexibility. Where unavoidable, the EMP stipulates that the permits must be obtained under SAHRA.

(t) Other matters required in terms of sections 24(4)(a) and (b) of the Act.

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

Section 24(4)(b)(i) of the Act specifies "investigation 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."

This has been addressed in Part A Section 3(b) above. As stipulated, the site is delimited by the prospecting rights area and the extent of the resource. Invasive prospecting area will be delimited by the data from non-invasive techniques. The approach to prospecting is environmentally responsible (by completing non-invasive techniques first) and an industrial norm (drilling is still an acceptable means for resource evaluation as required for the MRA).

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1 DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

(a) Details of the EAP,

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

Applicant has completed the application which was independently reviewed by an EAP. Please see PART A Section 3(a) and Appendix 1.

(b) Description of the Aspects of the Activity

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

Please see PART A Section 3(h).

(c) Composite Map

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

Please see Figure **3 above** for a composite plan.

(d) Description of Impact management objectives including management statements

The objectives of impact mitigation and management are to:

- Primarily pre-empt impacts and prevent the realisation of these impacts - PREVENTION.
    - Plan prospecting routes and sites to prevent impact to wetlands and rivers and the appropriate buffer zones, or obtain relevant authorisation / licence under NEMA / NWA.
    - Survey proposed routes and prospecting sites to prevent impact to heritage sites that may be discovered whilst prospecting on site, or obtain relevant permit under SAHRA.
    - Survey proposed routes and prospecting sites to prevent impact to protected species that may occur in prospecting areas, or obtain relevant permit under NEM:BA.
- To ensure activities that are expected to impact on the environment are undertaken and controlled in such a way so as to minimise their impacts – MODIFY and/or CONTROL.
    - Reduce risk of contamination to the environment from vehicles, machinery, drill rigs and equipment (emissions, hydrocarbon spills, and excessive noise) by ensuring regular maintenance and keeping drip pans available at all times.

- Collect all litter, sort and store according to the appropriate waste stream and dispose of at a licensed facility.
- Inspect and maintain portable toilets to reduce risk of contamination through sewage spills.
- Spray route and areas of activity with water when dry to reduce fugitive dust emissions.
- Regularly communicate prospecting intentions to local land owners / users.
- Keep vehicles and machinery free from plant matter to reduce risk of introduction and spread of alien and invasive species.
- Establish and enforce speed limits on all roads.

- To ensure a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity – REMEDY.
  - Keep hydrocarbon spill kits on site at all times to clear any spills that occur.
  - Implement the inspection and monitoring plan stipulated in the EMP and take the necessary action for any issues observed on site.
- Implement an adequate monitoring programme to:
  - Ensure that mitigation and management measure are effective.
  - Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
  - Reduce duration of any potential negative impacts.

(i) Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

Closure objectives must be met with regards to:

Topography

- To ensure that the final elevation of drilled areas is free draining.

Soil and Land Capability

- To ensure that top soil (with vegetation clods where applicable) is replaced to the surface of rehabilitated areas to restore vegetation growth and reduce risk of erosion.

Surface Water

- To ensure no sedimentation or contamination of the surrounding surface water systems.

Flora and Fauna

- To ensure that alien invasive establishment and spread on areas disturbed by prospecting is prevented and controlled.
- To preserve protected species in situ as far as possible.

Wetlands

- To prevent disturbance to wetlands and maintain current wetland status and maintain ecological corridors associated with rivers and wetlands.

(ii) Volumes and rate of water use required for the operation.

No processing water requirements.

Water will be brought onto site for potable use; this is estimated at 5 litres per person/day.

Groundwater will be used in conjunction with the water brought onto site for any drilling requirements.

(iii) Has a water use licence has been applied for.

No application for water use has been made to date. It is assumed that any water use will fall under a general authorisation.

(iv) Impacts to be mitigated in their respective phases

ACTIVITY Whether listed or not listed.	PHASE In which impact is anticipated	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Access routes	Operation, construction Decommissioning	Farm roads will be used as far as possible. No additional roads will be constructed.	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. Surveying any off road routes prior to use to prevent damage to red data plants and heritage sites. CONTROL THROUGH: Remaining in designated roads / routes / activity areas. Maintaining all vehicles, equipment, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubrication. Equipping vehicles on site with drip trays to place under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment. Regular communication with nearby I&APs. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so.	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA.	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of routes and prospecting sites after activity in the area has ceased.
Drilling	Operation, Decommissioning, Closure	$20m^2$ per borehole. 10 boreholes have been provisionally sited	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Planning invasive prospecting sites properly to avoid sensitive features. Remaining in designated roads / routes / prospecting areas. Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment or conducting activities during a convenient time of day when near to sensitive receptors. Responsible water use. Regular communication with nearby I&APs. Contracting necessary specialists as needed. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Maintaining a buffer around the ruins/graves at all times during the prospecting activities.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation. SAHRA will be complied with regarding permits for destruction and relocation or management of heritage sites; and applicable buffers.	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of rehabilitated areas.
Casing of boreholes	Operation, Decommissioning, Closure	$4m^2$ per borehole.10 boreholes have been provisionally sited	REMEDY THROUGH: Rehabilitating and repairing any damage. Inspection and immediate action.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Once-off inspection of drilled boreholes after substantial rainfall
Ablution facility (portable toilets)	Operation	Portable toilets will be used	REMEDY THROUGH: Inspection and repair / replace damaged toilets. CONTROL THROUGH: Contracting necessary reputable contractor to manage portable toilets. Proper housekeeping and hygienic practices. Inspection and immediate action.	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.

ACTIVITY Whether listed or not listed.	PHASE In which impact is anticipated	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Temporary 'Camp site', core/equipment store and site office. Staff will be accommodated off site unless permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established	Operation	0.05 Ha	REMEDY THROUGH: Ripping up of compacted soils Clearing all litter and waste. . Reporting any non-compliant incidences to the relevant authorities and following their requirements. Inspection and immediate action. CONTROL THROUGH: Collecting waste for disposal to the relevant waste stream at the PA. Clear all vehicles coming to site of any vegetative material. Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals. Noise control measures. Visually surveying prospecting sites for any protected species or heritage sites. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Preventing activities within areas supporting protected species and preserve such species in situ, or obtain the necessary authorisation to remove / destroy such species if necessary.	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of the site camp and surrounding area for the duration of prospecting activities.
Hydrocarbon Storage	Operation	$80m^2$	REMEDY THROUGH: Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. The area is less than $80m^2$ Plastic lining or mobile bunding will be used. Spill kits will be on hand in the event of a spillage. Safe work procedure will be adhered to when refuelling vehicles and machinery.	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of the vehicles and storage area for the duration of prospecting activities.
Rehabilitation of boreholes	Operation, Decommissioning, Closure	$20m^2$ per borehole.10 boreholes have been provisionally sited.	No mitigation necessary. Impact is positive.	General duty of care in terms of NEMA. MPRDA rehabilitation standards.	1. Monthly once invasive prospecting commences for the duration of prospecting. 2. Once-off inspection of rehabilitated sites after substantial rainfall.
General overall prospecting activities	Operation, Decommissioning, Closure	The general prospecting activities will be $700m^2$ (the combined total of all the aforementioned activities	REMEDY THROUGH: Removal of alien and invasive species that may establish around prospecting sites. CONTROL THROUGH: Clear all vehicles coming to site of any vegetative material.	MPRDA requirement and standards regarding prospecting and rehabilitation of prospecting areas.	1. Monthly visual inspection of the active prospecting areas. 2. Once-off inspection of rehabilitated sites after substantial rainfall.

(e) Impact Management Outcomes

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

ACTIVITY Whether listed or not listed.	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Access routes	Potential for compaction of soils. Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Potential for damage of any red data flora or heritage sites via the use of unauthorised off road routes. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Potential for disturbance of heritage sites and graves if activity proceeds indiscriminately. Generation of dust on gravel roads. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Increased potential for road incidences. Road degradation.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Groundwater Air Quality Noise Traffic & Safety Flora Heritage sites	Operation, Decommissioning	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. Surveying any off road routes prior to use to prevent damage to red data plants and heritage sites. CONTROL THROUGH: Remaining in designated roads / routes / activity areas. Maintaining all vehicles, equipment, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubrication. Equipping vehicles on site with drip trays to place under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment. Regular communication with nearby I&APs. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so.	Reduce compaction of soil and maintain existing land capability. Vehicles, machinery and equipment maintained within operational specification and legislative requirements. Prevent disturbance to surface water features. Dust fallout will be managed to not exceed 600mg/m^2/day. Keep equipment, machinery and vehicles operating within their manufacturing specifications. Prevent nuisance noise to nearby land owners / users. High safety standards on site with reduced safety risks.
Drilling	Localised dips in topography if boreholes collapse after material is replaced. Cracks and disruption to geological layers and aquifers. Potential for compaction of soils. Potential hydrocarbon contamination of soils, surface water (through runoff) and groundwater (seepage) environment. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Irresponsible use of water and water wastage. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Loss of and disturbance to archaeological / heritage / grave sites that may be encountered.	Topography Geology Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Groundwater Air Quality Noise Archaeological/Cultural Sites	Operation, Decommissioning, Closure	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Planning invasive prospecting sites properly to avoid sensitive features. Remaining in designated roads / routes / prospecting areas. Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment or conducting activities during a convenient time of day when near to sensitive receptors. Responsible water use. Regular communication with nearby I&APs. Contracting necessary specialists as needed. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Maintaining a buffer around the ruins/graves at all times during the prospecting activities.	Restore natural catchment drainage patterns as far as possible. Reduce compaction of soil and maintain existing arable land capability. Vehicles, machinery and equipment maintained within operational specification and legislative requirements. Prevent disturbance to surface water features. Utilise water responsibly. Keep equipment, machinery and vehicles operating within their manufacturing specifications. Prevent nuisance noise to nearby land owners / users Preservation of heritage sites.
Casing of boreholes	Localised dips in topography if boreholes collapse after material is replaced.	Topography	Operation	REMEDY THROUGH: Rehabilitating and repairing any damage. Inspection and immediate action.	Restore natural catchment drainage patterns as far as possible.

ACTIVITY Whether listed or not listed.	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Ablution facility (portable toilets)	Potential contamination of soil with sewage. Potential contamination of surface water bodies with sewage.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems	Operation	REMEDY THROUGH: Inspection and repair / replace damaged toilets. CONTROL THROUGH: Contracting necessary reputable contractor to manage portable toilets. Proper housekeeping and hygienic practices. Inspection and immediate action.	Reduced bacterial contamination and associated health effects on neighbouring areas.
Temporary 'Camp site', core/equipment store and site office. Staff will be accommodated off site unless permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established	Potential of compaction of soils Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Alienation of, and disturbance to, animals. Potential contamination of soil and surface water features with indiscriminately dumped waste or littering. Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter. Disturbance/damage to vegetation	Soil & Land Capability Surface Water & Associated Wetlands and Aquatic Ecosystems Groundwater Fauna Flora	Operation, Decommissioning, Closure	REMEDY THROUGH: Ripping up of compacted soils Clearing all litter and waste. . Reporting any non-compliant incidences to the relevant authorities and following their requirements. Inspection and immediate action. CONTROL THROUGH: Collecting waste for disposal to the relevant waste stream at the PA. Clear all vehicles coming to site of any vegetative material. Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals. Noise control measures. Visually surveying prospecting sites for any protected species or heritage sites. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Preventing activities within areas supporting protected species and preserve such species in situ, or obtain the necessary authorisation to remove / destroy such species if necessary.	Maintain existing land capability. Reduce impact to neighbouring areas and surface water features, which will provide refuge for animals and provide ecological corridors. Preservation of protected species. Attain "cradle to grave" management of waste on site.
Hydrocarbon Storage	Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment.	Soil & Land Capability Surface Water & Associated Wetlands and Aquatic Ecosystems Groundwater	Operation, Decommissioning, Closure	REMEDY THROUGH: Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. The area is less than $80m^2$ Plastic lining or mobile bunding will be used. Spill kits will be on hand in the event of a spillage. Safe work procedure will be adhered to when refuelling vehicles and machinery.	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.
Rehabilitation of boreholes	Topographical nature of the area will be restored through rehabilitation.	Topography Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems	Operation, Decommissioning, Closure	No mitigation necessary. Impact is positive.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.
General overall prospecting activities	Alien invasive encroachment.	Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Flora & Fauna	Operation, Decommissioning, Closure	REMEDY THROUGH: Removal of alien and invasive species that may establish around prospecting sites. CONTROL THROUGH: Clear all vehicles coming to site of any vegetative material.	Alien and invasive species managed with the view to eradicate species in disturbed areas.

ACTIVITY Whether listed or not listed.	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED

(f) Impact Management Actions

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

ACTIVITY Whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Access routes	Potential for compaction of soils. Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Potential for damage of any red data flora or heritage sites via the use of unauthorised off road routes. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Potential for disturbance of heritage sites and graves if activity proceeds indiscriminately. Generation of dust on gravel roads. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Increased potential for road incidences. Road degradation.	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. Surveying any off road routes prior to use to prevent damage to red data plants and heritage sites. CONTROL THROUGH: Remaining in designated roads / routes / activity areas. Maintaining all vehicles, equipment, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubrication. Equipping vehicles on site with drip trays to place under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment. Regular communication with nearby I&APs. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so.	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of routes and prospecting sites after activity in the area has ceased.	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA. SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.
Drilling	Localised dips in topography if boreholes collapse after material is replaced. Cracks and disruption to geological layers and aquifers. Potential for compaction of soils. Potential hydrocarbon contamination of soils, surface water (through runoff) and groundwater (seepage) environment. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Irresponsible use of water and water wastage. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Loss of and disturbance to archaeological / heritage / grave sites that may be encountered.	REMEDY THROUGH: Ripping compacted soils. Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Planning invasive prospecting sites properly to avoid sensitive features. Remaining in designated roads / routes / prospecting areas. Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise buffering measures on noisy equipment or conducting activities during a convenient time of day when near to sensitive receptors. Responsible water use. Regular communication with nearby I&APs. Contracting necessary specialists as needed. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Maintaining a buffer around the ruins/graves at all times during the prospecting activities.	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of rehabilitated areas.	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.
Casing of boreholes	Localised dips in topography if boreholes collapse after material is replaced.	REMEDY THROUGH: Rehabilitating and repairing any damage. Inspection and immediate action.	1. Once-off inspection of drilled boreholes after substantial rainfall	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements. .
Ablution facility (portable toilets)	Potential contamination of soil with sewage. Potential contamination of surface water bodies with sewage.	REMEDY THROUGH: Inspection and repair / replace damaged toilets. CONTROL THROUGH: Contracting necessary reputable contractor to manage portable toilets.	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.	General duty of care in terms of NEMA & NWA.

ACTIVITY Whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Proper housekeeping and hygienic practices. Inspection and immediate action.		
Temporary 'Camp site', core/equipment store and site office. Staff will be accommodated off site unless permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established	Potential of compaction of soils Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment. Alienation of, and disturbance to, animals. Potential contamination of soil and surface water features with indiscriminately dumped waste or littering. Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter. Disturbance/damage to vegetation	REMEDY THROUGH: Ripping up of compacted soils Clearing all litter and waste. . Reporting any non-compliant incidences to the relevant authorities and following their requirements. Inspection and immediate action. CONTROL THROUGH: Collecting waste for disposal to the relevant waste stream at the PA. Clear all vehicles coming to site of any vegetative material. Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals. Noise control measures. Visually surveying prospecting sites for any protected species or heritage sites. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorisation is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so. Preventing activities within areas supporting protected species and preserve such species in situ, or obtain the necessary authorisation to remove / destroy such species if necessary.	1. Weekly inspections of the site camp and surrounding area for the duration of prospecting activities.	General duty of care in terms of NEMA & NWA.
Hydrocarbon Storage	Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment.	REMEDY THROUGH: Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. CONTROL THROUGH: Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Using biodegradable lubricant. Placing drip trays under leaky equipment. The area is less than $80m^2$ Plastic lining or mobile bunding will be used. Spill kits will be on hand in the event of a spillage. Safe work procedure will be adhered to when refuelling vehicles and machinery.	1. Weekly inspections of the vehicles and storage area for the duration of prospecting activities.	General duty of care in terms of NEMA & NWA. SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.
Rehabilitation of boreholes	Topographical nature of the area will be restored through rehabilitation.	No mitigation necessary. Impact is positive.	1. Monthly once prospecting commences for the duration of prospecting. 2. Once-off inspection of rehabilitated sites after substantial rainfall.	Best Practice Guidelines Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.
General overall prospecting activities	Alien invasive encroachment.	REMEDY THROUGH: Removal of alien and invasive species that may establish around prospecting sites. CONTROL THROUGH: Clear all vehicles coming to site of any vegetative material.	1. Monthly visual inspection of the active prospecting areas. 2. Once-off inspection of rehabilitated sites after substantial rainfall.	Alien and invasive species managed with the view to eradicate species.

(i) Financial Provision

(1) Determination of the amount of Financial Provision.

a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

Closure objectives identified include:

Topography

- To ensure that the final elevation of rehabilitated areas are free draining.
  - The localised nature of the prospecting activities means that attaining objective will result in restoration of baseline conditions.

Soil and Land Capability

- To ensure that top soil (with vegetation clods where applicable) are replaced to the surface of rehabilitated drilled sites to maintain arable land capability and reduce risk of erosion.
  - By removing soil clods with vegetation, the baseline conditions will be minimally altered and will recover fully to baseline condition over a short to medium term duration.

Surface Water

- To ensure no sedimentation of the surrounding surface water systems.
- To ensure no chemical contamination of any present surrounding surface water systems

Flora and Fauna

- To ensure that alien invasive establishment and spread in all disturbed areas is prevented and controlled.
  - The aim is to reduce introduction of new species or spread of existing species. The baseline conditions are not expected to vary greatly but EMP measures, inspection and action must be implemented.
- To preserve protected species in situ as far as possible.
  - Baseline conditions are not expected to change as prospecting locations will allow for some flexibility to avoid such species. Where unavoidable, EMP measures, inspection and action must be implemented.

Wetlands

- To prevent disturbance to wetlands and maintain current wetland status and maintain ecological corridors associated with rivers and wetlands.

b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and

affected parties.

Please refer to **Appendix 2** for a copy of the BIDs as well as all correspondence to and from I&APs to date.)

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

This application is for a prospecting application. Please refer to Figure 3 for the preliminary position of the prospecting boreholes (please note that these are subject to change following the outcome of the Geophysics survey). Each individual drill site will impact a maximum footprint of 20m^2, which will be rehabilitated as soon as the necessary data is obtained.

The rehabilitation plan is as follows:

Drilling: Cores will be removed, logged and where necessary samples taken for laboratory analysis.

- On rehabilitation, cores will be replaced into boreholes, casings removed and area levelled.
- Area will be inspected and graded if dips in topography are noted from collapsed boreholes.

d) *Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.*

Rehabilitation plan has aimed to:

- Restore topography and drainage and prevent topographical dips and pooling of water.
- Retain topsoil and associated vegetative component to maintain the current land use.
- Prevent risk of sedimentation of downstream water bodies.
- Preserve local flora as vegetation with topsoil clods and reduce risk of alien infestation on disturbed areas.

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

The quantum for financial provision was calculated using the DMR's rule based assessment for financial provision (Table 6) and is estimated to be R65 726.91.

Currently it is expected that the total disturbed area will be limited to a 700m2 in total (20m^2 footprint per drill site; plus 500m^2 for the camp site). A temporary storage and shade area will be established on site; no staff will be housed on site.

Existing farm roads and tracks will be utilised as far as possible and it is not expected that any additional roads will be constructed. Thus the total disturbed area is not expected to exceed 0.5 Ha.

Minerano has two full time environmental managers in their employ. As such the day to day environmental management and monitoring will be conducted in-house and form part of the company's operational costs

Confirm that the financial provision will be provided as determined.

The financial provision (amounting to R65 736.91) will be made by way of a bank guarantee and/or trust fund established in terms of the applicable legislation; and set out as per Appendix 1 of the NEMA Regulations pertaining to financial provision (Government Gazette 39425, 20 November 2015).

Table 6: Financial Provision for Rehabilitation

No.:	Description:	Unit:	A Quantity	B Master rate	C Multiplication factor	D Weighing factor	E=A*B*C*D Amount (Rands)
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
3	Access Roads	m^2	0	R17.00	1	1	R0.00
10	General Surface Rehabilitation	ha	0.5	R99 851.00	1	1	R49 925.50
	Sub-total 1		Weighing factor 2 (step 4.4)			**1.05**	**R52 421.78**
			According to Peri-urban				
		(Sum of total items 3 and 10 multiplied by weighing factor 2)					
			100.0%				
1	Contingency	10% of Subtotal 1					R5 242.18
	Sub-total 2						**R57 663.96**
		VAT (14%)					R8072.95
		(Subtotal plus VAT)				**GRAND TOTAL**	**R65 736.91**

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

(g) Monitoring of Impact Management Actions

(h) Monitoring and reporting frequency

(i) Responsible persons

(j) Time period for implementing impact management actions

(k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Access routes	Increased potential for road incidences. Road degradation.	1. Maintain roads and intersections with public roads to reduce road incidences. 2. Ensure that on-site speed limits are enforced to reduce dust generation and road incidences.	1. Site manager 2. Site manager	1. Monthly inspections of all farm roads and intersections from the onset of operations for the duration of prospecting operations. 2. Sporadic speed inspections for the duration of prospecting operations.
Access routes, Drilling	Cracks and disruption to geological layers. Potential for disturbance to wetlands and buffer zones if activity proceeds indiscriminately.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Environmental manager and site manager	1. Once-off sign-off of routes and drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
Access routes, Drilling, camp site	Potential for compaction of soils, alteration to soil characteristics and potential loss of soil. Potential silt loading of surface water features.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans. 2. Inspect all routes and prospecting sites for compacted soils. 3. Ensure responsible material and soil handling and replacement. 4. Inspect all routes and prospecting sites for soil erosion or degradation.	1. Environmental manager and site manager 2. Environmental manager 3. Environmental manager with the contracting prospecting manager 4. Environmental manager	1. Once-off sign-off of route and drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of rehabilitated areas after substantial rainfall. 3. Monthly inspection once invasive prospecting commences for the duration of prospecting. 4. Monthly inspection once invasive prospecting commences for the duration of prospecting.
Access routes, Drilling, camp site	Potential hydrocarbon contamination to soil, surface water and associated wetlands, and groundwater.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.
Access routes, Drilling	Generation of dust on gravel roads.	1. Visual inspection for billowing dust clouds.	1. Environmental manager	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.
Access routes, Drilling	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks.	1. Site manager in conjunction with prospecting manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations.
Drilling & borehole casings.	Dips in topography at prospecting sites and associated potential for pooling of water.	1. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager	1. Once-off inspection of drilled boreholes after substantial rainfall.
Drilling	Irresponsible use of water and water wastage.	1. Reduce water wastage.	1. Environmental manager	1. Include water conservation in the environmental awareness / induction training.
Access routes, Drilling, camp site	Loss of and disturbance to archaeological / heritage / grave sites that may be encountered	1. Preserve any heritage and cultural sites encountered.	1. Social manager	1. Once-off survey for heritage sites on areas targeted for travel and / or drilling prior to activity in the area.
Ablution facility (portable toilets)	Potential contamination of soil, surface water and associated wetlands, and groundwater with sewage	1. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and in a hygienic state.	1. Prospecting manager	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Temporary 'Camp site', core/equipment store and site office. Staff will be accommodated off site unless	Alienation of, and disturbance to, animals. Potential contamination of soil and surface water features with indiscriminately dumped waste or littering. Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter. Disturbance/damage to vegetation	1. Reduce overall impacts associated with the activities carried out at the temporary site camp	1. Site Manager in conjunction with Environmental Manager	1. Weekly inspections of the site camp and surrounding areas for the duration of the prospecting activities

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established				
Hydrocarbon Storage	Potential hydrocarbon contamination of soil, surface water (through runoff) and groundwater (seepage) environment.	Ensure that all machinery and vehicles are in proper working condition with no leaking and are fully equipped with portable bunding and drip trays with a spill kits on site.	Prospecting Manager in conjunction with Environmental Manager	1. Weekly inspections will be conducted during the duration of the prospecting activities

(l) Indicate the frequency of the submission of the performance assessment report.

An annual performance assessment (or at a frequency stipulated in the EA) will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation.

(i) Environmental Awareness Plan

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

The Environmental Manager, Site Manager and Prospecting Manager must be conversant in environmental legislation, with special reference to the MPRDA, NEMA and the NWA.

The contractor / driller will be responsible for training its staff in terms of general environmental awareness. This will include basic training on the contents of this EMP; and will be conducted prior to commencement of prospecting activities. The aim of the environmental awareness training will be to highlight the potential impacts of the prospecting activities, and to highlight no-go areas.

The contractor / driller will ensure that records are kept of all training sessions / inductions. The Environmental Manager will monitor these records and undertake regular follow ups.

Appendix 4 includes a hand-out to be made available to all personnel / labourers on site.

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

Training, as detailed above, will address the specific measures and actions as listed in the EMP and also conditions of the EA. In this way the prospecting team will be provided the knowledge required to conduct the prospecting activities without resulting in environmental non-compliance, the liability of which would lie with Minerano Resources (Pty) Ltd. Secondly, informing the prospecting team of the EMP will also assist the team in identifying if an impact is likely to occur / has occurred and communicate this appropriately to the Environmental Manager.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established, with the prospecting team and the site manager reporting all environmental and social issues to the Environmental.

(m) <u>Specific information required by the Competent Authority</u>

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

Any requirements made by the authority or under the conditions of the EA will be attended to.

The financial provision will be reviewed annually.

2 UNDERTAKING

The EAP compiling the report (applicant) herewith confirms

the correctness of the information provided in the reports ☐

the inclusion of comments and inputs from stakeholders and I&APs ; ☐

the inclusion of inputs and recommendations from the specialist reports where relevant; ☐ and

that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein; ☐

_____

Signature of the environmental assessment practitioner:

_____

Name of company:

_____

Date:

The reviewing EAP herewith confirms to the best of his/her knowledge:

the correctness of the information provided in the reports ☐

the inclusion of comments and inputs from stakeholders and I&APs ; ☐

the inclusion of inputs and recommendations from the specialist reports where relevant; ☐ and

that the information provided by the applicant to interested and affected parties and any responses by the applicant to comments or inputs made by interested and affected parties are correctly reflected herein; ☐

_____

Signature of the reviewing environmental assessment practitioner:

_____

Name of company:

_____

Date:

*Note: no site visit was undertaken by the reviewing EAP.

-END-

Appendix 1: Curriculum Vitae

LAUREN ANN FLINDERS CURRICULUM VITAE

Contact: lauren.flinders@gmail.com or +27 60 508-5065

OVERVIEW

My experience includes the founding and management of a small environmental advisory company, leadership at the Executive Committee level for a JSE listed mining corporate operating in twelve countries across Africa, technical and project management of exploration programmes, stakeholder management, GIS mapping and analysis, environmental management and sustainability reporting. In addition, I have comprehensive knowledge and experience with mining and environmental legislation applicable in the International, South African and the African context, as well as of the ISO 9001, 14001 and OHSAS 18001 standards.

EXPERIENCE AND EMPLOYMENT

Company: Menar Holding (Pty) Ltd (July 2015 – current)

Position: Project Manager – Exploration and Environmental

Description: Team leader for the development of new and existing mining and exploration projects. GIS based evaluation of potential projects on a risk to benefit basis, management of mineral rights and environmental applications and project management for all technical aspects of planning and development.

Company: Biddulphia (Pty) Ltd

Position: CEO, Director and Co-Founder (March 2014 – current).

Description: The provision of integrated legal and environmental advisory services to the African mining, construction and allied industries. Clients include: Sentula Mining Limited, Roan Coal, Canyon Coal, Burgh Holdings, Eyethu Coal and Umbono Capital.

Company: Sentula Mining Ltd

Position: Group Sustainability Co-ordinator (January 2011- February 2014).

Description: Executive Committee representative for sustainability and health, safety and environment for a group which operates in the mining and mining services sector, both in South Africa and across the African continent. Responsibilities included strategic oversight, compliance, stakeholder-engagement and day-to-day management of the group's sustainability and environmental aspects. Additional responsibilities included project management of the group's coal exploration projects in South and Southern Africa as well as safety, health and environmental oversight for the group.

Company: Clean Stream Environmental Consultants

Position: Junior Environmental Scientist (May 2010 – December 2010).

Description: I was responsible for the compilation of EIA-type reports and environmental authorisations. Responsibilities included: report drafting, project management, GIS mapping and stakeholder management.

Company: Independent Newspapers - Cadet Programme 2010

Position: Intern/ Cadet Journalist – February-March 2010.

EDUCATION

TERTIARY EDUCATION*:* Post-graduate Certificate in Environmental Law

Mandela Institute at the University of the Witwatersrand (2012)

Certificate 1: Environmental and Sustainability Law

Certificate 2: Land and Water Law

Outcome: Passed with Distinction

BSc Honours (Ecology, Environment and Conservation)
University of the Witwatersrand (2009)

Project Title: An investigation into potential diet dynamics (diatoms) and post-larval growth in the cultured Abalone (*Haliotis midae*).

Outcome: Graduated with Distinction

BSc (Ecology, Environment & Conservation and Zoology)

University of the Witwatersrand (2005-2008)

Outcome: Graduated with Distinction.

SECONDARY EDUCATION: Parktown High School for Girls, Parktown, South Africa
Grade 8-12 (2001-2005)

Matric Certificate with Exemption Contact: lauren@biddulphia.co.za or 060 508-5065

ACHIEVEMENTS

- Florence D Hancock Prize - Most meritorious current postgraduate research project on any aspect of phycology (April 2010).
- Presented poster of honours project: *An investigation into potential diet dynamics (diatoms) and post-larval growth in the cultured Abalone (Haliotis midae)* at Physiological Society of Southern Africa (PSSA**)** conference (January 2010).
- Achieved diamond rank in the Girl Guides movement 2006.

LAUREN FLINDERS PROJECT LIST

Clean Stream Environmental Consultants (Junior Environmental Scientist) 2010

1. **Tweefontein Optimisation Project**
    a. Assisted in drafting,
    b. GIS mapping
    c. Stakeholder management as part of a team.
2. **Blackhill Siding IWULA**
    a. IWULA drafting
    b. Project management
    c. GIS mapping
    d. stakeholder management
3. **Flexilube EIA**
    a. Scoping report Drafting
    b. Project Management
    c. GIS mapping
    d. Stakeholder management
4. **Leeufontein IWULA**
    a. Revision, Final Draft and Corrections for Submission

Sentula Mining Limited (Group Sustainability Coordinator)

1. **Nkomati Anthracite (Small Anthracite Mine in Mpumalanga)**
    a. Management of all Environmental Licencing Projects including the coordination of various consultants and engineers (Section 102 EMP, Section 24 NEMA applications, IWULA).
    b. On-site advisory and management of all environmental aspects including emergency remediation and regulator site-visits.
    c. Legal advisory and coordinator
    d. Compliance management.
    e. Merger and acquisition due diligence.
2. **Coal Portfolio *including Bankfontein Project, Goodvetroud Project and Schoongezicht Projects in South Africa , Mulungwa Project (Zambia), Tete Project (Mozambique).***

Greenfields Coal Mines in Development

a. Management of all Environmental Licencing Projects including the coordination of various consultants and engineers (EIA/EMP, NEMA applications, IWULAs and

equivalents in other jurisdictions).

b. Management of all related applications and agreements including servitudes, power supply, community relocations, farmer's compensation etc.

c. Responsible for all sustainability projects and information within the group, compliance with King III, as well as drafting of various sections of the companies integrated report.

d. Management of all prospecting activities, retention and compliance with existing rights and mining right applications.

e. Assisted in various due diligence projects, and sales transitions related to the coal portfolio.

3. Exploration Drilling and Contract Mining Projects in Africa (excluding South Africa)

a. On-site advisory and management of all environmental aspects including emergency remediation and regulator site-visits.

b. Legal advisory and coordinator.

c. Compliance management (including SHEQ).

4. Merger, Acquisitions and Sales

a. Shanduka Proposed Merger – 2011

b. Sale of mineral assets to Fountain Capital in - 2013/2014

c. Proposed asset transaction with Miranda Minerals- 2013/2014

d. Various proposed acquisitions and sales relating to coal projects in Mpumalanga (confidentiality in place).

<u>Biddulphia Environmental (Director and Founder)</u>

1. Sentula Mining Limited (see above)

a. A continuation of my role as above, in an outsourced retainer capacity. This enables me to act as the independent consultant on new applications, monitoring and amendments.

2. Roan Coal (Pty) Ltd

a. Outsourced environmental management and advisory on a retainer basis. This includes geological and environmental Due Diligence assessments on various coal projects in Mpumalanga.

3. Fountain Capital/ Canyon Coal

a. Strategic legal advisory and consulting on specific challenges relating to water management at the Zonnnebloem Colliery.

4. Trollope Holdings (Pty) Ltd

a. Renewal application for a Mining Right.

5. Eyethu Coal *including Burgh Group and Iyanga Mining* (Environmental and Technical

Manager) – September 2014 –March 2015

a. Day to day management of all environmental and technical team members (Business Development Manager, Geologist, Planner, Environmental Officer and Social and Labour Plan Coordinator),

b. Responsible for compliance and development of governance policies for the group. I was also involved in a number of propose

MICHELLE VENTER CURRICULUM VITAE

Postal address: Post Net Suite 470
Private Bag X3
North Riding
2162
Phone: 083 305 2994 (C)
E-mail: michelle@cabangaconcepts.co.za
Nationality: South African
Languages: English and Afrikaans
Date of Birth: 27 November 1986

EDUCATION

2014 **University of South Africa** (part time)
Honours Bachelor of Science in Geography

Majors: Geography
Minors: Climate change and GIS

2010 **University of South Africa (full time)**
Bachelor of Science Environmental Management: Zoology stream

Majors: Environmental Management and Zoology
Minors: Archaeology, Anthropology, Chemistry, Statistics, GIS, Computer Skills, Environmental Law and Ethics, Environmental Psychology, Environmental politics
** All practical components were undertaken through the North-West University*

2006 **American University of Kuwait**
English 101

2005 **Kuwait English School**
Year 12 AS Levels

AFFILIATIONS AND REGISTRATIONS:

South African Council for Natural Scientific Professions- Certificated Natural Scientist
Member number: 114447

SHORT COURSES AND WORKSHOPS

2012 1 Day Workshop on Carbon Tax

WORK EXPERIENCE

2016 - **Cabanga Concepts Environmental Consultants**
Current Public Participation and Environmental Management Consultant

- Maintaining the Interested and Affected Parties Register for all projects and records of all public participation.
- Undertaking the full Public Participation Process in terms of the National Environmental Management Act and its EIA Regulations, including:
- Identifying and engaging with Interested and Affected Parties;
- Coordinating, presenting and minuting of Public Participation Meetings;
- Compiling Background Information Documents;
- Compiling Public Participation Reports; and
- Liaising with various authorities etc.
- Site inspection and compliance monitoring.
- Environmental Auditing.
- Water sampling.
- Compiling impact assessments, management plans and other supporting document required in support of the various environmental processes (NEMA,NEM:AQA, NEM:BA,NWA, NEM:PAA etc.).
- Any other ad hoc duties that may arise.

2015 – **Flemingo Duty Free International**
Compliance Auditor

- Auditing compliance of duty free shop to ensure that everything is in compliance to import/export law and procedures.

2014 – **Phanda Risk Firm**
2016 Environmental Specialist

- Environmental auditing of the Limpopo High Court construction site- in charge of all environmental issues that may arise and audits on site
- Environmental monitoring of the Limpopo High Court construction site
- Environmental closing report for Limpopo High Court construction site phase one
- Environmental Management Plan Report for Limpopo High Court parking lot phase two

2010 – **CS Environmental Services**
2014/ Junior Environmental Consultant
2015

- Water Use License audit- auditing compliance of the Water Use License based on national legislation.
- Air Emission License audit- auditing compliance of the Air Emission License based on National legislation.
- Environmental Management Plan report in compliance with national legislation.

- Water Use Audit- auditing water usage in order to identify where water gets used, how much and ways to reduce usage.
- Partial application of National Water Use Licenses.
- South African Alien invasive plant identification.
- Creation and upkeep of Environmental Management Systems that comply with ISO14001.
- Internal environmental audits complying to local South African legislation and ISO14001.
- Creation of environmental training material about environmental issues and sustainability.
- Monitoring of fuel usage from vehicles and machinery on sites.
- Closing out ISO14001 audit findings.
- Legal registers- local and national environmental legislation for each province in South Africa.
- Creation of general and environmental procedures.

OTHER:

- Proficient in Microsoft Office Suite (Excel, Word, Outlook etc.)
- Familiar with the following South Africa Legislation:
  - The National Environmental Management Act, 1998 (Act 107 of 1998)
  - The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
  - The National Environmental Management: Air Quality Act (Act 39 of 2004)
  - The National Environmental Management: Waste Management Act (Act 59 of 2008)
  - The National Water Act, 1998 (Act 36 of 1998)
  - The Water Services Act, 1997 (Act 108 of 1997)

LIST OF PROJECTS:

The following is a short list of projects which I have been part of over the past few years:

Afrisam- Ulco, Northern Cape (2015)

- Water use license audit;
- Air emission license audit; and
- Environmental Management Plan report.

Corobrik- Olifantsfontein, Driefontein, Rietvlei and Springs (2010-2015)

- Water use license audit;
- Water use audit;
- Partial application of National Water Use Licenses and
- Alien invasive plant identification.

SPX: a division of DB Thermal- Nigel (2010-2014)

- Water use audit;
- Creation and upkeep of environmental management system;
- Internal environmental audits; and
- Environmental awareness training.

Sedibeng Brewery- Meyerton (2013)

- Closing of ISO14001 findings;
- Creation and upkeep of environmental management system; and
- Water use audit.

Khusile Power Station (2011):

- Environmental awareness training.

Polokwane High Court construction (2014-2015)

- Internal Environmental compliance
- Environmental Management Plan report

REFERENCES:

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1 **Cara Stokes, Environmental Legal Consultant:** cara@csenvironmental.co.za
2 **João Pedro, Internal Auditor:** joao_pedro91@yahoo.com
3 **Khangelani Dumani, Health and Safety Specialist:** kdumani@phandarisk.co.za

Appendix 2: Report on results of Consultation and all other supporting Public Participation Documents

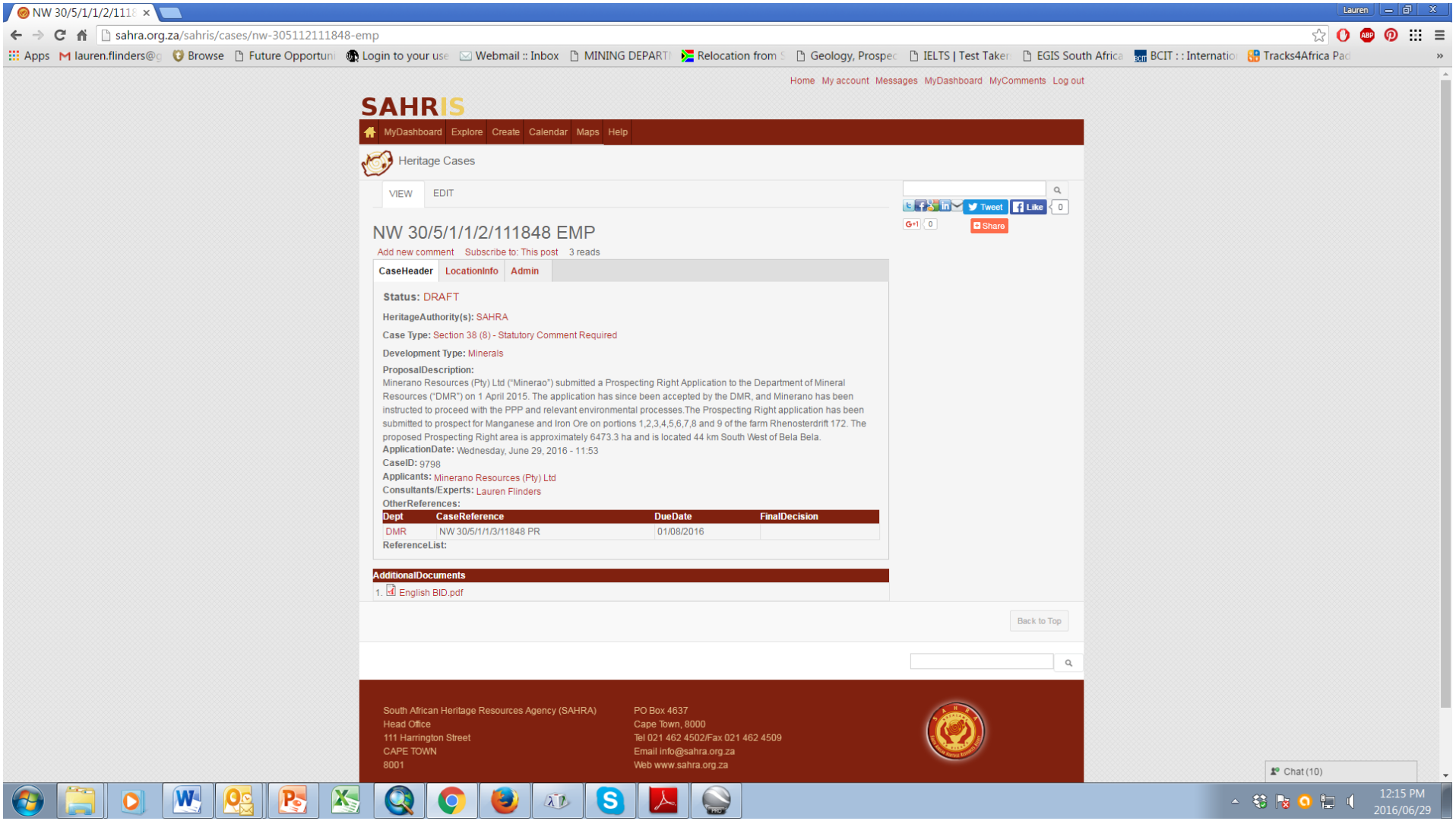
Appendix 2(a): Report on results of Consultation

Appendix 2(b): Proof of consultation (including Correspondence with I&Aps and Registers)

Appendix 2(c): Basic Information Documents

Appendix 2(d): Minutes from the initial Inquiry meeting at the Bakgatla BA Mosetlha Traditional Council

Appendix 2(e): SAHRA Application


NW 30/5/1/1/2/1118
sahra.org.za/sahris/cases/nw-305112111848-emp
Home My account Messages MyDashboard MyComments Log out
SAHRIS
MyDashboard Explore Create Calendar Maps Help
Heritage Cases
VIEW EDIT
NW 30/5/1/1/2/111848 EMP
Add new comment Subscribe to: This post 3 reads
CaseHeader LocationInfo Admin
Status: DRAFT
HeritageAuthority(s): SAHRA
Case Type: Section 38 (8) - Statutory Comment Required
Development Type: Minerals
ProposalDescription:
Minerano Resources (Pty) Ltd ("Minerao") submitted a Prospecting Right Application to the Department of Mineral Resources ("DMR") on 1 April 2015. The application has since been accepted by the DMR, and Minerano has been instructed to proceed with the PPP and relevant environmental processes.The Prospecting Right application has been submitted to prospect for Manganese and Iron Ore on portions 1,2,3,4,5,6,7,8 and 9 of the farm Rhenosterdrift 172. The proposed Prospecting Right area is approximately 6473.3 ha and is located 44 km South West of Bela Bela.
ApplicationDate: Wednesday, June 29, 2016 - 11:53
CaseID: 9798
Applicants: Minerano Resources (Pty) Ltd
Consultants/Experts: Lauren Flinders
OtherReferences:
Dept CaseReference DueDate FinalDecision
DMR NW 30/5/1/1/3/11848 PR 01/08/2016
ReferenceList:
AdditionalDocuments
1. English BID.pdf
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Appendix 3: Full impact assessment table

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Aspect: Topography																											
Drilling & borehole casings	Localised dips in topography if boreholes collapse after material is replaced.	GNR983 – Activity 20	Decommissioning, Closure	Neg	1	1	5	3	10	3	30	Y	-	**REMEDY** Drilling areas should be inspected and if dips are observed the areas should be levelled and graded to prevent pooling.	Restore natural catchment drainage patterns as far as possible.	1	1	2	3	7	1	7	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager	1. Once-off inspection of drilled boreholes after substantial rainfall.
Rehabilitation of boreholes	Topographical nature of the area restored.		Operation, Decommissioning	Pos	2	1	5	1	9	4	36	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	1	5	1	9	4	36	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager	1. Once-off inspection of drilled borehole sites after substantial rainfall.
Aspect: Geology																											
Drilling	Cracks and disruption to geological layers.	GNR983 – Activity 20	Operation, Decommissioning	Neg	1	1	2	1	5	5	25	N	Low	Nature of prospecting activities. **CONTROL** Invasive prospecting must only be undertaken once data from non-invasive techniques has been assessed. Then, it should proceed as per standard industry practice with initially fewer boreholes to verify non-invasive prospecting data, and then only completing more extensive drilling in areas indicting adequate resources.	Necessary to obtain resource data required for a MRA.	1	1	2	1	5	5	25	Prospecting will be carried out in line with MPRDA regulations. General duty of care in terms of NEMA.	1. Sign-off of drilling plans or amendments to these plans must be obtained from the environmental manager before any activities or changes to activities takes place for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Environmental manager and site manager	1. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.
Aspect: Soil & Land Capability																											

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Access routes & Drilling	Potential for compaction of soils.		Operation, Decommissioning	Neg	1	1	2	3	7	4	28	Y	Low	**REMEDY** Rip any compacted soils. **CONTROL** Vehicles, machinery & equipment must remain on roads and farm tracks as far as possible. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible.	Reduce compaction of soil and retain existing arable land capability.	1	1	1	1	4	3	12	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA.	1. Sign-off of off-road route plans or amendments to these plans must be obtained from the environmental manger before off-road activities take place for the duration of prospecting operations. 2. Once off inspection will be completed of routes and prospecting sites immediately after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans. 2. Inspect all routes and prospecting sites for compacted soils.	1. Environmental manager and site manager 2. Environmental manager	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of routes and prospecting sites after activity in the area has ceased.
Access routes	Potential hydrocarbon contamination.		Operation, Decommissioning	Neg	1	2	2	3	8	3	24	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	1	2	1	3	7	2	14	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														potential leaks.													
Drilling	Potential hydrocarbon contamination.	GNR983 – Activity 20	Operation Decommissioning	Neg	3	2	2	3	10	3	30	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	2	2	3	9	2	18	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.
Ablution facility (portable toilets)	Potential contamination of soil with sewage		Operation	Neg	2	2	1	1	6	2	12	Y	Low	**REMEDY** Inspect and repair / replace damaged toilets as needed, and ensure no leaks are occurring. **CONTROL** The portable toilets will be managed by a reputable contractor, emptied on a regular basis as needed. Toilets will be maintained in hygienic state.	Reduced bacterial contamination on neighbouring areas.	1	1	1	1	4	1	4	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.	1. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Prospecting manager	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Rehabilitation of boreholes	Soil replacement and revegetation.		Operation, Decommissioning, Closure	Pos	2	1	5	1	9	4	36	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	1	5	1	9	4	36	NEMA & MPRDA principals and regulations regarding environmental protection and	1. Soil will be preserved in its natural state as far as possible or treated where necessary.	1. Ensure responsible material and soil handling and replacement. 2. Inspect drilled sites for localised	1. Environmental manager along with the contracting prospecting manager 2. Environmental	1. Monthly once invasive prospecting commences for the duration of prospecting. 2. Once-off

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
																							rehabilitation requirements.	2. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	dipping in topography or pooling of water.	manager	for drilled borehole sites after substantial rainfall.
General prospecting activities	Potential contamination of soil with indiscriminately dumped waste or littering.	GNR983 – Activity 20	Operation	Neg	3	1	2	3	9	2	18	Y	Low	**REMEDY** Inspect and clear all litter and waste. **CONTROL** Waste should be collected and report to the relevant waste stream at the PA.	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.
Temporary 'Camp site', core/equipment store and site office. Staff will be accommodated off site unless permission is given by landowners. A temporary site camp comprising of shade, equipment storage and seating for meals may be established	Potential for compaction of soil		Operation and Decommissioning		2	1	2	1	6	2	12	y	low	**REMEDY** **Ripping up compaction of soil**	Reduce compaction of soil and retain existing grazing land capability.	1	1	2	1	4	2	8	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA.	1. Once off inspection will be completed after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans. 2. Inspect all sites for compacted soils.	1. Environmental manager and site manager 2. Environmental manager	1. Once off inspection will be completed after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.
Hydrocarbon Storage	Potential hydrocarbon contamination of soil.	GNR983 – Activity 20	Operation, Decommissioning		3	1	2	2	8	2	16	Y	low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	1	1	5	2	10	General duty of care in terms of NEMA	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in

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														leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks.												2. Daily inspection of the storage area		time. 2. Daily inspection of the storage area
Aspect: Surface Water & Associated Wetlands & Aquatic Ecosystems																											
Access routes	Potential hydrocarbon contamination through contaminated runoff.		Operation, Decommissioning	Neg	5	2	2	3	12	3	36	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	2	2	3	9	1	9	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Drilling	Potential hydrocarbon contamination through contaminated runoff.	GNR983 – Activity 20	Operation Decommissioning	Neg	5	2	2	3	12	3	36	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	4	2	2	3	11	1	11	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.
Drilling	Irresponsible use of water and water wastage.	GNR983 – Activity 9	Operation	Neg	4	1	2	1	8	1	8	Y	Low	**CONTROL** Saving water initiatives will be included in environmental awareness training and induction. Utilise water on site responsibly.	Utilise water responsibly.	2	1	2	1	6	1	6	NWA General duty of care in terms of NEMA.	1. Include water conservation in all environmental awareness training / induction.	1. Reduce water wastage.	1. Environmental manager	1. Include water conservation in all environmental awareness training / induction.
Ablution facility (portable toilets)	Potential contamination of surface water bodies with sewage.		Operation	Neg	2	2	1	1	6	2	12	Y	Low	**REMEDY** Inspect and repair / replace damaged toilets as needed, and ensure no leaks are occurring. **CONTROL** The portable toilets will be managed by a reputable contractor, emptied on a regular basis as needed. Toilets will be maintained in	Reduced bacterial contamination on neighbouring areas.	1	1	1	1	4	1	4	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of portable toilet facilities.	1. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Prospecting manager	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.

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														hygienic state.													
Rehabilitation of boreholes	Soil replacement and revegetation will reduce potential silt loading.		Operation, Decommissioning, Closure	Pos	2	2	2	3	9	2	18	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	2	2	3	9	2	18	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Soil will be preserved in its natural state as far as possible or treated where necessary. 2. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Ensure responsible material and soil handling and replacement. 2. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager along with the contracting prospecting manager 2. Environmental manager	1. Monthly once invasive prospecting commences for the duration of prospecting. 2. Once-off for drilled borehole sites after substantial rainfall.
General prospecting activities	Potential contamination of surface water features with indiscriminately dumped waste or littering.	GNR983 – Activity 20	Operation	Neg	3	1	2	3	9	2	18	Y	Low	REMEDY Inspect and clear all litter and waste. CONTROL Waste should be collected and report to the relevant waste stream at the PA.	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.
Hydrocarbon Storage	Potential hydrocarbon contamination through contaminated runoff.	GNR983 – Activity 20	Operation, Decommissioning		3	1	2	2	8	16	16	Y	low	REMEDY Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	1	1	5	2	10	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of storage area

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																								the storage area.			
Aspect: Groundwater																											
Drilling	Cracks and disruption to aquifers.	GNR983 – Activity 20	Operation, Decommissioning	Neg	3	2	2	3	10	1	10	N	Low	Nature of prospecting activities. **CONTROL** Invasive prospecting must only be undertaken once data from non-invasive techniques has been assessed. Then, it should proceed as per standard industry practice with initially fewer boreholes to verify non-invasive prospecting data, and then only completing more extensive drilling in areas indicting adequate resources.	Necessary to obtain resource data necessary for a MRA.	2	2	2	3	9	1	9	Prospecting will be carried out in line with MPRDA regulations. General duty of care in terms of NEMA.	-	No monitoring required	-	-
Access routes & Drilling	Potential hydrocarbon contamination seeping to the groundwater environment.	GNR983 – Activity 20	Operation, Decommissioning	Neg	3	2	2	3	10	1	10	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	1	1	1	1	4	1	4	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks.											drilling areas will be conducted as long as vehicles and machinery are active in these areas.			
General prospecting activities	Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter.	GNR983 – Activity 20	Operation	Neg	3	1	2	1	7	2	14	Y	Low	**REMEDY** Inspect and clear all litter and waste. **CONTROL** Waste should be collected and report to the relevant waste stream at the PA.	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.
Hydrocarbon Storage	Potential hydrocarbon contamination to groundwater	GNR983 – Activity 20	Operation, Decommissioning		3	2	3	2	10		20	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	2	1	6	2	12	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of hydrocarbon storage area
Aspect: Flora & Fauna																											

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
General prospecting activities	Alien invasive encroachment.	GNR983 – Activity 20	Operation, Decommissioning, Closure	Neg	4	2	5	3	14	2	28	Y	Mod	**REMEDY** Remove alien and invasive species that may establish around prospecting sites, using mechanical methods in preference to chemical methods where viable. **CONTROL** Clear all vehicles coming to site of any vegetative material to prevent introduction and spread of potential alien and invasive species. Compile and implement an alien and invasive species management plan for areas disturbed by prospecting.	Alien and invasive species managed with the view to eradicate species.	3	1	5	3	12	1	12	Alien and invasive species managed in terms of CARA and NEM: BA.	1. Removal of alien and invasive species should commence during operation and be on-going for the life of prospecting. Area must be generally inspected every 6 months and areas where plants were removed must also be revisited to remove any new saplings. The frequency will depend on the type of species.	1. Control alien and invasive species listed under CARA and NEM: BA.	1. Environmental manager	1. Alien and invasive management to commence during operation for the duration of prospecting. Area must be generally inspected every 6 months but will depend on the type of species.
General prospecting activities	Alienation of, and disturbance to, animals.		Operation, Decommissioning	Neg	3	2	2	1	8	2	16	Y	Low	**CONTROL** By maintaining wetlands and buffer zones, ecological corridors are maintained for animals to take refuge. Do not hinder, harm, or trap animals. Noise control measures will be considered.	Reduce impact to neighbouring areas, which will provide refuge for animals.	2	2	2	1	7	1	7	General duty of care in terms of NEMA.	1. Monthly inspections will be made of nearby wetlands, rivers and associated buffer zones to ensure these are not degraded or impacted by prospecting activities.	1. Ensure surrounding flora and fauna are undisturbed.	1. Environmental manager	1. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
General prospecting activities	Destruction of natural vegetation and protected species.		Operation	Neg	5	2	5	3	15	2		Y	High	**REMEDY** Report any incidences regarding damage to protected species to the relevant authority. **CONTROL** Maintain wetlands, rivers and associated buffer zones where such species are most likely to occur. Survey prospecting sites in areas with natural vegetation for any protected species known in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. **STOP** Protected species must not be removed or destroyed without the necessary permits under NEM:BA.	Preservation of protected species.	4	1	5	3	13	1	13	Protected species will be managed in accordance with NEM:BA and associated regulations. General duty of care in terms of NEMA.	1. Permits and relocation of species will occur once-off before any invasive prospecting activity commences in the area where needed. 2. Monthly inspections of wetland and riverine buffer zones and demarcations of these zones where they are near to prospecting sites for the life of prospecting activities. 3. Flora surveys will be completed once off in prospecting sites in areas with natural vegetation prior to any invasive prospecting in these areas.	1. Ensure permits are in place before destroying or relocating protected species if needed where needed. 2. Maintain wetland and riverine no-go areas to maintain ecological corridors. 3. Survey prospecting sites in areas with natural vegetation for protected species.	1. Environmental manager 2. Environmental manager 3. Environmental manager	1. Once-off relocation of protected species before any invasive prospecting once the permits are obtained. 2. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting. 3. Once-off survey for protected species prior to any invasive prospecting activities.
Aspect: Air Quality																											
Access routes	Generation of dust on gravel roads.		Operation, Decommissioning	Neg	4	2	2	1	9	5	45	Y	Low	**CONTROL** Manage dust through water carts and wetting of gravel roads if and when required. Establish speed limits that will effectively reduce dust generation on roads.	Dust fallout will be managed to not exceed 600mg/m2/day.	2	1	2	1	6	3	18	Dust fallout will be managed to not exceed 600mg/m2/day. Dust regulations as per NEM:AQA.	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.	1. Visual inspection for billowing dust clouds.	1. Environmental manager	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Access routes & Drilling	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		Operation, Decommissioning	Neg	2	2	2	1	7	5	35	Y	Low	**CONTROL** Machinery and equipment will be regularly serviced to ensure they are in proper working condition and to reduce risk of excessive emissions.	Keep equipment, machinery and vehicles operating within their manufacturing specifications.	1	1	2	1	5	5	25	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all equipment and machinery as soon as equipment is brought to site for the duration of prospecting operations to ensure maintenance is scheduled in time.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks.	1. Site manager in conjunction with prospecting manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations.
	Potential disturbance to vegetation Potential Alienation of, and disturbance to, animals		Operation, Decommissioning and Closure		2	1	3	2	8	2	16	Y	Low	**REMEDY** Relocating protected species for which permits are obtained rather than destroying species. CONTROL Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals.	Reduce impact to neighbouring areas, which will provide refuge for animals.	2	1	2	1	6	2	12	General duty of care in terms of NEMA.	1. Monthly inspections will be made of wetlands, rivers and associated buffer zones to ensure these are not degraded or impacted by prospecting activities.	1. Ensure surrounding flora and fauna are undisturbed.	1. Environmental Manager	1. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting.
Aspect: Noise																											
Access routes & Drilling	Increased noise levels.		Operation, Decommissioning	Neg	4	2	2	1	9	4	36	Y	-	**CONTROL** Machinery and equipment will be regularly serviced. Noise control measures will be considered such as soundproofing of point sources, use of silencers, using strobe lights rather than beepers where feasible and where this won't compromise safety of people on site. Ensure regular	Prevent nuisance noise to nearby land owners / users	2	2	2	1	7	4	28	Environmental noise managed to SANS 10103:2004 levels.	-	-	-	-

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														communication with nearby I&APs to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them.													
Aspect: Archaeological/Cultural Sites																											
Drilling	Loss of and disturbance to archaeological / heritage / grave sites that may be encountered		Operation Decommissioning	Neg	5	3	5	5	18	2	36	Y	High	**CONTROL** Should heritage sites / graves be discovered on site during activity progress then all sites should be demarcated with 50m buffer zone and sites be preserved in situ. A specialist will need to be consulted if areas need to be affected. **STOP** Sites must remain in situ until necessary permits are obtained.	Preservation of heritage sites.	2	3	5	3	13	2	26	SAHRA will be complied with regarding permits for destruction and relocation or management of sites in situ. Conditions in permits will be adhered to.	1. Areas will be inspected once off for heritage sites prior to invasive prospecting occurring on such sites.	1. Preserve any heritage and cultural sites encountered.	1. Social manager	1. Once-off survey for heritage sites on areas targeted for travel and invasive prospecting prior to activity in the area.
Aspect: Visual Aesthetic																											
No visual impact expected				Neut																							
Aspect: Land Use																											
Existing land uses may continue				Neut																							
Aspect: Traffic & Safety																											
Access routes	Increased potential for road incidences. Road degradation.		Operation, Decommissioning	Neg	3	2	1	5	11	3	33	Y	-	**REMEDY** Grade farm roads that have been extensively damaged due to use by prospecting team. **CONTROL** Speed limits will be established on the dirt road. Drivers,	High safety standards on site with reduced safety risks.	2	2	1	5	10	2	20	Operations will comply with MHSA and Regulations. Vehicles will be serviced and maintained in road worthy condition.	1. Monthly inspections will be undertaken of all farm roads and intersections with public roads from the onset of operations throughout the prospecting operations. 2. Speed	1. Maintain roads and intersections with public roads to reduce road incidences. 2. Ensure that on-site speed limits are enforced to reduce dust generation and road	1. Site manager 2. Site manager	1. Monthly inspections of all farm roads and intersections from the onset of operations for the duration of prospecting operations. 2. Sporadic speed inspections

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	[illegible]	Degree of loss of	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														contractors and visitors will enforce speed limits. Intersections with main tarred roads will be clearly sign-posted. Vehicles. Machinery will be in road-worthy condition with reflective strips and clean and visible to other road users.											inspections will be undertaken sporadically on site throughout prospecting operations.	incidences.		for the duration of prospecting operations.
Aspect: Socio-economic, Health & Safety																											
General prospecting activities	Potential for more employment & multiplier effect.		Operation	Pos	3	2	2	1	8	5	40	N	-	**CONTROL** Contractors, service providers should initially be sought locally and only regionally if skills are not available.	Fair and equitable employment.	3	2	2	1	8	5	40	Operations will comply with MHSA and Regulations.	-	No monitoring required	-	-

Appendix 4: Environmental Awareness Hand-out

PROTECT THE ENVIRONMENT BY:

- Following the rules in the EMP
- Report any problems to your supervisor
- Stay within the demarcated areas
- Use the toilets provided
- Report full or leaky toilets
- Report any oil spills
- Use the spill kits to clean any spills noted
- Use drip trays under vehicles and machinery
- Do **not** injure, harm or kill any animals
- Do **not** damage or cut down any plants
- Use the dustbins provided
- Do **not** litter / dump waste
- Do **not** waste water
- Do **not** light any fires or flick any lit cigarettes into the bushes / veldt
- Do **not** damage any graves or heritage sites
- Close all gates behind you
- Keep to the speed limits

Appendix 5: Species on Site

Site Photos Rhenosterdrif - *Including Flora and Fauna Report*

10 June 2016

Mixed Bushveld – The Dominant Vegetation Type on Site

Aloe greatheadii – Spotted Aloe or Kgopane (Tswana)

Aloe greatheadii – Patches are common in overgrazed areas.

Combretum sp.

Tarchonanthus camphorates – Camphor Bush. Medininal uses.

Large tracts of site are severely overgrazed. Overgrazing may have been exacerbated by recent droughts.

Cattle path surrounded by *Acacia sp*. and *Diospryros lycioides* shurbs.

Cattle grazing in a largely overgrazed area.

Small wetland in North Western corner of Project Area

Wetland species present include *Nymphaea* sp. (as not in flower it is unclear whether this an indigenous or invasive species), *Eleocharis angulate* and *Ludwigia adsendens.*

Egretta alba - Great White Egret

Cows grazing in vicinity of wetland area

Overgrazed area adjacent to Riparian zone of Moretele river.

Moretele river including Riparian.

Heavily trampled and eroded river bank attributed to cattle using Moretele River to drink.

Bridge across Moretele river.

Evidence of illegal dumping nearby to the Moretele river.

Bush wood collectors within the Projects area cross the Moretele river.

Evidence of illegal dumping on site.

Moretele Village

Moretele Village

Mixed bushveld adjacent to Lekgolo Village

Combretum sp. common in the vicinity of Lekgolo village

Tockus luecomela - The Southern Yellow-billed Hornbill are abundant on site

Cattle and Goat kraals within Lekgolo Village

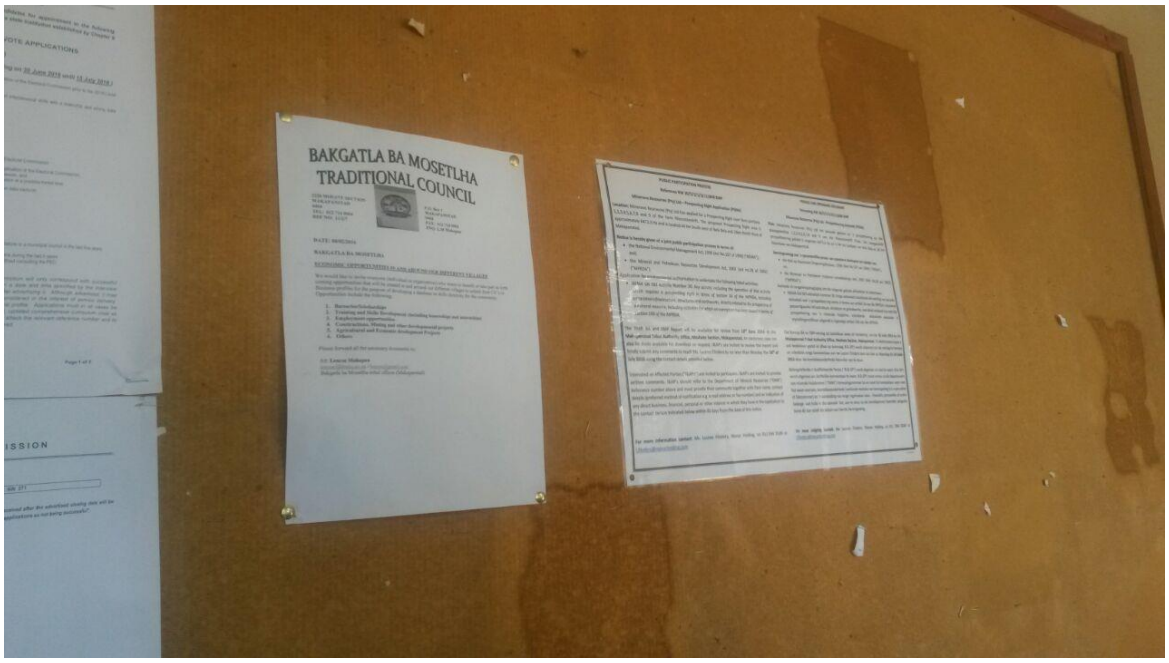
Cattle and Goat kraals within Lekgolo Village

Graveyard within Lekgolo Village

Austrocylindropuntia cylindrica - Cane cactus (NEMBA Category 1a invader)

Teddy-bear cactus (Opuntia microdasys) – Proposed category 1 invasive

Appendix 6: Site Notices



Close up photograph of the site Notice placed on the sign board at the Bagkatla BA Mosetlha Traditional Council Offices – 23-06-2016

Site Notice placed on the sign board at the Bagkatla BA Mosetlha Traditional Council Offices – 23-06-2016

Site notice placed outside by the post boxes in the Lekgolo Village – 29-06-2016

Close up photograph of the site Notice placed at the post boxes in the Lekgolo Village – 29-06-2016

Site notice placed on the fence post at the entrance to Legkolo village – 29-06-2013

Site notice posted outside the municipal clinic in Moretele – 29-06-2016

Site notice placed on a fence along the road through the prospecting area – 29-06-2016