mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT 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: **Taisoar Consulting and Projects (Pty) Ltd.**
TEL NO: **018 468 2877**
FAX NO: **086 299 1756**
POSTAL ADDRESS: **P.O. Box 2898, Klerksdorp 2570**
FILE REFERENCE NUMBER SAMRAD: **NW30/5/1/1/2/12518 PR**

1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a mining 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 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

The objective of the environmental impact assessment process is to, through a consultative process—

(a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

(b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;

(d) determine the—

  (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and

  (ii) degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources, and

    (cc) can be avoided, managed or mitigated;

(e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;

(f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;

(g) identify suitable measures to manage, avoid or mitigate identified impacts; and

(h) identify residual risks that need to be managed and monitor

PART A

SCOPE OF ASSSSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

(i) Details of the EAP

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 3 – 1. (1)(a)(i)

Name of the Practitioner: DERA Environmental Consultants (Pty) Ltd.
Mr. Daan Erasmus
Tel No.: 018-468 5355
Fax No. : 018-468 4015
E-mail address:daane@dera.co.za

(ii) Expertise of the EAP.

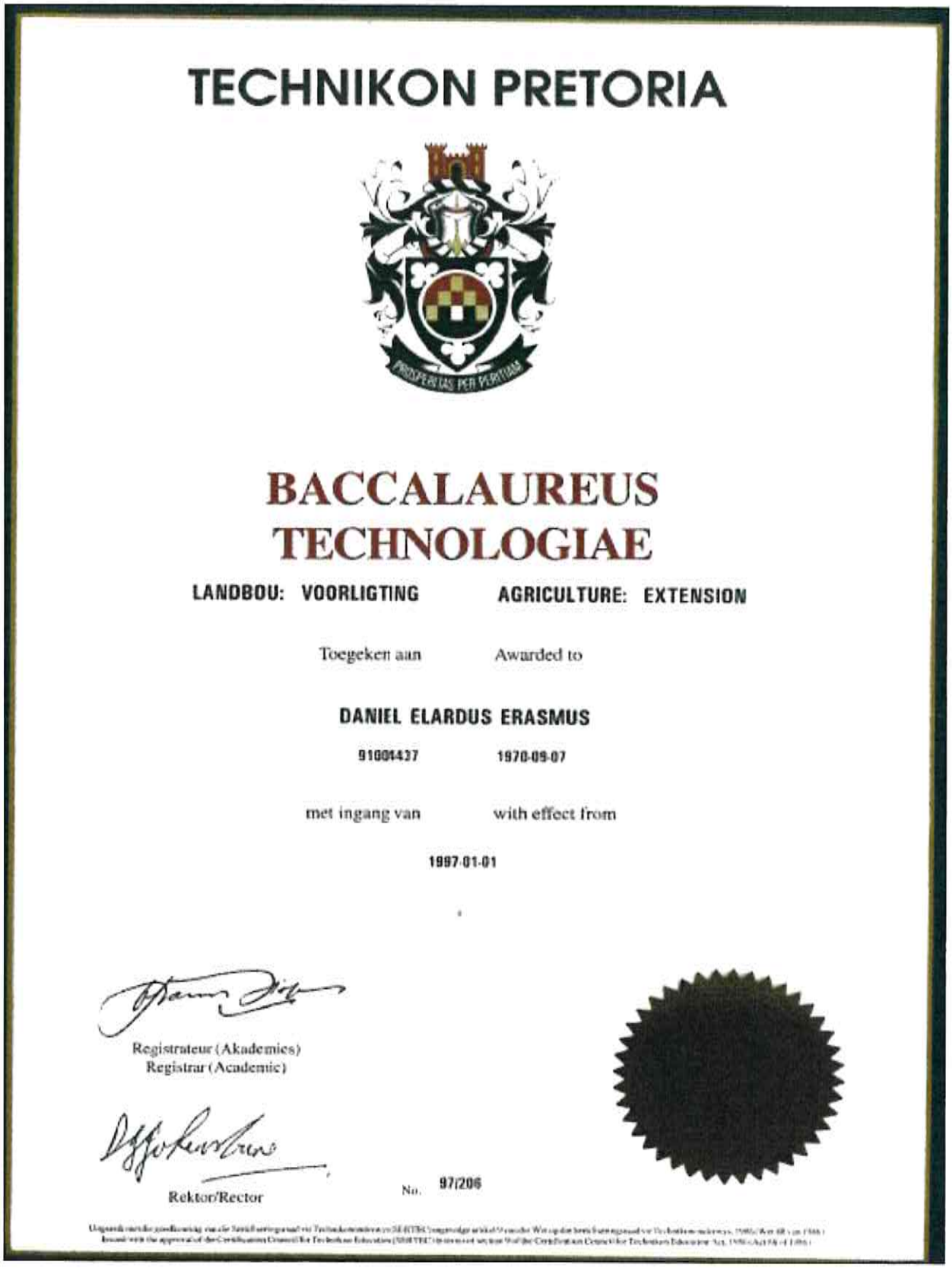
(1) The qualifications of the EAP

(with evidence)

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 3 – 1. (1)(a)(ii)

See next page for copy of qualification, **Figure 1.**

Figure 1 – Copy of Qualification



TECHNIKON PRETORIA

PROSPERITAS PER VERITAS

BACCALAUREUS TECHNOLOGIAE

LANDBOU: VOORLIGTING **AGRICULTURE: EXTENSION**

Toegeken aan Awarded to

DANIEL ELARDUS ERASMUS

9100l437 **1970-09-07**

met ingang van with effect from

1997-01-01

Registrateur (Akademies)
Registrar (Academic)

Rektor/Rector

No. **97/206**

TECHNIKON PRETORIA

TECHNIKON PRETORIA

NASIONALE NATIONAL DIPLOMA

LANDBOU: HULPBRONBENUTTING — AGRICULTURE: RESOURCE UTILIZATION

Toegeken aan — Awarded to

DANIëL ELARDUS ERASMUS

91004437 — 7009075033088

met ingang van — with effect from

1994-01-01

Die volgende is voltooi — The following were completed

Landbou-ekonomie I, II en III	Agricultural Economics I, II and III
Voorligtingsmetodiek I en II	Extension Method I and II
Akkerbou I, II en III	Field Husbandry I, II and III
Weidingkunde A	Pasture Science A
Bodembeplanning I en II	Land Use Planning I and II
Bodembewaring I	Soil Conservation I
Grondkunde I en II	Soil Science I and II
*Meganisasie	Mechanisation*
Fisiese Wetenskap	Physical Science
Melkproduksietegnologie	Milk Production Technology
Vleisbeesproduksietegnologie	Beefer Production Technology
Kleinveeproduksietegnologie	Small Stock Production Technology
Grondklassifikasie III	Soil Classification III

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Minimum Opleidingstydperk: 3 Jaar
Minimum Training Period : 3 Years

SERTEC
Uitvoerende Direkteur/
Executive Director

Nr./No. ND1117/94

TECHNIKON
Rektor/Rector

(2) Summary of the EAP's past experience.

(in carrying out the Environmental Impact Assessment Procedure)

See **Figure 2** below Curriculum Vitae of D. E. Erasmus.

Figure 2 – Copy of Curriculum Vitae

27 Lewis Street
Wolmaransstad
Klerksdorp

Phone: +2718-469-5501
Fax: +2718-469-4015
E-mail: daan@erasmus.co.za

DAAN ERASMUS

Curriculum Vitae
Daniël Elardus Erasmus

February 2015

Personal Information

Name:	Daniël Elardus Erasmus
Date of Birth:	7 September 1970
Place of Birth:	Ottosdal, North West Province, South Africa
Marital Status:	Married with two children

Secondary & Post Secondary Education

1983-1988	Wolmaransstad High School, North West, SA Higher School Certificate – with Full Exemption	
Subjects:	English Mathematics Geography	Afrikaans Science Accounting
1989-1990	Military Service, Potchefstroom, SA Artillery Division **Officers Course: II Lieutenant**	
1991-1994	Technikon Pretoria, Pretoria, SA **National Diploma** Agriculture: Resource Utilization	
Subjects:	Agricultural Economics I, II and III Extension Method I, II and III Field Husbandry I, II and III Pasture Science A Land Use Planning I and II Soil Conservation I Soil Science I and II Mechanization Physical Science Milk Production Technology Beef Production Technology Small Stock Production Technology Soil Classification III Computer Application I	
1996	Technikon Pretoria, Pretoria, SA **Baccalaureus Technologiae** Agriculture: Extension	

Subjects:	Agricultural Communication I Agricultural Extension IV Crop Production IV Research Methodology
1998-1999	Orange Free State University, Bloemfontein, SA Completed all subjects as part of the **Masters Degree in Sustainable Agriculture**, but have not yet completed the script.
Subjects:	Conservation of agricultural resources and the Environment Soil-, climate and water use and soil and water Management Plant and energy utilization and management Economics of sustainability and development Scrip – project proposal Sustainable plant production systems Farm management for sustainable agriculture Strategic management, marketing and planning Communication and technology transfer
Courses	Computer training Dbase IV Seminar in public speaking Veld assessment course Resource Identification and utilization course ArcView GIS course Persuasion Skills course Wetlands identification course Rehabilitation of Wetlands course Management skills course Agricultural Law course

Professional Experience

1991-2002	Commenced professional career as resource conservation inspector at the National Department of Agriculture – Directorate: Land Resource Management in 1991. The main activities was veld inspecting in order to monitor correct utilization of natural resources and where necessary take steps according to Act. Day to day activities included discussions and lectures at farmers unions; municipalities and other institutions in order to promulgate the Act. During 1998, I was appointed as Chief Resource Conservation Inspector, with duties being; manage the administration of Act 43 of 1983, Agricultural Resource Conservation Act in the North West Province of SA; management of personnel and personnel related matters; management of budget of regional office in Potchefstroom; monitoring mine rehabilitation and environmental management out of agricultural point of view; management and control of declared weeds and invader species.
2003-Present	Began own company – DERA Environmental Consultants. Main scope of business: Compiling and submission of mining related applications; Manage and compile legal environmental documents. Further doing monitoring work to evaluated compliance to environmental legislation; evaluating outstanding rehabilitation liabilities for mining companies. Assist legal companies in determining environmental damage. Do assessment for closure applications. Give guidance in rehabilitation practices. Compile applications and basic assessment reports for chicken broilers and feed lots based on experience form management of the natural resources and the mitigation of impacts.

b) Location of the overall Activity.

Farm Name:	**Elandskraal 469 JQ** ✓ Remaining Extent of Portion 120.
Application area (Ha)	4,109282 ha
Magisterial district:	**Rustenburg district** is located in the North West Province of South Africa. It falls under the **Local Municipality of Rustenburg** and is situated within the **District Municipality of Bojanala.**
Distance and direction from nearest town	Approximately 37.4 km east of Rustenburg.
21 digit Surveyor General Code for each farm portion	T0JQ00000000046900120
Coordinates of the application area	Co-ordinates List WG 27° PROSPECTING BOUNDARY CO-ORDINATES DATUM WGS 84 ID / Longitude / Latitude 0 27.56617 -25.72883 1 27.56617 -25.73054 2 27.56654 -25.7302 3 27.566503 -25.728402
Minerals applied for	Platinum Group Metals, Chrome Ore, Vanadium, Manganese Ore, Phosphate Ore.

c) Locality map

(Show nearest town, scale not smaller than 1:250000).

See **Appendix 1(a)** for **Locality Map**

Appendix 1(a) – Locality Map

d) Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site

Appendix 1(b) – Infrastructure and Activity Map

(i) Listed and specified activities

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 3 – 1. (1)(c)

Appendix 1(b) – Infrastructure and Activity Map
Appendix 1 (c) - Photos

Figure 3 – Google Earth Images

The application area is situated over the entire Portion 120, which is covered by a scrap metal dealer and associated buildings, ten flats that is rented out, a bar with associated buildings and private residence. This small holding is a very small area with tiny patches of grass between the buildings. There seem to be normal

farm associated surface infrastructures like fence lines, access roads, farmstead and other farm associated buildings. See **Appendix 1(b) & (c)** for an indication of the proposed main listed activities and existing/proposed infrastructure and **Figure 3** – Google Earth Images for more detail of what the site looks like pre-prospecting. Access to the farm is gained via a gravel road turning off from the N4 between Rustenburg en Mooinooi. The current practices are commercial and residential. Only a very small portion of the land is not covered by buildings thus need to address with landowner.

Table 1: Listed Activities

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix2 – 2. (1)(d)(i)

NAME OFACTIVITY (All activities including activities not listed) (E.g. Excavations, blasting, stockpiles, disard 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)	LISTEDACTIVITY Mark with an "X" where applicable or affected	APPLICABLELISTING NOTICE(GNR544,GNR 545 or GNR546)/NOT LISTED
Listing 1 – Activity 20: Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource[,] ; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	4.1098 ha	X	327
Listing 1 – Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	1.5 ha	X	327
Listing 2 – Activity 19: The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,] ; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.	1.5 ha	X	325
Plant area where washings pans and stockpiles will be			
Stockpiles of topsoil next to the open excavation			
Roads within the prospecting area			
Ablution facilities, chemical and flush toilets			

(ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

Table 2: Environmental attributes

ITEM	DESCRIPTION
Environmental attributes. Describe how the Environmental attributes associated with the development footprint will be determined.	The site will be visited and a proper foot survey will be conducted The activities that will be conducted by the applicant will be discussed on site as described in the Prospecting Works Programme. The environmental setting on site and surrounding with the experience of the EAP will give an idea and lead to environmental attributes.
Identification of impacts and risks. Describe the process that will be used to identify impacts and risks.	The activities that will take place according to the Prospecting Works Programme will be discussed in detail with the applicant on site. With the specific environmental setting in mind and more specifically, the type of soil, soil depth, land use, vegetation type, and distances to open water and structures, the EAP will be able to identify potential impact areas where significant impacts might occur and the risks thereof. The methods of rehabilitation that need to be done, in order to meet the objective of the final land use will also be taken in consideration.

Consideration of alternatives. Describe how alternatives, and in particular the alternatives to the proposed site layout and possible alternative methods or technology to be applied will be determined.	The prospecting will be done in 3 phases namely: Phase 1- Geological surveys Phase 2 - Test pits Phase 3- Bulk sampling through trenching. The site will be visited before the EMP/EIA is compiled. The different site alternatives will be discussed with the applicant on site. The entire application area will be visited and areas that might be environmentally sensitive will be identified. The proposed impacts and mitigations will also be discussed.
Process to assess and rank impacts. Describe the process to be undertaken to identify, assess and rank the impacts and risks each individual activity.	The site will be visited before the EMP/EIA is compiled. The different site alternatives will be discussed with the applicant on site. The entire application area will be visited and areas that might be environmentally sensitive will be identified. The proposed impacts and mitigations will also be discussed. The EAP [with 20 years' experience in prospecting and mining activities] will assess the specific site for possible impacts. The assessment of impacts will be done according to a synthesis of the following assessment criteria: - Nature of the impact - Extent (spatial scale) - Duration - Magnitude or intensity of the impact (severity) - Probability The criteria that will be used to determine significance as described below. Nature of the impact: This is an appraisal of the type of effect the activity would have on the affected environment. The description includes how and what is being affected, whether it is positive or negative, as well as whether it is direct or indirect.
Contribution of specialist reports. Describe how specialist reports, if required, will be taken into consideration and inform the impact identification, assessment and remediation process.	No specialist reports required at this stage, unless specifically requested.
Determination of impact management objectives and outcomes. Describe how impact management objectives will be determined for each activity to address the potential impact at source, and how the impact management outcomes will be aligned with standards.	The Nature of the impact: This is an appraisal of the type of effect the activity would have on the affected environment. The description includes how and what is being affected, whether it is positive or negative, as well as whether it is direct or indirect. Each impact will be assessed and quantified, and management objectives according to the first two steps, will be set. The management of the objective will aligned with the significance of the impact, as well as to ensure a positive outcome. The outcomes will be aligned with standards on environmental management and rehabilitation of prospecting areas according to Department Mineral Resources.

A. DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

Activities	Description of phases	Associated structures and infrastructures
Phases 1	**Desktop analysis:** (Satellite imagery, available mapping, literature review, etc). This phase has already been initiated through a literature review of geological articles and previous prospecting which took place on site. The syntheses of this inform action and the use of the information gained from this prospecting cycle will provide the full picture of the deposit as required by the applicants. **Geophysical Electromagnetic Survey**: is conducted through the passing of an electric field through two points in the veld. The aim of such survey is to determine any anomalies which may be present in the underlying geology. This phase merely requires the carrying of the two machines into the veld and the passing of the electric current through the underlying substrate/ore body. No samples are taken and no digging is required. The information gained from the **Electromagnetic Survey** may result in a possible review of proposed drill positions. If this does prove to be the case, then such minor amendment to both the Prospecting Work Programme and Environmental Management Plan will be lodged with the DMR to cater for such changes. Note however that even though the positions of the drill holes may alter slightly, the method and environmental impact attenuation measures will not require adjustment - just the positions of the drill holes.	No surface disturbance, No infrastructure

B. DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc)

TECHNICAL DETAIL REGARDING THE PROSPECTING METHODS

Table 3: Description of Activities to be followed

Activities	Description of phases	Associated structures and infrastructures

Phase 2	The **geological model**. The first actual prospecting will consist of hand collected rock samples in the stream channels or the target areas for geochemical sampling. The sample need only be about 0.5kg and will be sent for geochemical analysis. Although the taking of such samples can be deemed to be an invasive prospecting method, the required sample is so small and given that it is a collection of loose samples (i.e. not requiring mechanical release from the ore body) and that it will be collected on foot, the impact is so minor as invasive. The samples will be sent for analysis in terms of Coal. **Drilling method**: Drilling will be conducted by contractor using 48mm core drill to yield samples to varying depths. The samples will be logged by geologist and transported to Geo-Science lab for full analysis. The coal resource will be determined in terms of diamond core borehole drilling, with a number of 6 to 10 boreholes being drilled. If the results prove positive then further drilling will take place. Note that at each drill site it may be required to drill a series of fanned holes (i.e. holes at different angles from the same position). Drilling will be conducted vertically and inclined. This will result in less environmental dam age given that fewer sites will be disturbed. Approximately 2 groundwater boreholes are furthermore proposed to be drilled by means of percussion drilling. This is required to test the yield and quality of the groundwater in the study area, and to obtain baseline groundwater information. Drilling layout: Phase 2 is initiated by the convening of the appropriate persons to conduct the following tasks: • Locate the positions of the core drill holes. • Locate and m ark access routes to the drill sites. Existing roads will be used wherever possible.	No infrastructure. The topsoil and grass will be disturbed on the small area of 10m x 10m where the drilling rig will stand .After evaluation of the boreholes will be closed.
Phase 3	Bulk sampling: In order to determine the grade, the ore needs to be taken out and tested, by putting it through a process. Trenching will be used to open the ore in order to get a representative sample for testing. The trenches will be 10 x 60 x ± 20 m (deep). The ore will be tested by making trenches on different locations over the whole prospecting area, where the possibility of ore was identified with the test drilling. There will be a plant/crushing area with mobile offices and ablution facilities and roads to the excavations Consideration of test results and report of whether to exit the project or to apply for renewal or continue with mining.	

Table 4: Technical data detailing the prospecting method

Phase	Activity (what are the activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieve the required results)	Timeframe (in months) for the activity)	Outcome (What is the expected deliverable, e.g Geological report, analytical results, feasibility study, etc.)	Timeframe for outcome (denoting for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g. geologist, mining engineer, surveyor, economist, etc)
1	Desktop analysis, Geo-chemical sampling, Electromagnetic surveys	Geologist, Manager(applicant)	7	Geological data collection, Mapping, Detailed report on surveys conducted.	From month 1 - 7	Geologist
2	Drilling, Process material at pilot plant, Analysis of results	Excavator operator , Manager(applicant), Geologist	49	Co-ordinates of drilling sites, Samples of drilling core taken, Analysis report, Feasibility report.	From month 7 - 56	Geologist
3	Bulk Sampling	Manager(applicant)	3	Samples for the Minerals will be taken and analysed at a lab for confirmation of the % value.	From month 57 - 60	Experienced applicant

e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) 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 has been triggered by applications in terms of the Minerals and Petroleum Resources Development Act, 2002 (As mentioned).	Activity 21, listing 1 Activity 21, Listing 2
National Environmental Management Act, 1998 (Act 107 of 1998): Environmental Impact Assessment Regulations, 2014 (G38282 – R982-985) EA Authorization and EIA/EMP. Submit documents that will describe the impacts and sustainable mitigation thereof. Compliance to Act and Regulations during course of activities. Show impacts and mitigation thereof	Regulation 21
National Water Act, 1998 (Act 36 of 1998) Application for Water abstraction for prospecting use	Section 21 (a)
Conservation of Agricultural Resources Act No 43 of 1983 Compliance to Act and Regulations during course of activities. Stabilization of soil after rehab to be sustainable with no erosion. Eradicaion of declared weeds	Section 29
National Heritages Resources Act, 1999 (Act 25 of 1999) Compliance to Act and Regulations during course of activities. Ensure that no graves or heritage site will be disturbed.	Section 36

f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

The applicant believes that the applied area has prospects for: *Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore* as applied for. The desirability of this project can be motivated as the application area is not within or nearby an sensitive environmental areas and the impact that will be caused by the activity can be properly mitigated and rehabilitated. The buildings within the application need to be avoided which will be a challenge on this small application area. This area is situated within Rustenburg district, which is historically well known for the mining of the above minerals, which make it more desirable. The possible employee positions that could emerge could also be a great contributor of revenue generation in this rural area. The locality of the activities is over the entire farm portions. The specific activities as listed will be on certain portions over the application area. The geological surveys will determine the specific location for surface sampling that will also be done during Phase 1 of the PWP. Were after drilling will be done during Phase 2 and samples will be processed off site through a pilot plant. Phase 3 will be to determine if the site is viable for further testing.

g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved site.

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.

The application area shows potential for the applied minerals thus these specific areas need to be prospected. It is envisaged that the disturbance will be over the natural veld area. The area is characterized as being mainly build up areas with two small fallout grazing area. The existing infrastructure over the application area is entrance- and farm roads, Eskom power lines, fences and a farm steads and business building with associated buildings and workers houses. See **Appendix 1(b)** for an indication of the proposed main listed activities and existing/proposed infrastructure and **Figure 3** – Google Earth Images for more detail of what the side looks like pre-prospecting. Access to the farm is gained via an existing gravel roads turning off from the Rustenburg/Mooinooi tar road R 504. Only a small portion of the land will be impacted upon at any given time and land use on the rest of the surrounding area can proceed normally. The area will be bulk sampled and rehabilitated. The prospecting focus area will be clearly demarcated. The area applied for is over the entire portions but the main prospecting focus area will be over natural veld.

i. Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 1 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

Alternative is not applicable. The specific land applied for is the area to believe that minerals can be explored. The current land is used is residential use. The option to explore the possibility for prospecting is already in itself an alternative land use. The applicant, ***Taisoar Consulting and Ptojects (Pty) Ltd.*** is not interested in any other alternative land use over this land aside of exploration of the said minerals, or any other activity, or method use other than prospecting for in the conventional way, which is the most cost effective.

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

There are no alternative for the property as the application is for this area only.

(b) the type of activity to be undertaken

The type of activity is in line with the submitted Prospecting Programme.

(c) the design or layout of the activity

The layout of the activity will and can only be on the application area as per sketch plan. The footprint of the actual disturbance on site does have the alternative.

(d) the technology to be used in the activity

The technology used in the activity will as described in the Prospecting Programme and the best options will be determined by the applicant.

(e) the operational aspects of the activity, and

The operational aspect is only the prospecting for *Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore*, on this specific area.

(f) the option of not implementing the activity

This option might only be possible if the applicant decide to abandon the project.

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

The process as described by NEMA for Environmental Authorization was followed. See **Table 5, 6 & 7** below for the identification of Interested and Affected Parties to be consulted with. The landowners (**Mr. K. Muller**) and neighbours will be consulted personally and through written letter that are given to them by hand. A site notice was placed at the entrance to the application area. With this site notice all passers-by are requested to submit any written comments to be forwarded to the consultant (still awaiting response). A notice was also published in the Sowetan Newspaper of 25th April 2019, response is awaited. Public meetings were held at Kumbagana Game Lodge on the 30th April 2019. See proof of consultation already done under **Appendix 2**. The Public Participation process is still on going and the documents will be updated as more feedback is received back. The Scoping Report was send to all relevant State Departments for evaluation. No comments were received.

Appendix 2 – Proof of consultation.

Table 5: Description of process to be undertaken to consult interested and affected parties

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	X	
Will the lawful occupier on the property other than the Landowner be consulted?	X	
Will a tribal authority or host community that may be affected be consulted?		X
Will recipients of land claims in respect of the area be consulted?	X	
Will the landowners or lawful occupiers of neighboring properties been identified?	X	
Will the local municipality be consulted?	X	
Will the Authority responsible for power lines within 100 meters of the area be consulted?		X
Will Authorities responsible for public roads or railway lines within 100 meters of the area applied for be		X
Will authorities responsible for any other infrastructure within 100 meters of the area applied for be consulted? (Specify)		X
Will the Provincial Department responsible for the environment be consulted?	X	
Will all of the parties identified above be provided with a description of the proposed mining /mining operation as referred above?	X	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed prospecting project?	X	
Other, Specify		

Table 6: Details of the engagement process to be followed.

Steps to be taken to notify interested and affected parties (Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. Photographs of notice and copies of advertisements and notices notifying potentially interested and affected parties of the proposed application are attached as **Appendix 2**).	PROVIDE DESCRIPTION HERE The neighbors was informed personally and consulted by the applicant and confirmed in the writing. A consultation letter was sent to the Local Municipality. An advertisement was placed in the local newspaper for comments and a public meeting was held.
Information to be provided to Interested and Affected Parties.	**Compulsory** • The site plan. • List of activities to be authorized • Scale and extent of activities to be authorized • Typical impacts of activities to be authorized (e.g. surface disturbance, dust, noise, drainage, fly rock etc.) • The duration of the activity. • Sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land)
	Other, specify: a prospecting works programme
Information to be required from Interested and Affected Parties.	**Compulsory** • To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions • To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity • To provide information on current land uses and their location within the area under consideration • To provide information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied, requested to make written proposals • To mitigate the potential impacts on their socio economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied).
	Other, Specify

iii) Summary of issues raised by I & AP's

(Complete the table summarizing comments and issues raised, and reaction to those responses)

Table 7: Summary of I & AP's consultation

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 sent and/or Comments Received	Issues raised	EAP's response to the applicant
AFFECTED PARTIES	X			
K. Muller Cell: 079 823 9086; E-mail: ruaanmuller.yabatho@gmail.com (Landowner on Portion 120 of the farm Elandskraal 469 JQ)		15 May 2019 22 May 2019 7 August 2019	Consultation letter sent via e-mail and personally consulted by EAP Consultation letter sent again to Ruaan Muller.	Mr. Erasmus explained the proposed project personally to the landowner Mr. Muller on site and handed him the consultation letter.
Lawful occupier/s of the land				
Landowners or lawful occupiers on adjacent properties	X			
Municipal councilor				
Municipality	X			
Rustenburg Local Municipality Municipal Manager: Ms. Nqobile Sithole Fax: 014 590 3481; Tel: 014 590 3111; E-mail: munman@rustenburg.gov.za		15 May 2019	Consultation letter sent via e-mail to Ms. Nqobile.	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA.				
Eskom				
Communities				
Dept. Land Affairs	X			
Keatbeswe Mothupi, Office of the Regional Land Claims Commissioner, N W Province; Private Bag X08, Mmabatho, 2735; Fax: 018 389 9641 John Mafoko Tel: 018 388 7170; E-mail: John.Mafoko@drdlr.gov.za		15 May 2019	Request for verification of land claims sent via e-mail	4 June 2019 – Existing land claim. Comments received. Mr. Mafoko has confirmed that the claim is between the claimant and DRDLR and we do not need to consult with the claimant as the claim is still pending.
Traditional Leaders				
N/A				
Dept. Rural, Environment and Agricultural Development	X			
Ouma Skosana Agricentre Building, Cnr James Moroka & Stadium Road, Mmabatho, 2735 Tel: 018 389 5095; E-mail: oskosana@nwpg.gov.za		13 August 2019	EMP/EIA sent with Fastway couriers for comments	
Dept. Water and Sanitation	X			
Corna Theunissen Old Rustenburg Road, Hartbeespoort, 0216 Tel: 012 253 1026; E-mail: theunissenc@dwa.gov.za		13 August 2019	EMP/EIA sent with Fastway couriers for comments	
Dept. Agriculture, Forestry and Fisheries				

Maurice Vukeya Louis le Grange Building, Cor Peter Mokaba & Wolmarans street,3rd Floor, Office nr 318, Potchefstroom, 2520 Tel: 018 294 3343; E-mail: MauriceV@daff.gov.za		13 August 2019	EMP/EIA sent with Fastway couriers for comments	
Dept. Rural Development and Landform				
Other Competent Authorities				
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				

Notice published in the Sowetan Newspaper of 25th April 2019 and Rustenburg Herald of 9 August 2019

iv) The Environmental attributes associated with the alternatives.

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

(its current geographical, physical, biological, socio- economic, and cultural character).

Description of the baseline environment

The purpose of this section is to provide information on the environment in which the proposed prospecting activities will take place, with a view to identify sensitive issues/areas, which need to be considered when conducting the impact assessment. The application is over the: ***Elandskraal 469 JQ*** *(Portion 120).* The area is characterized as being residential.

Magisterial District:

Rustenburg district is located in the North West Province of South Africa. It falls under the Local Municipality of Rustenburg and is situated within the District Municipality of Bojanala.

Direction from neighbouring town:

The driving direction is as follows: Drive 29 min (37.4 km) via N4 from SAPS Rustenburg, 94 Beyers Naude Drive & Kruis Street, Rustenburg, 0300. Get on N4 in Rustenburg Rural from R104 and R24 drive (4.7 km) in the direction of Mooinooi. Follow N4 to Lonrho Drive, exit from N4 after 31.6 km. Continue on Lonrho Drive to your destination which will be in 1.0 km at -25.72873, 27.557720.

Longitude (approximate center of prospecting site):

27.557720° E

Latitude (approximate center of prospecting site):

-25.72873° S

Existing Surface Infrastructure:

The application area is situated over the entire Portion 120, which is covered by a scrap metal dealer and associated buildings, ten flats that is rented out, a bar with associated buildings and private residence. This small holding is a very small area with tiny patches of grass between the buildings. There seem to be normal farm associated surface infrastructures like fence lines, access roads, farmstead and other farm associated buildings. See **Appendix 1(b)** for an indication of the proposed main listed activities and existing/proposed infrastructure and **Figure 3 – Google Earth Images** for more detail of what the site looks like pre-prospecting. Access to the farm is gained via a gravel road turning off from the N4 between Rustenburg en Mooinooi. The current practices are commercial and residential..

According to VEGMAP (2006) the area falls within the **Norite Koppies Bushveld area [SVcb 7].** VT 19 Sourish Mixed Bushveld (82%) (Acocks 1953). LR 14 Clay Thorn Bushveld (87%) (Low & Rebelo 1996). *Croton gratissimus–Setaria linden-bergiana* Woodland (Van der Meulen 1979).

Distribution: North-West and Gauteng Province: Embedded in Marikana Thornveld, north of the Magaliesberg and Pretoria with the highest hills (e.g. Kareepoortberg) near Brits. Altitude 1 100-1 350 m.

Vegetation [Flora] and Landscape Features: A low, semi-open to closed woodland up to 5 m tall, consisting of a dense deciduous shrubs and trees with very sparse undergrowth on shallow soils, with large areas not covered by vegetation. Tree and shrub layers are not continuous. The stands of this unit are found on noritic outcrops and koppies, many appearing as inselbergs above the surrounding plains.

Climate: Summer rainfall with dry winters. MAP from 600-700 mm. Frost fairly frequent around the base hills in winter but less so on the hills.

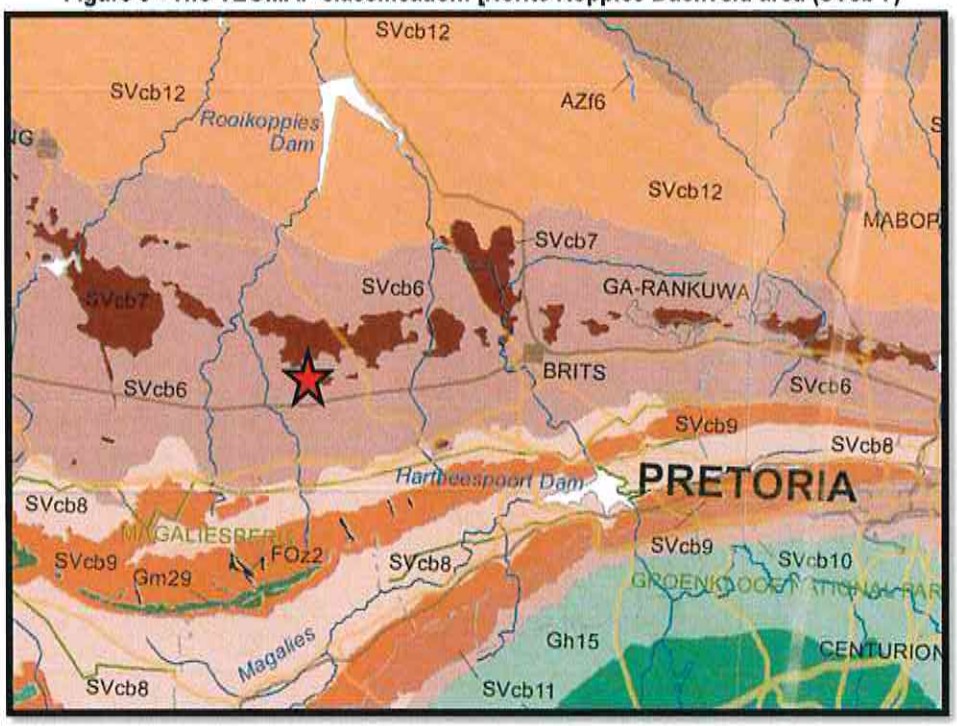
Geology & Soil: Mostly gabbro and norite with interlayered anorthosite of the Pyramid Gabbro-Norite, Rustenburg Layered Suite, with a small area of the Rashoop Granophyre Suite (felsic igneous rocks), both of the Bushveld Complex (Vaalian). Large rock boulders and very shallow lithosols occur. Soils are well drained, Glenrosa and Mispah forms; in some areas

vertic, melanic clays are found as well. Land types mainly Ib, with some Ea also occurring.

Important Taxa - Tall Tree: *Sclerocarya birrea* subsp. *caffra*. Small Trees: *Combretum molle* (d), *Croton gratissimus* (d), *Ficus abutilifolia* (d), *Pappea capensis* (d), *Acacia caffra, Bridelia mollis, Combretum apiculatum, Cussonia paniculata, Dombeya rotundifolia, Faurea saligna, Ficus glumosa, Lannea discolor, Obetia tenax, Peltophorum africanum, Rhus leptodictya, Vangueria infausta, Ziziphus mucronata*. Succulent Tree: *Euphorbia cooperi*. Tall Shrubs: *Triaspis glaucophylla* (d), *Canthium gilfillanii, Clerodendrum glabrum, Diplorhynchus condylocarpon, Euclea natalensis, Grewia flavescens, G. monticola, Gymnosporia nemorosa, G. polyacantha, Pavetta eylesii, Pouzolzia mixta, Psydrax livida, Vitex zeyheri*. Low Shrubs: *Jatropha latifolia* var. *latifolia* (d), *Abutilon austro-africanum, Hermannia floribunda, Hibiscus subreniformis, Rhus zeyheri*. Succulent Shrub: *Tetradenia brevispicata*. Semiparasitic Shrub: *Osyris lanceolata*. Woody Climbers: *Helinus integrifolius, Rhoicissus tridentata, Turraea obtusifolia*. Woody Succulent Climber: *Sarcostemma viminale*. Herbaceous Climber: *Cyphostemma lanigerum*. Graminoids: *Chrysopogon serrulatus* (d), *Setaria lindenbergiana* (d), *Aristida congesta, Bulbostylis humilis, Eustachys paspaloides, Heteropogon contortus, Loudetia simplex, Melinis nerviglumis, Panicum maximum, Themeda triandra*. Herb: *Hibiscus sidiformis*. Geophytic Herbs: *Pellaea calomelanos, P. viridis, Scadoxus puniceus* **Conservation** - Least threatened according to remote sensing data, but ground truthing suggests that it is rather suscep-table. Target 24%. None conserved in statutory reserves but 4% conserved in De Onderstepoort Nature Reserve. About 10% transformed (but more recent assessment suggests about 20%), especially at the unit fringes, mainly by mining as well as urban and built-up developments and cultivated areas. Mining is primarily in the form of granite quarries on koppies, but also affects surrounding lower-lying areas. Areas close to human settlements are often severely disturbed and many woody species may have been harvested from these areas for fuel or building materials. Weeds, including a number of declared aliens, are more common in these disturbed sites. Erosion is very low to moderate. **Remarks** - Vegetation patterns on norite koppies are primarily determined by the amount of rockiness and aspect, warmer north-facing slopes and cooler south-facing slopes bearing floristically distinct vegetation. A number of the woody species, e.g. species of *Ficus*, are typical chasmophytes, penetrating the rocks with their roots (Van der Meulen 1979). The vegetation unit is transitional between xeric lowland bushveld and mesophyllous woodland in cooler more moist upland areas associated with the Magaliesberg and may be considered to be a more xeric phase of these upland areas (Van der Meulen 1979).

References Van der Meulen (1979), Panagos (1996).

Figure 5 - The VEGMAP classification: [Norite Koppies Bushveld area (SVcb 7)



Animal Life [Fauna]: Small animals common in this area are: Steenbuck, Duiker, Jackal and Meer cats and several game spp on the game farm area. – residential area

Topography: The mine site is situated on a terrain that is characterized by A low, semi-open to closed woodland. The slope varies around <0.1% to not more than 3%.

Surface Water: This site falls in [3] Crocodile (West) and Marico water management area as classified by the Department of Water Affairs, under tertiary drainage region A21 and quaternary catchment A21K. There is no open water or streams within 5km distance of the application area. River diversion is not applicable. All mining activities will be kept 100 meter horizontally away from this water body.

Ground Water: There are boreholes on the application area used for domestic use by the landowner. The applicant intends to use water from these current boreholes. The water uses will be $2m^3$ a day for dust supression in the bulk sampling phase.

Air Quality: The impact on air quality will only start with the bulk sampling where dust from excavating and from the roads will occur. This impact will be low and will be monitored and mitigated trough wetting of the roads..

Noise: The impact of noise will only start with the bulk sample where noise from the mining equipment will be generated. This operation will only be in day time working hours and will have a low impact on current surroundings.

Sites of Archaeological and Cultural Interest:
No graveyards. According to Section 36(3) of the National Heritage Resources Act 25 of 1999 no person may, without a permit issued by SAHRA or a provincial heritage resources authority—
(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph *(a)* or *(b)* any excavation equipment, or any equipment which assists in the detection or recovery of metals.
It is recommended that the graveyard is included in the overall management plan of the mine development. Preservation of the site will require that the area is properly demarcated with at least a 20m buffer zone placed around the graveyard in order to avoid potential damage during prospecting activities. It will be necessary to ensure that the graveyard is accessible to the relatives of the deceased. There are no major archaeological grounds to halt the proposed development. However, the potential occurrence of unmarked graves or subsurface finds not recorded during this survey can never be excluded, so it is advised that SAHRA and a qualified archaeologist are informed immediately if archaeological objects are uncovered.

Sensitive Landscapes: There are no sensitive areas that were identified on the application area.

Visual Aspects: These prospecting activities will be highly visible to all residence. It is surrounded on two sides by a gravel road and will thus also be visible to all passers-by.

Social: The proposed activity will employ 8 people, of which a few are resident around the operation. Various social amenities are available close to the operation. These include schools, hospitals churches, recreation facilities as well as a Police Station at Mooinooi, which is located approximate 3 km south of the application area.

(b) Description of the current land uses.

The current land use is residential.

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

There seem to be normal farm associated surface infrastructures like fence lines, access roads, farmstead and other farm associated buildings. See **Appendix 1(b)** for an indication of the proposed main listed activities and existing/proposed infrastructure and **Figure 3 – Google Earth Images** for more detail of what the site looks like pre-prospecting. Access to the farm is gained via a gravel road turning off from the R30 SSW out of Rustenburg.

Table 8: Environmental features and infrastructure on the site

Mining Phase	Environmental features and infrastructure on site
Phase 1 – Geological surveys	No environmental features of infrastructure will be impacted of affected during this phase, as it entails only desktop studies and foot surveys.
Phase 2 – Drilling Will entail that boreholes will be drilled with a drilling rig on an area of 5m x 10m	Environmental features that can be affected is: ✓ Geology – can be affected minimal as only drilling ✓ Natural Vegetation - will be stripped and place on the side of the pits, will be replaced again after the borehole is fill up again. ✓ Soil – soil structure will be minimal impact as only the small diameter of the borehole will be impacted on the soil. ✓ Infrastructure – all mining activities will be kempt 100 m horizontally away from any surface infrastructure, unless special permission was received from MAHS and structure owner to work nearer.
Phase 3 – Bulk Sampling: Will entail the excavation of trenches of 10 m x 60 m x 10 m. Take out of ore resource, stockpiling it and putting the gravel through a washing plant for testing	Environmental features that can be affected is: ✓ Geology – will be affected as gravel will be excavated to a depth of 3,5 m, stockpile and tested through a washing plant. This will totally destroy the geological structure of the areas that is excavated. After testing the overcore will be backfilled to ground level and the topsoil cover will be replaced again ✓ Natural Vegetation - will be stripped and place on the side of the trenches. This seed bank can preserved for up to 12 months where after it must be replaced again. After the gravel was taken out and overcore backfilled again the topsoil layers will be replaced again which can again generate a vegetation cover again ✓ Soil – soil structure will be destroyed and excavator operator must try and separated the different soil layers and replace it again in the same reversed manner as it was taken out ✓ Animal live – will be moved away from the affected area to neighbouring unaffected areas. Habitats will be destroyed and animals could be killed by the movement of heavy machinery. These animals will return again to the rehabilitated areas after all mining activities have ceased ✓ Surface water – all mining activities must be kept 100 m horizontally away from the banks of any stream area, unless special permission has been received for Department of Water and Sanitation ✓ Ground water – The necessary water registration/licenses must be obtained for Department of Water and Sanitation prior the commencement of Phase 3. Water must be used in responsible manner and as much as possible water recirculation must be done. Infrastructure – all mining activities will be kempt 100 m horizontally away from any surface infrastructure (buildings, roads, structures), unless special permission was received from MAHS and structure owner to work nearer.

(d) Environmental and current land use map.

(Show all environmental and current land use features)

Current land use of the application area is residential and commercial. The land is covered by a scrap metal dealer and associated buildings, ten flats that is rented out, a bar with associated buildings and private residence. See **Appendix 1(b)** [Infrastructure Map] for more detail.

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

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

The proposed project is anticipated to impact on a range of biophysical and socio-economic aspects of the environment. The main purpose of the EMP/EIA is to identify and evaluate the significance of these potential impacts and determine how they can be minimized or mitigated.

It should be noted that a comprehensive Environmental Management Program (EMPr) will be developed and implemented to regulate and minimize the direct, indirect and cumulative impacts during the construction and operational phases. The potential environmental impacts identified during the Scoping Phase, which will be investigated further in the Impact Assessment Phase of the project are summarized in **Table 9** on the next page.

Table 9: Impact significance identification matrix for Elandskraal 469 JQ

			A	B	C	D	E	F	E	F	G	H	I	J	K	L	M	N
	PHASE	Components	ABIOTIC									BIOTIC			VISUAL	SOCIO-ECONOMIC		
		Impacts	Geology	Topography	Soil	Land capability	Land use	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic	Affected parties
		Activity, Product or Service																
1	Construction	Demarcation of drilling areas			L	M	L						M		M			
2		Establishment (site preparation, vegetation clearance, topsoil removal and stockpiling) of proper access roads (upgrade existing road), site workshop & storage area (temporary containers), mineral processing plant conveyor, mobile screen (generator, ect.); Initial vegetation clearance, topsoil removal & stockpiling must be first operational activity within the bulk sample focus area.		M	H	H			M	H	H	H	H	L	M		L	M
3		Establishment of bunded diesel and oil/chemical storage facilities, chemical toilets.		M	M	H		M	M			M			M			
4		Provision of storage tanks for portable (drinking water) and process water (dust suppression)		H	H	H	H	L	M	M	H	H	H	M	L	L		
5		Provision of waste handling/disposal facilities (domestic & industrial waste bin)			L			L	L					L				
6		Fencing off active prospecting site in as required in terms of the MHSA. Ensure access control (gate), ect				M							M		M			H+
7	Operational	Vegetation clearance, topsoil removal & stockpiling soil to operational patterns within the bulk sample focus area (2.5 ha of surface area disturbed at any given time).		M	H	H	M	L		L		H	L		L		M	H
8		Mechanically excavating overburden with an excavator and stockpile separately from topsoil dump. Remove ore with excavator and stockpile on side of trench/pit to load onto trucks	H	H+	H	H	H	L	M	L	L	H	L		L+		M	H
9		Transport with trucks to mineral processing plant (conveyor, screen, 1x 16 feet washing pans) for processing and sorting of concentrate at settlements.			H			L	H	L	L	H			M+		M	H
10		Backfilling and sloping of excavations (as part of concurrent rehabilitation): the coarse gravel (rough) sifted from the pans will be transported back by front-end-loaders towards all open pits for backfilling.	M	H	H	H	H	H	M	L	L						M	H
11		First backfilling of all voids/trenches/pits and sloping of overburden dumps (excess material as the result of swell factor).	H+	H+	H+	H+	H+	H+	H+	L	L				L		H+	H±
12		Compaction of backfilled sites		H+	H+	H+	H+	H+	H+		L						H+	H+
13	Decommis	Replace and spread all topsoil evenly over backfilled sites.			H+	H+	H+	H+	H+	H+	L	H+	H+		H+		H+	H+
14		Establishment of vegetation cover			H+	H+	H+	H+	H+	H+		H+	H+		H+		H+	H+

			A	B	C	D	E	F	E	F	G	H	I	J	K	L	M	N
	PHASE	Components	ABIOTIC									BIOTIC			VISUAL	SOCIO-ECONOMIC		
		Impacts	Geology	Topography	Soil	Land capability	Land use	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic	Affected parties
		Activity, Product or Service																
15		Removal of all temporary & demolition of all permanent structures (Section 44 of the MPRDA).			H+	H+	H+	H+	H+	H+	L	H+	H+		H+		H+	H+
16		Rehabilitation of all access roads, compacted areas, etc			H+	H+	H+	H+	H+	H+	L	H+	H+		H+		H+	H+

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

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

I. Introduction:

Table 10 describes and evaluates the effects of the different prospecting projects and the associated activities on the natural and social environments. The different environmental components, on which the project (can/may) have an impact, are:

1. Geology
2. Topography
3. Soil
4. Land Capability
5. Land Use
6. Vegetation
7. Wildlife
8. Surface Water
9. Ground Water
10. Air Quality
11. Noise
12. Archaeological and Cultural sites
13. Sensitive Landscapes
14. Visual Aspects
15. Socio-economic Structure
16. Interested and Affected Parties

MPACT ASSESSMENT

Before the impact assessment could be done the different project activities were identified:

ACTIVITIES:

1. Access Roads (Existing farm roads to be upgraded)
2. Temporary office, workshops, ablution facility, water tanks, diesel tanks and other temporary buildings
3. Prospecting equipment)
4. Stockpiles
5. Overburden dumps
6. Opencast trenches (as part of bulk sampling)

II. Environmental Impact Assessment Summary:

- **Environment likely to be affected by the prospecting operation. (See Appendix 1(a) for location)**

Environmental aspect	Affected		Not affected
	Negligible	Substantial	
1. GEOLOGY		X	
2. TOPOGRAPHY	X		
3. SOIL		X	
4. LAND CAPABILITY		X	
5. LAND USE	X		
6. VEGETATION		X	
7. WILDLIFE	X		
8. SURFACE WATER			X
9. GROUND WATER	X		
10. AIR QUALITY	X		
11. NOISE	X		
12. SENSITIVE LANDSCAPES			X
13. VISUAL ASPECTS	X		
14. SOCIO ECONOMICS	X		
15. INTERESTED & AFFECTED PARTIES	X		
16. ARCHAEOLOGICAL			X

- **Environment likely to be affected by the alternative land use**

Prospecting will be a new land use over this area. The site that is earmarked for prospecting a small area of the total area applied for. And it is further not foreseen that prospecting activities would disturbed an area of not more than 0.5 ha at any given time. The rest of the terrain would continue to be used for agriculture purposes by the landowner.

- **Assessment of the impacts created by the prospecting activity**

Before any assessment can be made the following evaluation criteria need to be described:

*Explanation of **probability** of impact occurrence*

Probability of impact occurrence	Explanation of probability
Very low	<20% sure of particular fact or likelihood of impact occurring.
Low	20 to 39% sure of particular fact or likelihood of impact occurring.
Moderate	40 to 59% sure of particular fact or likelihood of impact occurring.
High	60 to 79% sure of particular fact or likelihood of impact occurring.
Very high	80 to 99% sure of particular fact or likelihood of impact occurring.
Definite	100% sure of particular fact or likelihood of impact occurring.

*Explanation of **extent** of impact*

Extend of impact	Explanation of extend
Site specific	Direct and indirect impacts limited to site of impact only.
Local	Direct and indirect impacts affecting environmental elements within the Rustenburg/Moolnooi area.
Regional	Direct and indirect impacts affecting environmental elements within North-west Province.
National	Direct and indirect impacts affecting environmental elements on a national level.
Global	Direct and indirect impacts affecting environmental elements on a global level.

*Explanation of **duration** of impact*

Duration of impact	Explanation of duration
Very short	Less than 1 year
Short	1 to 5 years
Medium	6 to 12 years
Long	13 to 50 years
Very long	Longer than 50 years
Permanent	Permanent

*Explanation of impact **significance***

Impact significance	Explanation of significance
No impact	There would be no impact at all - not even a very low impact on the system or any of its parts.
Very low	Impact would be negligible. In the case of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely to be better, in one or a number of ways, than this means of achieving the benefit.
Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts, alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Moderate significance	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts, other means of achieving these benefits would be about equal in time, cost and effort.
High significance	Impacts of a substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Very high significance	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.

Table 10: Describes and evaluates the effects of the different prospecting projects and the associated activities

ASPECT	IMPACTS				CUMULATIVE IMPACTS
1. GEOLOGY					
Nature of the impact	Geology (alluvial deposits will be destroyed during the opencast prospecting operation. During operation which will be for the next 5 years, the mineral resource (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) will be extracted. Waste rock material/overburden material is disposed off/backfilled in existing excavations as part of the prospecting process.				
Extent	Site				Activity causing the impact
Duration	Permanent				An opencast prospecting method will be used to extract bulk samples. Therefore the original geology will be totally destroyed.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
2. TOPOGRAPHY					
Nature of the impact	*** Change in landform :** * The prospecting site is situated on: level plains some relief. *** Disturbance of the surface drainage:** The prospecting of the (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposits will result in the creation of trenches (10 m x 60m x ±20 m or less), that act as depressions in the environment that captures run-off. Prospecting activities will be concentrated as indicated on **Appendix 4** on the application area (approximately 20 m depth). The surface drainage is already disturbed. Normal surface drainage will be disturbed at a given point. Run-off if any will be diverted away from the specific site.				
Extent	Site				Activity causing the impact
Duration	Very long to Permanent				Bulk sampling trough trenches, etc.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The surface area is characterized by various soil depths. Any construction of infrastructure should be preceded by the removal of all available topsoil.				
Extent	Site				Activity causing the impact
Duration	Long				In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The establishment, construction, operation and eventually rehabilitation (demolition) of listed structures such as the access roads, stockpiles /tailings dumps, cause compaction of soil. Some areas already disturbed thus no topsoil. All prospecting activities will be concentrated on the identified prospecting focus area where (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposits could be found. In the same time a certain surface area is therefore alienated. The active prospecting surface area (alienated) would be restricted within the ±0.5 ha at any given time (in relation to area of application of the prospecting right of 4.1098 hectares) for the next 5 years.				
Extent	Site				Activity causing the impact
Duration	Long				Site preparation for additional prospecting sites and the construction, operation of listed infrastructure.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3. SOIL					
Nature of the impact	Soil erosion: Due to the fact that certain surface areas would become compacted and this would lead to lesser infiltration of rainwater and more run-off that could cause erosion on bare disturbed surfaces. Erosion would always be possible until such time a vegetation cover is provided during rehabilitation phase.				
Extent	Site				Activity causing the impact
Duration	Very short				When removing topsoil during site preparation, little storm water control structures are in place. If a severe storm hits the area, it may lead to erosion on site. Topsoil stockpiles may be prone to erosion due to lack of vegetation cover. Water control structures may fail or severe rainstorms may cause excessive run-off. Surface compaction due to activities taking place.
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3. SOIL					
Nature of the impact	Potential of soil contamination.				None.
Extent	Site				Activity causing the impact
Duration	Long				Vehicle/equipment breakages and oil/lubricant /diesel spills may contaminate soil.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3. SOIL					
Nature of the impact	Loss of soil structure				None
Extent	Site				Activity causing the impact
Duration	Long				In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.SOIL					
Nature of the impact	Loss of soil fertility				None
Extent	Site				Activity causing the impact
Duration	Short				The mixing of soil during site preparation, compaction and potential pollution (spillages form oil etc.) all may cause this situation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
4.LAND CAPABILITY					
Nature of the impact	**Temporary loss of land capability to support residential and commercial use**. The small area (0.5 ha) where the active prospecting activities occur (trenches, stock piles, prospecting equipment) etc. will thus be temporary alienated, until the area is rehabilitated. All trenches would be rehabilitated as part of the prospecting process during which trenches are back-filled.				
Extent	Site				Activity causing the impact
Duration	Long				Site preparation for additional prospecting sites and the construction, operation of listed infrastructure, the land capability of the active prospecting area will be totally destroyed.
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
5. LAND USE					
Nature of the impact	This is a new prospecting operation and therefore will lose its land use to support it current land use of residential and commercial use of the 4.1098 during the next 5 years. Only a small portions of land (0.5 ha at a time) would be affected by the prospecting operation relation to the total prospecting right application area of 4.1098. All trenches would be rehabilitated as part of the prospecting process during which excavations are back-filled.				
Extent	Site				Activity causing the impact
Duration	Long to permanent				Site preparation for prospecting and the construction, operation of listed infrastructure
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Vegetation clearance, disturbance and trampling. Destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and spreading of exotics can follow.				
Extent	Site				Activity causing the impact
Duration	Long				The site preparation for new sites, construction of listed infrastructure will cause destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and invasion of exotics could further spread. The vegetation needs to be cleared to remove the topsoil.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Habitat change, loss of species, spread of alien and invasive species.				
Extent	Site				Activity causing the impact
Duration	Permanent				The change in the current habitat will be mitigated during final rehabilitation.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Dust coverage of plants.				None
Extent	Site				Activity causing the impact
Duration	Long				Heavy trucks and other vehicles on dirt roads, stockpiling, dumping of tailings are mainly responsible for this impact.
Probability	High				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Wildlife or wildlife habitat destruction /change / disturbance.				None
Extent	Site				Activity causing the impact
Duration	Permanent				The flora which normally serves as habitat for animals would be destroyed during site preparation. The increase in activity will temporarily scare other animals. The area will serve as a new habitat after rehabilitation.
Probability	Very High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Injury and death to wildlife.				None
Extent	Site				Activity causing the impact
Duration	Short				The movement of vehicles may kill certain insects, rodents and possible birds. Most of the remaining animal life will however move away due to noise.
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Restoration of habitat.				None
Extent	Site				Activity causing the impact
Duration	Short				As rehabilitation progresses the habitat of certain species will be restored/created (Closure objective) Animals will probably only move back when human movement is limited.
Probability	Low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8. SURFACE WATER					
Nature of the impact	Increased silt load. Clearing topsoil for footprint areas can increase infiltration rates of water to the groundwater system and decrease buffering capacity of soils to absorb contaminants from spills on surface. This can increase the risk of contamination of the groundwater system (increases aquifer vulnerability.				
Extent	Local				Activity causing the impact
Duration	Short				The clearance of vegetation and the traffic on access roads will all contribute to an increase in the silt load on the prospecting area.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8. SURFACE WATER					
Nature of the impact	Change in surface water quality. Spillages from vehicles and also surface water run-off that is not adequately diverted away from the active prospecting excavations could end-up in the excavations creating problems regarding water quality and hindering the prospecting process. Surface run-off from active prospecting sites (overburden dumps & tailings dam/dump) if not adequately contained on site could end-up in the adjacent undisturbed natural veld. If the natural surface run-off is not adequately diverted in the case of the dry-water course area, prospecting sections it could become silted-up.				
Extent	Local				Activity causing the impact
Duration	Short				"Dirty / Clean" water systems at facilities like the overburden dumps, roads, trenches, etc. may impact on the quality of the surface water. The water should be contained in the surface runoff control measures provided therefore.
Probability	Moderate				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8. SURFACE WATER					
Nature of the impact	Change in surface water quantity: **Water management area (3): Crocodile (West) and Marico** **The mine falls under the primary drainage region A21 and in quaternary sub-catchment A21K.** Notwithstanding the above-mentioned facts, it is not expected that prospecting operations will have any effect on the boundaries or the general water flow of the catchment. There is a non-perennial stream running through the northern part of the application area. Standing water in trenches could as the result of rain/ surface run-off ending up in shallow depressions.				
Extent	Site				Activity causing the impact
Duration	Long				It is an operational objective to contain or divert all surface run-offs from the active prospecting trenches area mainly due to pollution (sediment) potential. This will reduce the run-off quantity, although small in comparison with the drainage area in total.
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
9. GROUND WATER					
Nature of the impact	Reduction of groundwater quality Prospecting activities are not likely to impact on local ground-water quality. No chemicals area used during the prospecting process. Handling of waste and transport of building material can cause various types of spills (domestic waste, pit latrines, hydrocarbons) which can infiltrate and contaminate of the groundwater system.				
Extent	Site				Activity causing the impact
Duration	Long				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

9. GROUND WATER					
Nature of the impact	Even though abstraction is likely to have a minimal effect on the surrounding groundwater users, this is a new use, and groundwater levels are expected to continue current trends. Groundwater will be abstracted for potable water supply and prospecting processes. The volume of water needed is small (2 000 Lit/hr) in comparison to other water use and will have a small impact on the surrounding aquifer.				
Extent	Site				Activity causing the impact
Duration	Long				Opencast prospecting operation.
Probability	Low				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 10. AIR QUALITY	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Dust will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (screen/crusher) and on gravel/dirt/farm roads. The processing of the gravel is a wet process and therefore minimum dust is generated.				
Extent	Site				Activity causing the impact
Duration	Long				Initial construction work with regard to infrastructure (roads) that involves earth moving equipment. During the phase 2, dust could be generated as indicated during prospecting.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 11. NOISE POLLUTION	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Noise will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (crusher/screen). The mine itself is located in rural landscape. The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act.				
Extent	Local				Activity causing the impact
Duration	Long				Earth moving equipment and vehicles (trucks).
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 12. ARCHAEOLOGICAL AND CULTURAL SITES	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The terrain is not archaeologically vulnerable. It is unlikely that the proposed development will result in any significant archaeological impact at the site.				
Extent	Site				Activity causing the impact
Duration	Permanent				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X			

ASPECT 13. SENSITIVE LANDSCAPE	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	No sensitive landscapes identified.				
Extent	Not applicable				Activity causing the impact
Duration	Not applicable				
Probability	Not applicable				
Significance	Not applicable				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
14.VISUAL ASPECTS					
Nature of the impact	Prospecting will be visible to all residence and the neighbours living there.				
Extent	Local				Activity causing the impact
Duration	Long				Diamond prospecting operation.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
15. SOCIO ECONOMICS					
Nature of the impact	Increase in Socio – economic activity at local level. The project in itself would ensure that approximately 8 workers would be assured of a job for some time. Job creation plays a major role in increasing the economic wellbeing of employees and their dependants in the Rustenburg district. Once all prospecting operations have ceased it would definitely have a negative impact.				The increase in socio-economic activity will add to the current growth and development in Rustenburg already created by industry and prospecting.
Extent	Local				Activity causing the impact
Duration	Long				Additional employment opportunities created.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
15. SOCIO ECONOMICS					
Nature of the impact	The main impact on the landowners will be high negative, because of the size of the application area and because it is fully developed and build-up. The main impacts will be visual, income, water, noise and land use and the small area of 0.5 ha that will not be available for agricultural activities at any given time for 4 years. The applicant is not the landowner, and was consulted personally.				The economic benefits in terms of investment and the delivery of services in the North-west province will get an additional benefit from the project. But the will be big negative impact on land owner and residence.
Extent	Regional				Activity causing the impact
Duration	Very Long				
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
16. INTERESTED & AFFECTEDPARTIES					
Nature of the impact	Impact of activities on I&AP's Loss of utilization of the prospecting focus areas for residential and commercial use. The long-term benefits far out-weight the current benefits from the current use. Loss of cattle due to falling of animals in mine workings if not fenced. No negative impact is expected that could be appropriately mitigated, such as the eventual rehabilitation of the excavations.				
Extent	Local				Activity causing the impact
Duration	Long				
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

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.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

In terms of the EIA regulations, consideration must be given to alternatives. Alternatives are different approaches and ways of meeting the need, purpose and objectives of a proposed activity. Alternatives may include a location site alternative, activity alternatives, processes or technology alternatives, temporal alternatives etc. the no-go alternative or option is also considered, as it provides the baseline against which the impacts or other alternatives may be compared.

However, for this specific project, no alternatives have been investigated, with the exception of the no-go alternative. The reason for this being that the prospecting right is being applied for the sole purpose of prospecting (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) gravels. The no-go option entails the continuation of the current land use (residential use) on the study site. The project will contribute towards providing continued jobs for current staff. Should the proposed project therefore not be authorized to proceed, it is anticipated that current employment opportunities will be terminated once the mineral reserves have been depleted.

The no-go option is therefore not a feasible option in this case, as it suggests that the mineral reserves should not be exploited and current employment opportunities should not materialize or be prolonged.

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).

Mr. Muller the landowner raised the question that they must buy the land from him if they want to proceed. Up till now no comments were received from the State Departments, if comments still be received it will be addressed in the EIA.

The mitigation measures and technical management action plans which address potential impacts are discussed below.

Environmental Component	**Geology**
Environmental Management/Mitigation Measures/Action Plans/Commitments	
• No mitigation exists except to backfill the excavations with the rock waste material . • As prospecting progressed and the excavation has been back-filled, a certain amount of overburden material and topsoil would be placed on these areas. This will not restore the geology, but will mitigate the impact. • Planned, systematic and thorough prospecting of the mineral resource (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, and Manganese Ore & Phosphate Ore) should take place. • Optimal utilization of the mineral resource should take place within the boundaries of the prospecting terrain. • Strip, remove and store soil and overburden as far as practical in an orderly fashion and replace as far as possible on back-filled areas, in the reverse order once decision have been taken that no further prospecting would take place in a particular section or which might still be traversed by vehicles and disturbed in the process. Cognisance should be taken of the fact that bulk sampling would take place by means of an opencast prospecting method until such level is reach / cut-off point is reach where rehabilitation could begin. • Care must be taken that the removal of (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposits by means of earthmoving equipment is restricted to what is really necessary to achieve the objective.,	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Optimal exploration of the mineral resource in order to ensure to facilitate better rehabilitation planning. The overburden and topsoil (where available) must be replaced in a responsible and planned manner in order to achieve some conformity with the surrounding undisturbed area.	

Environmental Component	Topography
Environmental Management/Mitigation Measures/Action Plans/Commitments	
• All trenches should be back-filled with waste tailings material and eventually overburden material, covered with a shallow layer of topsoil (if available). • Access to all active bulk sampling excavation areas should be controlled. The active bulk sampling area should be fenced off. The necessary warning signs should be put in place. All prospecting activities should be restricted to the fenced-off area. • Surface run-off control should be put in place at active trenches (preventing water from entering) and also rehabilitated tailings dumps and overburden dumps in order to prevent the loss of growth medium on top of the dumps. Prospecting would be done according to a definite PWP (only disturbing an area that is really necessary). As part of the PWP the handling of tailings material, overburden material, construction of dumps and back-filling of trenches should also form part of it. Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal surface drainage to continue. As soon as a section of the prospecting site would not be explored anymore it should be rehabilitated (planned and phased manner).	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Rehabilitation of the new and old disturbances topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal surface drainage to continue. Rehabilitation in such a way that the new landscape features would be stable and would not pose any safety hazard to human and animal anymore.	

Environmental Component	Soil (topsoil & access roads)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Handling of topsoil as a natural resource: Any future expansion of the trenches or construction of infrastructure should be preceded by the removal of all available topsoil. The surface of any new areas to be disturbed must be kept to a minimum. All available topsoil/overburden material should be removed and stockpiled for rehabilitation purposes. **Access roads, etc:** The clearing of soil surface areas would be restricted to what is really necessary for the construction of infrastructure. Wherever possible all topsoil should be removed and stockpiled for rehabilitation purposes. Overburden material should also be stockpiled separately if practically possible. Topsoil and overburden material should be transported to an area earmarked for rehabilitation.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise.	

Environmental Component	Soil (soil compaction)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Soil compaction: The prospecting operation should only be restricted to what is really required (demarcated area of exploitation) within the fenced-off area. **Access roads** towards the sites would be restricted only to the roads (exiting farm roads & roads established in consultation with the surface owner). No land would be disturbed unnecessarily. Prospecting& rehabilitation should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required. Compaction of soil surface areas would be alleviated once rehabilitation of certain area starts. Certain roads would probably remain for access (in consultation with the surface owner). Those that would not be required would be ripped and rehabilitated.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Alleviation of compaction of soils would be done during rehabilitation of the prospecting terrain, including roads.	

Environmental Component	Soil (Soil erosion)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Soil Erosion: To take preventive steps against land disturbance like erosion. Implement and maintain cut-off trenches/berms to prevent erosion. **Re-vegetation of exposed soil surfaces** (man-made surfaces on tailings dumps , overburden dumps, disturb surfaces in excavated sites, roads, etc) should happen as soon as a particular activity has ceased in order to act as a sufficient erosion prevention measure.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No soil erosion must be visible and no potential for soil erosion must be present at closure.	

Environmental Component	Soil (Soil contamination)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Potential for soil contamination: Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur. All oil spills on soil to be removed and bio-remediate immediately (certain commercial products are available such as Terrasorb or it could be rehabilitated by means of the application of fertilizer and turn with a spade from time to time in order to enhance the natural occurring soil microbial activity). No servicing of vehicles must occur except on a concrete floor or over PVC lined area in an area allocated for that. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No soil contamination must be visible or known before closure can be given.	

Environmental Component	Soil (Soil structure)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Change in Soil structure: Ensure that all available (if any) topsoil is carefully removed in different areas. The soil must also be compacted as backfilling is done. No unnecessary driving outside the active prospecting area is allowed due to soil compaction that may occur. Use organic material e.g. manure to restore the soil structure during rehabilitation. Ensure that the rehabilitation plan makes provision for ripping of roads and spreading of organic material and that this is used during rehabilitation.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No compaction of any roads or any other area must be present during closure. If the soil structure is disturbed mitigation measures e.g. the use of organic material, lime and fertilizers must be implemented to restore the soil structure.	

Environmental Component	Soil (Soil fertility)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Soil fertility: Little can be done to preserve the moisture status of the soil once it is exposed. The soil must be used for rehabilitation as quickly as possible. The soil on the rehabilitated area must be analysed to determine the deficiencies and fertilizer and lime must be ploughed into the soil to restore its fertility, if necessary. Ensure that stockpiled soil is kept clean and where possible ensure that the topsoil is treated with organic material and fertilized. Do not use stockpiled soil for any other purpose but for rehabilitation. Do not use topsoil to construct roads. Ensure the rehabilitation plan makes provision for fertiliser. Make sure rehabilitated topsoil is analyzed in a laboratory. The type of fertilizer would depend on a soil analyses and fertilizer recommendation.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The soil must be fertile enough to sustain vegetation.	

Environmental Component	Land Capability
Environmental Management/Mitigation Measures/Action Plans/Commitments	
The disturbance of land must be restricted (kept to a minimum) to the planned fenced-off, active prospecting site only. Remove topsoil where it is available. Take care that roads needed are restricted to one entry to the area for prospecting purposes. If new land is used for roads to enter the area it must be done in consultation with the surface owner. All rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources (DMR). Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly. Ensure that the rehabilitation plan is implemented.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Rehabilitated to the state that it is suitable for the predetermined and agreed land capability.	

Environmental Component	Land Use
Environmental Management/Mitigation Measures/Action Plans/Commitments	
The disturbance of land must be restricted (kept to a minimum) to the planned active, fenced-off prospecting site only. Remove topsoil where it is available. Take care that roads are the only areas used to enter the area for prospecting purposes. If new land is used for roads to enter the area it must be done in consultation with surface owner. All rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources (DMR). Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly. Ensure that the rehabilitation plan is implemented.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The opencast section requires the land to be totally disturbed. The replacement of tailings material, overburden and topsoil would ensure that the land is able to support some grazing.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
No mitigation exists except to replace the vegetation by reseeding of grasses and natural growth. Prospecting should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
During rehabilitation indigenous vegetation cover comprising of local plant species should be established in order to ensure a well-adapted sustainable plant cover that would be able to prevent erosion of the replaced topsoil on the disturbed prospecting site exposed surfaces, tailings dumps, etc.).	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Habitat change, loss of species, spread of alien and invasive species: No mitigation exists except to replace the vegetation by reseeding of grasses. Prospecting should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required. ***Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species.*** Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants. An invasive and alien control programme must be implemented by the mine.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No invasive and alien species must be present after closure. A post-closure control program must also be implemented.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Ensure that all roads on the prospecting site (utilized by prospecting vehicles) are daily sprayed with water to control dust. Site inspections to ensure the spraying are done.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No excessive dust must be present during the normal growth season after closure.	

Environmental Component	Wildlife (habitat)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Wildlife or wildlife habitat destruction /change / disturbance : To take care that no new or unnecessary destruction of habitats, other than the demarcated prospecting site should take place. **Restoration of habitat:** Ensure the rehabilitation plan is implemented.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	

Closure Objective
The animal life habitat must be restored after decommissioning. Success will be measured against the extent to which the animals return to the area.

Environmental Component	Wildlife (injury and death)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Injury and death to wildlife: Re-establish trees and grass cover as soon as possible during and after prospecting. Fence area off to ensure that no person can enter without permission. Ensure that the rehabilitation plan is compiled and executed. Keep incidence register on killings and disturbances.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The animal life habitat must be restored after decommissioning. Success will be measured against the extent to which the animals return to the area.	

Environmental Component	Wildlife
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Make game catching, traps, snares, poaching and any other unnecessary disturbance of animals a disciplinary offence. All staff must undergo basic environmental awareness lecture during induction training. Machine operators and drivers to undergo appropriate level of environmental impact training to ensure they understand their impact on the environment. Ensure all staff working on the opencast section undergo basic lecture during induction phase. Introduce the actions as listed above into disciplinary code as offence.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The post-closure phase must be suitable for further restoration of the newly man-made animal habitat. The area must be stable and acceptable for the return of animal- and plant life.	

Environmental Component	Surface Water (quality)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Change in surface water quality: Storm water control measures must be implemented to divert clean water away from the active prospecting site and keep contaminated water contained. Water control structures must be well designed and constructed to ensure a minimum down wash of topsoil. Vegetation disturbance must be as little as possible. The PWP must be strictly adhered to. Re-vegetation to be done as quickly as possible. Final re-vegetation to be done as per rehabilitation plan.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The post closure water run-off may in no circumstance impact negatively on the water quality.	
Environmental Component	**Surface Water (quantity)**
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Change in surface water quantity: Once the area is rehabilitated the surface run-off will be restored and normal clean water run-off will end-up in the drainage system. Once the area is rehabilitated the normal surface run-off drainage will be restored according to rehabilitation plan. The disturbed surface area must be rehabilitated to ensure some normal drainage. Minimal run-off should end-up in trenches. Final rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Ultimately rehabilitation of the disturbed prospecting site and the construction of run-off control structures in a planned and phased manner would ensure normal drainage and stability of rehabilitated site.	

Environmental Component	Ground Water (quality)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Reduction of groundwater quality: Storm water control measures must be implemented to divert clean water away from the site and keep (silt) contaminated water contained. Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur. All oil spills on soil to be removed and bio-remediate immediately. No servicing of vehicles must occur except at the workshops. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. Storage of fuel and oil should be done according to best practices, within a bunded area and in containers of which the integrity is sound. The prospecting processes will not introduce any harmful or toxic substances and the most likely sources of pollution to the groundwater system would be associated with the infrastructure and / or workshop area. The most likely contaminants is therefore nitrate and bacteria (from sewage / pit latrines), as well as hydrocarbons (from vehicle accidents, diesel storage and the workshop area). An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done. All waste must be stored according to best practices and disposed at an authorized waste disposal facility.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Ground Water (quantity)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Reduction of groundwater quantity, lowering of groundwater level: Water levels in the boreholes that are used for prospecting activities should be recorded monthly. Water volumes should be recorded continuously to ensure compliance with the water use authorization for abstraction.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Air Quality
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Dust: The prospecting method will serve as mitigation measure because prospecting will limit dust to the active prospecting area (area where the excavator and the trucks are operating). Daily spraying of roads with water. Inspection should be done on a daily basis. If new roads are constructed, in coordination with surface owner, dust pollution must be mitigated by means of spraying the roads with water.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Dust count must be the same as before prospecting. Rehabilitation of the bulk sampling site would ensure that no dust is generated from exposed surfaces.	

Environmental Component	Noise
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Ensure the required silencers are placed on all engines and compressors. No mitigation to reverse hooters is allowed due to safety standards. Inspection of vehicles and machinery to ensure silencers are fitted. Ensure that a complaints register is created, managed and maintained. Vehicles and earthmoving equipment should be equipped with the necessary silencers and regularly maintained in a good working condition.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No noise attributed to prospecting will be generated from the site after closure anymore. During decommissioning and closure phase some earth moving equipment and trucks would be utilized for rehabilitation.	

Environmental Component	Archaeological and Cultural Sites
Environmental Management/Mitigation Measures/Action Plans/Commitments	
No graves on site. However, the potential occurrence of unmarked graves or subsurface finds not recorded during this survey can never be excluded, so it is advised that SAHRA and a qualified archaeologist are informed immediately if archaeological objects are uncovered.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No site of archaeological importance should be disturbed or damaged until the necessary permit from SAHRA has been issued.	

Environmental Component	Sensitive Landscapes
Environmental Management/Mitigation Measures/Action Plans/Commitments	
None	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	

Environmental Component	Visual Aspects
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Visual impact would be addressed by means of; * re-vegetation of disturbed areas with grasses; * removal of any temporary building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact. Concurrent rehabilitation should be done simultaneously as prospecting activities progress.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No residual visual impacts will remain after closure. The terrain should blend in with the surrounding landscape.	

Environmental Component	Socio-Economics
Environmental Management/Mitigation Measures/Action Plans/Commitments	
There will be a very small increase in Socio – economic activity at local level, because of the size of this prospecting activity.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The economic development must deliver a multiplier effect that will contribute to the local economy long after closure.	

Environmental Component	Interested and Affected Parties
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Access control should always be a priority. Active prospecting site should be fenced off and also any deep water holes. If any problem should arise, meetings will be held with the landowners and affected parties to consult them on certain matters like permission to prospect and pollution. No prospecting should be conducted under or near Eskom power line (10 m distance should be kept) *(Permission of Inspector of Mines should be obtained.)*	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Not to be an economic, social or environmental liability to the local community or the state now or in the future. The company will ensure that the interest of all interested and affected parties will be considered.	

ix) Motivation where no alternative sites were considered.

Alternative is not applicable. The current land use is residential. The option to explore the possibility for prospecting is already in itself an alternative land use. The applicant, **Taisoar Consulting & Projects (Pty) Ltd**, is not interested in any other alternative land use over this land aside for exploration of the said minerals, or any other activity, or method use other than prospecting in the conversional way, which is the most cost effective.

Please note that no additional infrastructure will be established, and therefore no alternatives for the location of infrastructure were identified..

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

(Provide a statement motivating the final site layout that is proposed)

The prospecting operation will not be a static operation, the mobile plant will move as prospecting progress, thus the whole application is to determine a potential site for when the mining phase is reached. The feasibility of prospecting the material from an environmental, social and economic perspective also plays a role.

h) 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.

(Including (i) a description of all environmental issues and risks that are 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.)

ASPECT 1. GEOLOGY	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The geology will be destroyed during the opencast prospecting operation. During operation which will be for the next 5 years, the mineral resource (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) will be extracted. Waste rock material/overburden material is disposed off/backfilled in existing excavations as part of the prospecting process.				
Extent	Site				Activity causing the impact
Duration	Permanent				An opencast prospecting method will be used to extract bulk samples. Therefore the original geology will be totally destroyed.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2 X	Phase 3 X	Closure	

ASPECT 2. TOPOGRAPHY	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	* **Change in landform** : * The prospecting site is situated on: level plains some relief. * **Disturbance of the surface drainage:** The prospecting of the (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposits will result in the creation of trenches (10 m x 60m x ±20 m or less), that act as depressions in the environment that captures run-off. Prospecting activities will be concentrated as indicated on **Appendix** 4 on the application area (approximately 20 m depth). The surface drainage is already disturbed. Normal surface drainage will be disturbed at a given point. Run-off if any will be diverted away from the specific site.				
Extent	Site				Activity causing the impact
Duration	Very long to Permanent				Bulk sampling trough trenches, etc.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2 X	Phase 3 X	Closure X	

3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The surface area is characterized by various soil depths. Any construction of infrastructure should be preceded by the removal of all available topsoil.				
Extent	Site				Activity causing the impact
Duration	Long				In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The establishment, construction, operation and eventually rehabilitation (demolition) of listed structures such as the access roads, stockpiles /tailings dumps, cause compaction of soil. Some areas already disturbed thus no topsoil. All prospecting activities will be concentrated on the identified prospecting focus area where (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposits could be found. In the same time a certain surface area is therefore alienated. The active prospecting surface area (alienated) would be restricted within the ±0.5 ha at any given time (in relation to area of application of the prospecting right of 4.1098 hectares) for the next 5 years.				
Extent	Site				Activity causing the impact
Duration	Long				Site preparation for additional prospecting sites and the construction, operation of listed infrastructure.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Soil erosion: Due to the fact that certain surface areas would become compacted and this would lead to lesser infiltration of rainwater and more run-off that could cause erosion on bare disturbed surfaces. Erosion would always be possible until such time a vegetation cover is provided during rehabilitation phase.				
Extent	Site				Activity causing the impact
Duration	Very short				When removing topsoil during site preparation, little storm water control structures are in place. If a severe storm hits the area, it may lead to erosion on site. Topsoil stockpiles may be prone to erosion due to lack of vegetation cover. Water control structures may fail or severe rainstorms may cause excessive run-off. Surface compaction due to activities taking place.
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Potential of soil contamination.				None.
Extent	Site				Activity causing the impact
Duration	Long				Vehicle/equipment breakages and oil/lubricant /diesel spills may contaminate soil.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 3. SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Loss of soil structure				None
Extent	Site				Activity causing the impact
Duration	Long				In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.SOIL					
Nature of the impact	Loss of soil fertility				None
Extent	Site				Activity causing the impact
Duration	Short				The mixing of soil during site preparation, compaction and potential pollution (spillages form oil etc.) all may cause this situation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
4.LAND CAPABILITY					
Nature of the impact	**Temporary loss of land capability to support residential and commercial use.** The small area (0.5 ha) where the active prospecting activities occur (trenches, stock piles, prospecting equipment) etc. will thus be temporary alienated, until the area is rehabilitated. All trenches would be rehabilitated as part of the prospecting process during which trenches are back-filled.				
Extent	Site				Activity causing the impact
Duration	Long				Site preparation for additional prospecting sites and the construction, operation of listed infrastructure, the land capability of the active prospecting area will be totally destroyed.
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
5. LAND USE					
Nature of the impact	This is a new prospecting operation and therefore will lose its land use to support it current land use of residential and commercial use of the 4.1098 during the next 5 years. Only a small portions of land (0.5 ha at a time) would be affected by the prospecting operation relation to the total prospecting right application area of 4.1098. All trenches would be rehabilitated as part of the prospecting process during which excavations are back-filled.				
Extent	Site				Activity causing the impact
Duration	Long to permanent				Site preparation for prospecting and the construction, operation of listed infrastructure
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Vegetation clearance, disturbance and trampling. Destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and spreading of exotics can follow.				
Extent	Site				Activity causing the impact
Duration	Long				The site preparation for new sites, construction of listed infrastructure will cause destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and invasion of exotics could further spread. The vegetation needs to be cleared to remove the topsoil.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Habitat change, loss of species, spread of alien and invasive species.				
Extent	Site				Activity causing the impact
Duration	Permanent				The change in the current habitat will be mitigated during final rehabilitation.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.VEGETATION					
Nature of the impact	Dust coverage of plants.				None
Extent	Site				Activity causing the impact
Duration	Long				Heavy trucks and other vehicles on dirt roads, stockpiling, dumping of tailings are mainly responsible for this impact.
Probability	High				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Wildlife or wildlife habitat destruction /change / disturbance.				None
Extent	Site				Activity causing the impact
Duration	Permanent				The flora which normally serves as habitat for animals would be destroyed during site preparation. The increase in activity will temporarily scare other animals. The area will serve as a new habitat after rehabilitation.
Probability	Very High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Injury and death to wildlife.				None
Extent	Site				Activity causing the impact
Duration	Short				The movement of vehicles may kill certain insects, rodents and possible birds. Most of the remaining animal life will however move away due to noise.
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7. WILDLIFE					
Nature of the impact	Restoration of habitat.				None
Extent	Site				Activity causing the impact
Duration	Short				As rehabilitation progresses the habitat of certain species will be restored/created (Closure objective) Animals will probably only move back when human movement is limited.
Probability	Low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8. SURFACE WATER					
Nature of the impact	Change in surface water quality. Spillages from vehicles and also surface water run-off that is not adequately diverted away from the active prospecting excavations could end-up in the excavations creating problems regarding water quality and hindering the prospecting process. Surface run-off from active prospecting sites (overburden dumps) if not adequately contained on site could end-up in the adjacent undisturbed natural veld. If the natural surface run-off is not adequately diverted in the case of the dry-water course area, prospecting sections it could become silted-up.				
Extent	Local				Activity causing the impact
Duration	Short				"Dirty / Clean" water systems at facilities like the overburden dumps, roads, trenches, etc. may impact on the quality of the surface water. The water should be contained in the surface runoff control measures provided therefore.
Probability	Moderate				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

9. GROUND WATER					
Nature of the impact	Even though abstraction is likely to have a minimal effect on the surrounding groundwater users, this is a new use, and groundwater levels are expected to continue current trends. Groundwater will be abstracted for potable water supply and prospecting processes. The volume of water needed is small (2 000 Lit/hr) in comparison to other water use and will have a small impact on the surrounding aquifer.				
Extent	Site				Activity causing the impact
Duration	Long				Opencast prospecting operation.
Probability	Low				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 10. AIR QUALITY	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Dust will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen &washing pans) and on gravel/dirt/farm roads. The processing of the gravel is a wet process and therefore minimum dust is generated.				
Extent	Site				Activity causing the impact
Duration	Long				Initial construction work with regard to infrastructure (roads) that involves earth moving equipment. During the phase 2, dust could be generated as indicated during prospecting.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 11. NOISE POLLUTION	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	Noise will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen &washing pans). The mine itself is located in rural landscape. The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act.				
Extent	Local				Activity causing the impact
Duration	Long				Earth moving equipment and vehicles (trucks).
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT 12. ARCHAEOLOGICAL AND CULTURAL SITES	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The terrain is not archaeologically vulnerable. It is unlikely that the proposed development will result in any significant archaeological impact at the site.				
Extent	Site				Activity causing the impact
Duration	Permanent				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X			

ASPECT 13. SENSITIVE LANDSCAPE	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	No sensitive landscapes identified.				
Extent	Not applicable				Activity causing the impact
Duration	Not applicable				
Probability	Not applicable				
Significance	Not applicable				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
14.VISUAL ASPECTS					
Nature of the impact	Prospecting will be visible to the land owner, all residence and neighbours living there. The operation is not visible to from any tourist road.				
Extent	Site				Activity causing the impact
Duration	Long				Diamond prospecting operation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
15. SOCIO ECONOMICS					
Nature of the impact	Increase in Socio – economic activity at local level. The project in itself would ensure that approximately 8 workers would be assured of a job for some time. Job creation plays a major role in increasing the economic wellbeing of employees and their dependants in the Rustenburg/Moolnoci district. Once all prospecting operations have ceased it would definitely have a negative impact.				The increase in socio-economic activity will add to the current growth and development in Rustenburg already created by industry and prospecting.
Extent	Local				Activity causing the impact
Duration	Long				Additional employment opportunities created.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
15. SOCIO ECONOMICS					
Nature of the impact	The main impact on the landowners will be high negative, because of the size of the application area and because it is fully developed and build-up. The main impacts will be visual, income, water, noise and land use and the small area of 0.5 ha that will not be available for agricultural activities at any given time for 4 years. The applicant is not the landowner, and was consulted personally.				The economic benefits in terms of investment and the delivery of services in the North-west province will get an additional benefit from the project.
Extent	Regional				Activity causing the impact
Duration	Very Long				
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
16. INTERESTED & AFFECTEDPARTIES					
Nature of the impact	Impact of activities on I&AP's Temporary loss of utilization of the prospecting focus areas for agricultural purposes. The long-term benefits far out-weight the current benefits from the current use. Loss of cattle due to falling of animals in mine workings if not fenced. No negative impact is expected that could be appropriately mitigated, such as the eventua rehabilitation of the excavations.				
Extent	Local				Activity causing the impact
Duration	Long				
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

i) Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

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.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…)	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) Through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)	SIGNIFICANCE if mitigated
Excavations for different minerals	1.1 Removal of the ore up to 10 m. Disturbance of 0.5 hectare at any given time.	Geology & soil	Operational	High -	The impact will be mitigated by backfilling and sloping the sides and stabilizing the soil to prevent erosion	Low +
	1.2 Change in landform. The entire prospecting area will be lowered by 10 m and normal surface drainage will be disturbed at this specific point. The pit will be sloped and backfilled	Topography	Operational and closure	Moderate -	The pit will be sloped and backfilled. The sides will be sloped and top soiled and vegetated. A surface water cut-off trench should be put in place around the active prospecting site in order to prevent surface run-off water on the prospecting site. Rehabilitation of the new sloped landscape in such a way that it would blend in with the surrounding landscape.	Moderate +
	1.3 Stripping of all available topsoil and stockpiled. Stockpile and plant area of 0.25 hectare at any given time.	Soil	Construction and Operational	Low -	Any area on the prospecting area where disturbance will take place the top soil must be removed and stockpiled for rehabilitation purposes in a demarcated area.	Low +
	1.4 Soil erosion: Due to the fact that certain surface areas would become devoid of any vegetation cover and compacted this would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes	Soil	Construction	Low-	To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the prospecting area to prevent water entering that can cause erosion. Concurrent rehabilitation and re-vegetation of mined areas must happen as soon as the particular area is mined out. Rehabilitated areas must be inspected and managed in such a way that any signs of erosion can be mitigated immediately.	Low +
	1.5 Land capability and land use. Loss of land to support grazing.	Land capability & Land use	Operational and closure	Low-	As this is only a very small area of 0.5 hectare, the impact is not so big. As the excavation will be backfilled and vegetated the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declares weeds.	
	1.6 Generation of dust by excavating and vehicle movement	Air quality	Operational	Low -	The prospecting method will serve as mitigation measure because it will limit dust to the active prospecting area, where the excavator and trucks operating. Daily spraying of the roads with water.	

j) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mention X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
None			

k) Environmental impact statement

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

The small scale prospecting operation is definitely going to have an impact on the environment. The main impact relates to topography, geology, soil, vegetation, and land use and land capability. The (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) resource will be prospected over a period of 5 years. The existing land-use is residential and commercial. This is a small operation and for the next 5 years only a small portion of the farm will be temporarily alienated.

The conservation of topsoil is of utmost importance and therefore in order to ensure a sustainable land use again on the 0.75 ha, the top at least 30 cm topsoil need to be removed prior to prospecting of the underlying alluvial gravel (up to 10 m depth). This will be used again as growth medium during the rehabilitation phase of the excavations. Topsoil will be stored in berm walls on the border of the excavation in order to divert any surface run-off during a rainfall event. Other environmental impacts relates to the day to day operation that could easily be managed, such as dust and noise.

(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.

Attach **as Appendix 1 (a) –** Infrastructure Map.

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

The site is selected in such a way that farming will still be possible on the rest of the farm. The loss of land use and land capability will be temporary as the site will be rehabilitated in such a way that it allows the establishment of a grass cover again. The rest of the farm will still be continued to be used for grazing for cattle. Although this is small (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) prospecting operation it would also add to the increased economic activity within the farming and exiting mining community around Rustenburg. Jobs for 8 permanent laborers will be created. Negative impacts on the area are expected to be temporary and can be mitigated to a large extent if the recommendations of the EMP are adhered to e.g. rehabilitation. No concerns have been raised as yet by any I & AP. The specific minerals occurrence of the (Platinum Group Metals (PGM's), Chrome Ore, Vanadium Ore, Manganese Ore & Phosphate Ore) deposit dictates the selection of the specific prospecting site.

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

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 3 – 1. (1)(d)

The main closure objective of **Taisoar Consulting and Ptojects (Pty) Ltd.** is to rehabilitate the entire prospecting site in such a way to ensure that the new man-made topographical landscape would blend in with the surrounding landscape, not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. The applicant will ensure that the Operation/Sites are:

- Neither a danger to public health and safety nor to animal health and safety;
- Not a source of any pollution;
- Stable (ecological and geophysical);
- Rehabilitated to the state that is suitable for the predetermined and agreed land use (grazing);
- Compatible with the surrounding biophysical environment;
- A sustainable environment;
- Aesthetically acceptable;

- Not an economic, social or environmental liability to the local community or the state now or in the future.

m) Final proposed alternatives.

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

None

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation

None

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

(Which relate to the assessment and mitigation measures proposed)

None

p) Reasoned opinion as to whether the proposed activity should or should not be authorized

None

h) Reasons why the activity should be authorized or not.

This activity will have only high and very high impacts and no significant impacts were identified. No concerns were raised by the interested parties. These prospecting activities will have no significant impacts on them or their surrounding environment.

ii) Conditions that must be included in the authorization

None

(1) Specific conditions to be included into the compilation and approval of EMPr

None

(2) Rehabilitation requirements

Normal rehabilitation

q) Period for which the Environmental Authorization is required.

5 years.

r) Undertaking

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

The Environmental Management Programme will, should it comply with the provisions of section 39 (4) (a) of the Act and the right be granted, be approved and become an obligation in terms of the right issued. As part of the proposed Environmental Management Programme, the applicant is required to provide an undertaking that it will be executed as approved and that the provisions of the Act and regulations thereto will be complied with.

UNDERTAKING BY APPLICANT TO COMPLY WITH THE PROVISIONS OF THE ACT AND THE REGULATIONS THERETO

UNDERTAKING

I, D. E. Erasmus, the undersigned and duly authorised thereto by Taisoar Consulting and Ptojects (Pty) Ltd. have studied and understand the contents of the Environmental Management Programme and duly undertake to adhere to the conditions as set out therein, unless specifically or otherwise agreed to.

Signed at Klerksdorp on this day 13th of August 2019.

.....

Signature of Mine Manager

s) Financial Provision

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

It is envisaged that there will be trenches open of 0.4 hectares and surface disturbance of 0.3 hectares for the plant/stockpile area. Thus the total liability of R126 315.00 for rehabilitation. See quantum attached **as Appendix 3**.

i) Explain how the aforesaid amount was derived.

It is envisage that as concurrent rehabilitation of the excavation will be practiced on 0.5ha of opencast disturbance will be opened at any given time and 0.3 hectares of surface disturbance for the plant area. The quantum will be monitored on a annual basis and if this figures are not in line it will be rectified by additional guarantee. The amount was determined through the quantum tables provided by DMR.

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

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Prospecting work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

Yes it is hereby confirmed that the amount will be provided from operating expenditure.

t) 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. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond mining on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix**

The applicant will remunerate the occupier for the land used as agreed upon. No other person will be directly affected by this activity.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond mining on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

There is no graveyard within the application area. According to Section 36(3) of the National Heritage Resources Act 25 of 1999 no person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
It is recommended that the graveyard is included in the overall management plan of the mine development. Preservation of the site will require that the area is properly demarcated with at least a 20m buffer zone placed around the graveyard in order to avoid potential damage during prospecting activities. It will be necessary to ensure that the graveyard is accessible to the relatives of the deceased.

u) 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 **Appendix 1**).

There are no alternatives, as the application area applied for is the area where the applicant believes is potential for alluvial gravel deposits.

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).

The EAP Mr. Daan Erasmus has a National Diploma in Agriculture Resource Utilization and a Baccalaureus Technologiae degree in Agricultural Extension.

Yes see **Part A.**

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 (i)(h) herein as required).

Yes see **Part A.**

c) Composite Map

(Provide a map (Attached as an Appendix) 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 any areas that should be avoided, including buffers)

See Appendix 1 (a)

d) Description of Impact management objectives including management statements

i) Determination of closure objectives. (ensure that the closure objectives are informed by the type of environment described)

The main closure objective of **Taisoar Consulting and Ptojects (Pty) Ltd.** is to rehabilitate the entire prospecting site in such a way to ensure that the new man-made topographical landscape would blend in with the surrounding landscape, not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. Another main objective is to manage the surface water in such way that an acceptable water standard is achieved when a closure certificate is issued.

As this area was disturbed before there is not top soil available on all the areas but on the non-disturbed area all available top soil will be stripped and stockpiled.

Taisoar Consulting and Ptojects (Pty) Ltd. will ensure that the Operation/Sites are:

- ✓ Neither a danger to public health and safety nor to animal health and safety;
- ✓ Not a source of any pollution;
- ✓ Stable (ecological and geophysical);
- ✓ Rehabilitated to the state that is suitable for the predetermined and agreed land use;
- ✓ Compatible with the surrounding biophysical environment;
- ✓ A sustainable environment;
- ✓ Aesthetically acceptable;
- ✓ Not an economic, social or environmental liability to the local community or the state now or in the future.

Taisoar Consulting and Ptojects (Pty) Ltd. will furthermore:

- ✓ Ensure that the physical and chemical stability of the rehabilitated site will be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures;
- ✓ Subscribe to the optimal exploitation and utilization of South Africa's mineral resources;
- ✓ Ensure that the prospecting site is closed efficiently and cost effectively.
- ✓ Ensure that the operation is not abandoned but closed in accordance with the relevant requirements;
- ✓ Ensure that the interest of all interested and affected parties will be considered;
- ✓ Ensure that the all-relevant legislation regarding mine closure will be adhered to, and all relevant application procedures followed.

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

2 000 liters a day will be used for dust suppression.

iii) **Has a water use license has been applied for?**

Application will be submitted.

iv)Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES (E.g. For mining - 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)	PHASE (of operation in which activity will take place State; Planning and design, Pre-Construction/ Construction, Operational, Rehabilitation, Closure, Post-closure)	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m²)	MITIGATION MEASURES (describe how each of the recommendations in column will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in column will comply with any prescribed environmental management standards or practices that have been identified by competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either Upon cessation of the individual activity or, Upon the cessation of mining, bulk sampling or alluvial diamond mining as the case may be
1. Excavations: ✓ destruction of geology; ✓ change in topography; ✓ loss of soil structure; ✓ compaction/loss of land capability; ✓ temporary loss of land use; ✓ disturbance of vegetation cover; ✓ disturbance of animal life; ✓ visual impact	Operational	0.4 hectares at any stage	Keep to optimal well planned prospecting plan/Concurrent rehabilitation by sloping the sides of the excavation to be stable/Sustainable and covered with topsoil and vegetate/Surface run-off measures be put in place/Restrict clearing of surface area to necessary areas/ Re-establishment of vegetation on rehabilitated area	The pits will be sloped for stability and providing a base for the replacement of topsoil.	As part of concurrent rehabilitation.
2. Ore Stockpile area: ✓ compaction of soil; ✓ surface drainage will be disturbed; ✓ increase of silt load/ visual impact	Operational	0.3 hectares at any stage	Keep this area as small as possible within the demarcated area/ Prevent spillages of fuels by machines	Immediate cleaning of spillages	Concurrent with prospecting
3. Screening of ore: ✓ soil contamination; ✓ potential of negative impact on surface water; ✓ dust pollution; ✓ reduction in groundwater quality; ✓ increase in noise pollution; ✓ visual impact	Operational	0.3 hectares at any stage	Keep this area as small as possible/ Prevent spillages of fuels by equipment/Surface run-off measures be put in place/	Immediate cleaning of spillages	Concurrent with the prospecting
4. Surface infrastructure: ✓ compaction of soil; ✓ surface drainage will be disturbed; ✓ reduction in groundwater quality; ✓ visual impact	Operational		Keep this area as small as possible within the demarcated area/ Prevent spillages of fuels by machines/Surface run-off measures be put in place/Remove temporary buildings, scrap, domestic waste, etc.	Remove temporary buildings, scrap, domestic waste, etc. as soon as possible.	
5. Prospecting Vehicle: ✓ soil contamination/loss of soil structure; ✓ loss of soil fertility; ✓ potential of negative impact on surface water; ✓ reduction in groundwater quality; ✓ visual impact	Operational		Stay on mine roads/ Prevent spillages of fuels by machines/Surface run-off measures be put in place/regular service of vehicles and machinery/daily spraying of road surfaces to reduce dust/Drip trays must be available under parked mine vehicles/Vehicles must be serviced over concrete slab of PVC lined area/All used oils and lubricants be stored over concrete slab and regularly removed.		

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) (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, scales, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc. etc. etc.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, oil pollution, etc., etc.,)	ASPECTS AFFECTED	PHASE In which impacts anticipated (e.g. Construction, commissioning, operational, Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. Noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls avoidance, relocation, alternative activities etc) E.g. 1=Modify through alternative method 2=Control through noise control 3=Control through management and monitoring 4=Remedy through rehabilitation	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
1. Excavations for ore	1.1 Removal of the ore up to 10 m	Geology & soil	Operational	The impact will be mitigated by backfilling and sloping the sides of the excavation and stabilizing the soil to prevent soil erosion.	Stable slopes that can sustain erosion without excessive erosion.
	1.2 Change in landform. The entire prospecting area will be lowered by 10 m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled	Topography	Operational and closure	The side of pit will be sloped and the soil stabilized to prevent erosion. A surface water cut-off trench should be put in place around the active prospecting site I order to prevent surface water on the prospecting site. Rehabilitation of the new sloped landscape in such a way that it would blend in with the surrounding landscape.	Gentle stable slopes.
	1.3 Stripping of all available topsoil and stockpiled	Soil	Construction and operational	The top soil must be removed before any disturbance take place. The top soil must be removed and stockpile in a demarcated area for rehabilitation purposes.	Enough topsoil for rehabilitation to ensure sustainable vegetation.
	1.4 Soil erosion due to the fact that certain surface areas would become devoid of any vegetation cover and compacted. This would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes.	Soil	Construction and operational	To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the prospecting area to prevent water entering that can cause excessive erosion.	No excessive erosion that cannot be stabilized.
	1.5. Loss of Land capability & land use	Land capability & land use	Operational and closure	As this is only a very small area of 0.5 hectare, the impact is low. As the sides will be sloped and vegetated, the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declared weeds.	Sustainable rehabilitated area.
	1.6 Generation of dust by excavating and vehicle movement	Air quality	Operational	The generation of dust will only be localized at the prospecting site. Daily spraying of roads with water	No excessive dust that can be harmful to the environment and humans.

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) [E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.]	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc...)	MITIGATION TYPE (modify, remedy, control, or stop) Through [e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activities etc) E.g. I Modify through alternative method I Control through noise control I Control through management and monitoring I Remedy through rehabilitation.	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required With regard to Rehabilitation specifically this must take place at the earliest opportunity With regard to Rehabilitation, therefore state either - Upon cessation of the individual activity or Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.5 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Excavations for ore	1.1 Removal of the ore up to 10 m	The bulk of the material removed will be screened. The impact will be mitigated by backfilling the excavation and stabilizing the soil to prevent soil erosion.		
	1.2 Change in landform. The entire prospecting area will be lowered by 10 m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled	The pit will be backfilled/sloped and the soil stabilized to prevent erosion. A surface water cut-off trench should be put in place around the active prospecting site in order to prevent surface water on the prospecting site. Rehabilitation of the new rehabilitated landscape in such a way that it would blend in with the surrounding landscape.		
	1.3 Stripping of all available topsoil and stockpiled	The top soil must be removed before any disturbance take place. The top soil must be removed and stockpile in a demarcated area for rehabilitation purposes		
	1.4 Soil erosion due to the fact that certain surface areas would become devoid of any vegetation cover and compacted. This would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes.	To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the prospecting area to prevent water entering that can cause excessive erosion.		
	1.5 Loss of Land capability & land use	As this is only a very small area of 0.5 ha, the impact is low. As the sides will be sloped and vegetated, the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declared weeds.		
	1.6 Generation of dust by excavating and vehicle movement	The generation of dust will only be localized at the prospecting site. Daily spraying of roads with water		

j Financial Provision

(f) 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.

The main closure objective of **Taisoar Consulting and Ptojects (Pty) Ltd.**, is to rehabilitate the entire prospecting site in such a way to ensure that the new man-made topographical landscape would blend in with the surrounding landscape, not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. Another main objective is to manage the surface water in such way that an acceptable water standard is achieved when a closure certificate is issued.

Taisoar Consulting and Ptojects (Pty) Ltd. will ensure that the Operation/Sites are:

- Neither a danger to public health and safety nor to animal health and safety;
- Not a source of any pollution;
- Stable (ecological and geophysical);
- Rehabilitated to the state that is suitable for the predetermined and agreed land use;
- Compatible with the surrounding biophysical environment;
- A sustainable environment;
- Aesthetically acceptable;
- Not an economic, social or environmental liability to the local community or the state now or in the future.

Taisoar Consulting and Ptojects (Pty) Ltd. will furthermore:

- Ensure that the physical and chemical stability of the rehabilitated site will be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures;
- Subscribe to the optimal exploitation and utilization of South Africa's mineral resources;
- Ensure that the prospecting site is closed efficiently and cost effectively.
- Ensure that the operation is not abandoned but closed in accordance with the relevant requirements;
- Ensure that the interest of all interested and affected parties will be considered;
- Ensure that the all-relevant legislation regarding mine closure will be adhered to, and all relevant application procedures followed.

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

Yes, the disturbance that will take place and the rehabilitation thereof were discussed on the site visit with the landowner.

(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.

a. Rehabilitation:

The clearing of soil surface areas would be restricted to what is really necessary for the construction of infrastructure/crushing plant. During rehabilitation of these sites, or where vegetation is lacking or compacted, the areas would be ripped or ploughed and leveled in order to re-establish a growth medium and if necessary appropriately fertilized to ensure the re-growth of vegetation and the soil ameliorated based on a fertilizer recommendation (soil sample analyses).

Rehabilitation of access roads

Whenever a prospecting right is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.

Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre-prospecting situation.

Roads shall be ripped or ploughed, and if necessary, appropriately fertilized (based on a soil analysis) to ensure the re-growth of vegetation. Imported road construction materials which may hamper re-growth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analyzed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

Rehabilitation of the surface prospecting site

On completion of operations, all buildings, structures or objects on the camp/office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states:

(1) When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object -
   (A & B) which may not be demolished in terms of any other law;
   (C) which has been identified in writing by the Minister for purposes of this section; or
   (c) Which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.

(2) The provision of subsection (1) does not apply to bona fide prospecting equipment which may be removed

The excavations surface area shall be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over the whole area.

After all the foreign matter has been removed from the prospecting sites, the area levelled and the previously stored topsoil replaced.

The area shall then be fertilized if necessary (based on a soil analysis). The site shall be seeded with a vegetation seed mix (section C) adapted to reflect the local indigenous flora. Where the site has been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

Photographs of the site, before and during the prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal (controlled) surface drainage to continue.

Implement water control systems in order to prevent erosion. Seed the area (see C. (below) for recommended seed mixture).

Visual impact would be addressed by means of;
- re-vegetation (grasses);
- removal of any building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact.

Fertilizing of Areas to be Rehabilitated

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analyzed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.

Seeding of Grass Seed Mixture and planting of Woody Species

The eventual seed mixture takes into account the availability of seed, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the borehole prospecting site:

- ✓ Cenchrusciliaris
- ✓ Cynodondactylon
- ✓ Digitariaeriantha
- ✓ Heteropogoncontortus
- ✓ Panicum maximum

b. Demolition of infrastructure/buildings

On completion of operations, all buildings, structures or other on the prospecting terrain shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act,2002 (Act No. 28 of 2002). There will be no permanent buildings.

c. Invasive and alien control programme

Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species. Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants.

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

The excavations will be backfilled with overburden and sloped and top soil will be placed back. This site can be rehabilitated.

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

R 126 315, see **Appendix 3** – Quantum Table.

(f) Confirm that the financial provision will be provided as determined.

The financing for this project will be done from the account **Taisoar Consulting and Ptojects (Pty) Ltd.**, the applicant himself out of own funds. The guarantee will be provided in the form of Bank Guarantee after confirmation of the amount.

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 and Mechanisms 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
Prospecting site/Soil	Possible spillages of petrochemicals. Stripping of topsoil	Checking for spillages on daily basis. Checking correct stripping and stockpiling of topsoil	Manager and Applicant	Daily checking and reporting with Performance Assessment
Prospecting site/Topography	Concurrent backfilling of excavations.	Checking stability of slope and erosion preventive measures	Manager and applicant	Quarterly
Prospecting site/Air quality	Dust pollution from prospecting activities.	Regular wetting of roads and stockpile area where loading take place.	Manager and applicant	Daily
Prospecting site	Chemical toilet	Make sure that it is used and hygienic.	Manager and Applicant	Weekly.

l) Indicate the frequency of the submission of the performance assessment/ environmental audit report.

An EMP Performance Assessment will be submitted to the Management and the DMR on an annual basis.

m) 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.

Taisoar Consulting and Ptojects (Pty) Ltd. will contract DERA Environmental Consultants to inform the employees after the EMP was approved. The following guidelines will be used:

- ✓ Communication
- ✓ Urge
- ✓ Leadership
- ✓ Teamwork
- ✓ Understanding
- ✓ Recognition
- ✓ Empowerment (CULTURE)

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

The risks of avoiding pollution will be mainly on spillages of fuel and oil. This will be dealt through proper maintenance on all equipment, daily checks for leaks on vehicles, putting dripping trays underneath all stationary machinery, proper storage in a bunded lined facility for the fuel and storage of oil in a container with roof and floor. The proper management of old oil through a company like Oilkol will also be important.

The above measure will ensure no degradation of the environment as well as the proper storage of the top soil and proper rehabilitation and replacement of the top soil as the excavation will have the biggest impact on environment but can be mitigated through proper rehabilitation

n) Specific information required by the Competent Authority

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

The quantum for rehabilitation liability will be reviewed with the performance assessment on annual basis. **See Table 10.**

Table 10: Monitoring Plan

Action	Frequency	Method	Period
1.Monitoring of perimeter fence	Monthly and following any heavy rainfall.	Foot or vehicle patrol. Record	Until closure.
2.Monitoring of re-vegetation Mined out and rehabilitated areas Leveled and Rehabilitated Dumps Mine residue dam walls Old roads Covered over waste pits Rehabilitation plots	Every 6 months	Foot inspection Initiate set up of test plots Photograph. Transect / Quadrant Get consultants in if necessary.	Until closure.
3.Monitoring of erosion Roads Mine residue dam walls Rehabilitated mined out areas Dumps Pumps and pipelines Any other areas	Every 6 months and following any heavy rainfall	Visual inspection Walk over rehab. Areas Drive along roads. Check pipelines and pumps: mine residue dams, dumps. Photographic records.	Until closure

4. Monitoring of alien plants over the whole site.	On-going until under control - then every 6 months.	Visual inspection on foot patrol. Map presence of invasive plants. Plan removal, remove and document area covered on monthly basis. Verify Photograph.	On-going until closure
5. Monitoring of Water Quality from selected points	Every 6 months	Build up database and graph the results. Compare with limits and take action on non-conformances.	Until closure.
6. Monitoring of all Rehabilitation Areas. Check compliance with gradients and variation in topography	Every 6 months.	Survey- map new rehabilitated areas. Plot on map and calculate area treated, Get rehab consultants in if necessary.	Until closure.
7. Monitoring of stability of mine Residue dams and water Storage facilities.	Monthly and summarize every 6 months	Follow specifications in mandatory code of practice for puddle dams	Until closure
8.Monitoring of disposal of metal scrap, old oil, oil filters, old oil drums, oily cloths, batteries, fluorescent tubes, tires and contaminated soil (Hazardous waste)	Monthly and summarize every 6 months.	Record each load sent off the site. Give used oils to Oilkol Ensure safe disposal certificates are obtained from suppliers if the material is given back to them.	Until closure.
9.Monitoring of maintenance of general waste disposal	All loads of waste to be recorded and quantity extrapolated. Covering of waste pit - Monthly.	Running total of loads of waste taken Record of waste taken to Rustenburg waste disposal site Keeping record of waste taken to disposal site	Until closure
10.Monitoring of condition of septic tanks	Every six months	Visual inspection. Record condition.	Until closure
11. Monitoring of condition of bunded Areas around diesel fuel tanks, Refueling area, old oil tank; and underground petrol tank.	Every six months.	Visual inspection	Until closure
12. Monitoring of water use.	Monthly	Record total water use and water use at different plants by recording flow meters. Ensure compliance with license.	Until closure

2) UNDERTAKING

The Environmental Assessment Practitioner

I, I **DE Erasmus**

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation **8** of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;

- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realize that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;

- I have a vested interest in the proposed activity proceeding, such vested interest being:

_____

The EAP herewith confirms

a) the correctness of the information provided in the reports ☐

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

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

d) 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

DERA Omgewingskonsultante (Pty) Ltd
Name of company

-END-

JERRY DEAN MENIN
OFFICE MANAGER / AUDITOR
COMMISSIONER OF OATHS / KOMMISSARIS VAN EDE
Appointed in terms of Section 5(1) of Act 16 of 1963
Aangestel in terme van Artikel 5(1) van Wet 16 van 1963
Centrallaan 32 Central Avenue, Flamwood, Klerksdorp
Appointed/Aangestel: 23 Oktober 2012
Reference/Verwysing: 9/1/8/2 Klerksdorp