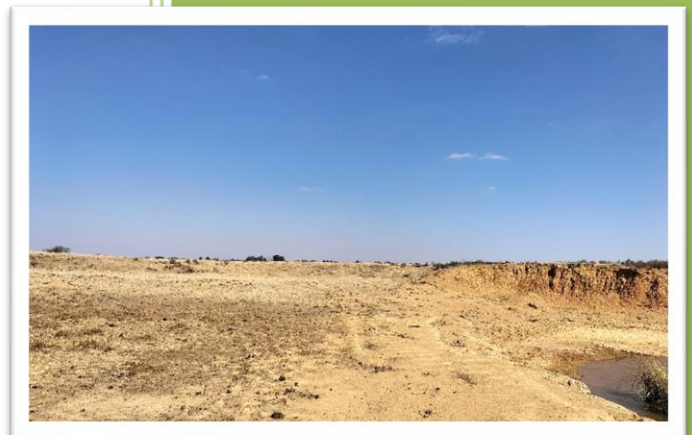


THE DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE OF ROAD P15/2 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT



community safety, roads & transport
Department of
Community Safety, Roads & Transport
FREE STATE PROVINCE



ENVIROMATRIX

18/09/2023

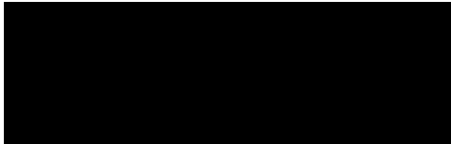
SAMRAD REF NO:

FS30/5/1/1/2/02140BP

PROJECT DETAILS

PROJECT TITLE: THE DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE OF ROAD P15/2 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

REFERENCE NO: FS30/5/1/1/2/02139BP

PROJECT PROPONENT: The Department of Community Safety Roads and Transport


ENVIRONMENTAL CONSULTANT: ENVIROMATRIX
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Reg.EAP (2019/2013)
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Janus Botha

REPORT COMPILED BY: Janus Botha

DOCUMENT STATUS: Draft

DATE: 18 September 2023

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TABLE OF CONTENTS

DMR BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

APPENDICES

Appendix 1 – EAP Information

Appendix 2 - Locality Map

Appendix 3 – Public Participation Report

Appendix 4 – Site Plans

Appendix 5 – Impact Assessment

Appendix 6 – Environmental Baseline

Appendix 7 – Specialist Studies Reports

Appendix 8 – Financial Provision

Appendix 9 – EMPr and Rehabilitation Plan

EXECUTIVE SUMMARY

The Free State Department of Community Safety, Roads and Transport (CSRT) (the applicant) intends to legalise a borrow pit on Farm Witfontein 444 in the Viljoenskroon area as part of the special maintenance of the P15/2 road between Viljoenskroon and the R59 intersection to Orkney. The borrow pit was used by the applicant in the past to acquire material for previous maintenance and road building projects. The objective is to provide good quality road building material for the special maintenance project. The applicant is thus hereby applying for a Mining Right for the borrow pit development to the Department of Mineral Resources and Energy (DMRE) with their offices in Welkom, Free State in accordance with Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

Based on the need for the special maintenance of the road between Viljoenskroon and the R59 intersection to Orkney and the Geotechnical Desirability of the preferred site, a Mining Permit application is submitted for the lifespan of the special maintenance project and a period of 3 years inclusive of the time required to complete the rehabilitation and closure of the site.

EnviroMatrix (Pty) Ltd, an Environmental Management Company has been appointed as Independent Environmental Consultants by CSRT, to undertake the Mining Environmental Authorisation application as part of the overall project authorisations process. The Mining Authorisation application for the borrow pit excavation and closure is governed by the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) and will be submitted to the Department of Mineral Resources with their offices in Welkom. However, as an organ of state CSRT has obtained exemption from the provisions of sections 16, 20, 22 and 27 (application process) of the MPRDA in respect of any activity to remove any material for the construction and maintenance of dams, harbours, roads and railway lines and for the purposes incidental thereto, as allowed by the said act in section 106 (1) as published in GN R762 in GG 26501 of 25 June 2004. As such the utilisation of resources is subject only to the preparation, submission and approval of an Environmental Impact Assessment Report and Environmental Management Plan, compiled in accordance with the requirements of National Environmental Management Act, Act 107 of 1998 (NEMA) and MPRDA.

The proposed Borrow Pit site have been selected out of a survey of similar sites in the region and proximity to the road. Geotechnical assessment of the sites, material suitability and volumes of material available has determined the selection of the borrow pit site. Other factors considered were the proximity to water resources, access, surrounding land use, slope, sensitive vegetation and historical significance of surrounding area/structures. In general, any alternative Borrow Pit that are investigated but for which applications are not made, do not have suitable material, are mined out or have environmental constraints making them unsuitable for an environmental application to be considered.

The location and extent of the proposed borrow pit site are given in the table below:

Farm Name:	Witfontein 444
Application area (Ha)	4.93Ha
Magisterial district:	Moqhaka Local Municipality
Distance and direction from nearest town	+/- 20km Northeast of Viljoenskroon
21 digit Surveyor General Code for each farm portion	F03600000000044400000

The method of mineral (gravel) extraction will be surface based. The overall mining plan will entail removal of soil and overburden from the borrow pit zone using heavy machinery to push off the soil fraction and overburden. The topsoil will be stripped and stored separately from the other overburden in areas where it will not be disturbed when the borrow pit is in operation. Heavy machinery will be used to excavate the gravel which is required for road construction. The gravel material will be put onto a stockpile prior to removal from site. The gravel will be removed with front end loaders and will be loaded onto tipper trucks that will transport it to the areas where it will be used. No mineral processing water will be required for processing, but water will be required to suppress dust on roads and during excavating.

At selected sites construction of infrastructure, apart from the provision of adequate fencing, barriers and beacons is expected at the borrow pit. Existing access roads will be utilised as far as possible, but where required new access roads will be established to facilitate the hauling of the gravel material to the road upgrading project.

CSRT and the appointed contractor will ensure that the borrow pit is rehabilitated and left in an environmentally acceptable state and to the satisfaction of the Department of Minerals Resources (DMR) and land owners. Dust control measures shall be implemented to minimise impacts on the surrounding environment when and where required. Stormwater control measures have been included in the mine plan and rehabilitation plan, for the prevention of ponding during mining and after rehabilitation.

Two specialist studies were also conducted namely an Ecological Assessment Study (including wetlands) and a Heritage Impact Assessment. The findings of the specialist studies undertaken during this study provide an assessment of both the benefits and potential negative impacts anticipated because of the proposed project subject to the adherence to the mitigation measures proposed and included in the Environmental Management Programme (EMPr). These findings conclude:

The main ecological impact management and mitigation measures are recommended for the proposed development:

- Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development.
- Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction.

- Implement an adequate Stormwater and Erosion Management Plan during the construction and subsequent operational phases of the proposed development. This must be done to sufficiently manage storm water runoff and clean/dirty water separation, to prevent any significant soil erosion from occurring within and around the assessment area.
- A closed inward-draining system design must be adopted for the proposed borrow pit.
- Implement suitable dust management and prevention measures during the construction- and subsequent operational phases of the proposed development.
- It is recommended that the construction phase of the proposed development must not commence during the aquatic avifaunal breeding season, if practicably/reasonably possible/feasible.

The findings of heritage impact assessment indicate that the proposed development will directly affect a late Quaternary aeolian overburden and fine-grained quartzitic sandstones considered to be of high palaeontological significance given the latter's potential for preservation of microbial mat features (stromatolites). Trace fossils may include wrinkle structures, sub rounded voids, small circular impressions, and positive ridges on bedding surfaces. A survey of old cuttings in the existing borrow pit was hampered by a lack of well-preserved horizontal bedding surfaces. In terms of palaeontology, it is recommended that development can proceed, if excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open. Based on surface observations, the site is regarded as of low archaeological significance and is assigned a rating of Generally Protected C. As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.

An Impact Assessment was conducted for the Borrow pits and is summarised below:

Negative impacts include:

- Increased dust levels due to the excavation, stockpiling, as well as the loading and hauling of the gravel.
- Direct destruction of existing vegetation through site clearance.
- Loss of topsoil where physical disturbance of the surface will occur.
- Sedimentation of water resources and loss of soil.
- Inadequate storm water management can impact negatively on the hydrology – i.e., ponding in the pit.
- Noise pollution from blasting and crushing and screening activities.
- Fire risk from both equipment and workers activities of open fires (prohibited) and smoking outside of designated areas.
- Generation of waste and litter
- Safety and access impacts of open trenches, borrow pits and to unsafe areas due to heavy vehicle movement.
- Safety risk from the general mining activities.

Positive impacts include:

- Increase ease of traffic will reduce accidents along the road due to the special maintenance of the P15/2 road, and the required use and the availability of the excavated gravel from the borrow pit.

- Job opportunities and skill transfer and training

The significance of the identified impacts was rated by considering its duration, scale, severity (magnitude) and the probability that the impact may occur. The study concluded that most of the negative impacts will be mitigated to be of low significance and all the positive impacts will be enhanced to be of high significance, by implementing the mitigation measures described in the attached EMPr.

Findings from the environmental impact assessment are:

- The impacts before mitigation are “medium”;
- After mitigation the identified impacts significance were reduced to “low”
- The “no-go” alternative has a negative impact due to the lack of gravel needed for the special maintenance of the road and the resulting social and safety risk posed by the unsafe road conditions.

The findings conclude that provided that the recommended mitigation and management measures are implemented there are no environmental disqualifying factors that should prevent the proposed project from proceeding. To achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through practical measures, the mitigation measures detailed in the specialist studies have been captured in the EMPr.

The Environmental Assessment has been undertaken in accordance with the EIA Regulations 2014 (as amended in 2017) in terms of Section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (as amended) as per the template provided by DMRE. The project, in the EAP’s opinion, does not pose a detrimental impact on the receiving environment and its inhabitants and can be mitigated through the measures and recommendations proposed by the specialist disciplines and the EMPr.

The Environmental Assessment Practitioner (EAP) therefore recommends the activity of the borrow pit on Farm Witfontein 444 to be duly authorised.



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: DEPARTMENT OF COMMUNITY SAFETY, ROADS AND TRANSPORT

TEL NO: 051 409 8687

FAX NO: 051 409 8864

POSTAL ADDRESS: PO BOX 119, BLOEMFONTEIN, 9300

PHYSICAL ADDRESS: PERM BUILDING, 45 MAITLAND STREET, BLOEMFONTEIN, 9300

FILE REFERENCE NUMBER SAMRAD: FS30/5/1/1/2/02140BP

1. IMPORTANT NOTICE

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

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

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

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

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

2. Objective of the basic assessment process

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

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

PART A
SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

(i) Details of the EAP

Name of the Practitioner: Tom Hugo
Tel No.: 082 870 0735
Fax No.: N/A
E-mail address: tom@emtix.co.za / janus@emtrix.co.za

(ii) Expertise of the EAP

(1) The qualifications of the EAP

(With evidence)

Master's degree in environmental management – Free State University, 2006.

Higher Diploma in Forestry Conservation – Saasveld School of Forestry, 1994

Diploma in Nature Conservation – Pretoria Technikon, 1987.

Registered Environmental Assessment Practitioner at EAPASA (Reg.EAP-2019/2013).

Professional membership with the International Association for Impact Assessment, South Africa (IAIAsa no. 3781).

Professional Environmental and Ecological Scientist (SACNASP Reg.No. 400124/96).

(2) Summary of the EAP's past experience

(In carrying out the Environmental Impact Assessment Procedure)

Mr Hugo has more than 10 years' experience in the environmental management field in Southern Africa. Experience include: i) The identification and assessment of negative environmental impacts and benefits through the review and processing of data; ii) The identification of practical and achievable mitigation and management measures and the development of appropriate management plans; iii) The compilation of environmental reports in accordance with relevant environmental legislative requirements; iv) The formulation of environmental policies, strategies and guidelines; v) Implementation and monitoring of environmental management systems and plans according to governmental records and decisions.

CV of Mr Hugo is available in Appendix 1.

b) Location of the overall Activity

Farm Name:	Witfontein 444
Application area (Ha)	4.93Ha
Magisterial district:	Moqhaka Local Municipality
Distance and direction from nearest town	+/- 20km Northeast of Viljoenskroon
21 digit Surveyor General Code for each farm portion	F03600000000044400000

c) Locality map

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

See Appendix 2

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.

The Free State Department of Community Safety, Roads and Transport (CSRT) has undertaken to rehabilitate the provincial roads throughout its area of their jurisdiction. The objective is to ameliorate the condition of the roads while creating job opportunities for the people of communities and empowering local contractors. The road from Viljoenskroon to the R59 intersection to Orkney (P15/2&3) was identified by CSRT as a key route that requires special maintenance as the road is in a dire condition and a safety risk to all road users.

CSRT (The Applicant) intends to establish a borrow pit on Farm Witfontein 444 in the Moqhaka Local Municipality, as it is a strategic site to acquire good quality road building material for the special maintenance project.

The applicant is thus hereby applying for a mining permit for the borrow pit development to the Department of Mineral Resources and Energy (DMRE) with their offices in Welkom, Free State in accordance with Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) as amended.

(i) Listed and specified activities

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc. E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY Ha or m²	LISTED ACTIVITY Mark with an X where applicable or affected.	APPLICABLE LISTING NOTICE (GNR 983, 984 or 985 as per EIA Regulations, 2014 or GNR 324, 325 and 327 as per EIA Regulations, 2014 as amended)
Surface mining to excavate material for road building purposes	4.93Ha	X	GNR 983, Activity 21 and 27. GNR 985, Activity 12
CSRT is exempted from section 106(1) of the Mineral and Petroleum Resources Act.	4.93Ha	X	GNR 983, Activity 21E

(ii) Description of the activities to be undertaken

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

The Free State Department of Community Safety, Roads and Transport (CSRT) has undertaken to rehabilitate the provincial roads throughout their jurisdiction. This project started in 2013. The objective is to ameliorate the condition of the roads while creating job opportunities for the people of communities and empowering local contractors. The road from Viljoenskroon to the R59 intersection to Orkney (P15/2) was identified by CSRT as a key route that requires special maintenance as the road is in a dire condition and a safety risk to all users. For the construction of the road, the borrow pit development on Farm Witfontein is proposed for the mining of gravel.

Site preparation would commence with fencing all working areas prior to the commencement of mining, and all work shall be confined in the fenced area. The site camp would include ablution facilities, waste management facilities, a laydown area for equipment and machinery storage, etc. However, it should be noted that CSRT or the appointed contractor may decide to use a central site camp away from the borrow pit for both the mining activities and road upgrading activities.

The method of mineral (gravel) extraction will be surfaced based. The overall mining plan will entail removal of soil and overburden from the borrow pit zone using heavy machinery to push off the soil fraction and overburden. The topsoil will be stripped and stored separately from the other overburden in areas where it will not be disturbed when the borrow pit is in operation. Heavy machinery will be used to excavate the gravel which is required for road construction. The gravel material will be put onto a stockpile prior to removal from site. The gravel will be removed with front end loaders and will be loaded onto tipper trucks that will transport it to the areas where it will be used. No mineral processing water will be required, but water will be required to suppress dust on roads during excavations.

At selected sites construction of infrastructure, apart from the provision of adequate fencing, barriers and beacons is expected at the borrow pit. Existing access roads will be utilised as far as possible, but where required new access roads will be established to facilitate the hauling of the gravel material to the road upgrading project.

CSRT and the appointed contractor will ensure that the borrow pit is rehabilitated and left in an environmentally acceptable state and to the satisfaction of the Department of Minerals Resources (DMR) and landowners. Dust control measures shall be implemented to minimise impacts on the surrounding environment when and where required. Stormwater control measures have been included in the mine plan and rehabilitation plan, for the prevention of ponding during mining and after rehabilitation.

e) Policy and Legislative Context

<p>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)</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)</p>
<p>National Environmental Management Act (No. 107 of 1998 [as amended]) and EIA Regulations (2014) as amended in 2021</p>	<p>Mining Activities</p>	<p>The mining activity associated with the project triggers Listing Notice 1 and 3 activities and thus requires an Environmental Authorisation (EA). A Basic Assessment Study and an EMPr is hereby compiled</p>
<p>Mineral and Petroleum Resources Development Act (No. 28 of 2002) (as amended)</p>	<p>Mining and closure activities</p>	<p>Application for a mining permit. However, CSRT is exempted from section 106(1) of the Mineral and Petroleum Resources Act.</p>
<p>Mine Health and Safety Act, 1996 (Act No. 29 of 1996), as amended</p>	<p>Generally applicable to mining activities</p>	<p>Health and Safety relevant to the borrow pit be adhered to.</p>
<p>National Heritage Resources Act (Act No. 25 of 1999)</p>	<p>Heritage significance of site and surrounding area</p>	<p>A Heritage Impact Assessment was conducted.</p>
<p>National Water Act (No. 36 of 1998)</p>	<p>Mining activities within or close to watercourses</p>	<p>The site is above the indicated buffer zone of a water course. Therefore, a water license application is not applicable.</p>
<p>National Environmental Management: Air Quality Act (No. 39 of 2004) and National Dust Control Regulations (2013)</p>	<p>Generation of dust during mining activities</p>	<p>Mitigation measures relating to the management of dust impacts are included in Part B: EMPr of this report.</p>
<p>National Environmental Management Biodiversity Act (No. 10 of 2004) and Regulation</p>	<p>Threatened or protected species and alien invasive species management</p>	<p>Mitigation measures relating to the management of alien invasive plants are included in Part B: EMPr of this report. An Ecological Assessment Study was also conducted.</p>

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 proposed special maintenance on the P15/2 is of strategic importance to the Free State Province. The maintenance of the road is aimed at accelerating economic growth and development in the designated regions of the country, through an increase in the safety of the flow of traffic and ease of transportation on the route.

It was necessary for CSRT to consider the special maintenance of the road in order to satisfy traffic growth projections and road safety within the region. The benefits of the proposed development will outweigh the negative impact as the provincial road users are in dire need of this project as numerous accidents occur in the area.

The proposed special maintenance could offer several benefits to society in general, including:

- Decrease in accidents due to potholes being fixed.
- Safer Driving conditions for the road users as the road will be in a better condition.
- Turn movements and safety at intersections will improve.
- With the special maintenance of the road, less maintenance on vehicles is anticipated.
- Improved traffic flow of commuter traffic, particularly during peak periods.
- Improved drainage and other services. Existing drainage channels will also be improved.
- Employment opportunities for local residents during construction.

The proposed borrow pit development is in support of the special maintenance of the P15/2&3 project to provide the needed gravel for the construction and maintenance of the road.

g) Motivation for the overall preferred site, activities and technology alternative

The borrow pit site (preferred site) is situated at an area previously used for this purpose. The site acquired by CSRT in 1994 for similar road maintenance projects. The site has an existing gravel road to the site, meaning that no new access road will have to be established. The borrow pit site is close to the road undergoing special maintenance, which means that hauling costs will be minimal. No major environmental impacts are foreseen as the area is already disturbed.

h) Full description of the process followed to reach the proposed preferred alternatives within the 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.

All borrow pits previously used by CSRT were identified that is within the area. The borrow pits that are too far from the P15/2 road were not considered as transportation costs would not have been cost effective. With regards to this specific borrow pit on farm Witfontein 444 was chosen as it is close to the road that will undergo special

maintenance. The layout has been designed to accommodate ongoing agricultural activities (Site layout can be seen as Appendix 4)

(i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

- (a) the property on which or location where it is proposed to undertake the activity.
- (b) the type of activity to be undertaken.
- (c) the design or layout of the activity.
- (d) the technology to be used in the activity.
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

(a) Property Alternatives:

The borrow pit site has been selected out of similar sites in the region and proximity to the P15/2 road. The borrow pit site were also previously used by CSRT, therefore the area is previously disturbed.

(b) Type of Activity:

The need for gravel material sources defines the type of activity to be undertaken i.e., mining. As such, no activity alternatives were identified.

(c) Technology alternatives:

Open cast mining is the preferred option and the most common method for gravel extraction. In this process, an excavator or dozer and front-end loader combination is used to excavate and move gravel. Gravel will be removed from the working face and loaded directly into trucks. The trucks will transport the gravel to a stockpile area or directly to the construction site. Open pit mining is only practical when the ore body to be excavated, is not uniformly distributed and relatively near the surface.

“Strip mining” is the practise of mining a seam of material by first removing a long strip of overlying soil and rock (overburden). It is commonly used to mine coal or sand. Strip mining is only practical when the ore body to be excavated is uniformly distributed and relatively near the surface.

- (d) The No-go alternative entails no change in the existing status of the existing P15/2 road as no road building material can be acquired. In other words, the special maintenance will not occur, resulting in the increased safety risk to road users due to the deteriorating condition of the road. For the borrow pits specifically, the current use of the land is uncultivated agricultural grassland. The no-go alternative would therefore entail not excavating the borrow pit and leaving the land as is.

(j) Details of the Public Participation Process Followed

Describe the process 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. (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 overall aim of stakeholder engagement is to ensure that all Interested and Affected Parties (I&APs) have an adequate opportunity to provide input into the process and raise their comments and concerns. More specifically, the objectives of stakeholder engagement are to:

- Identify IAPs and inform them about the proposed development and Basic Assessment Process.
- Provide stakeholders with the opportunity to participate effectively in the process and identify relevant issues and concerns.
- Provide stakeholders with opportunity to review documentation and assist in identifying mitigation and management options to address potential environmental issues.

The following stakeholders were included:

- Affected landowners.
- Moqhaka Local Municipality.
- Fezile Dabi District Municipality.
- Department of Agriculture and Rural Development.
- Department of Health, Free State.
- Department of Water and Sanitation, Middle Vaal.
- Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA).
- Free State Heritage Resource Agency; South African Heritage Resource Agency.
- Other registered I&APs.

A Background Information Document (BID) containing information about the proposed development and the assessment process was compiled and distributed to the initial list of key stakeholders by e-mail. Notices were also placed at the following location:

- The proposed development site.
- Moqhaka Local Municipality Office, Viljoenskroon.
- Public Library, Viljoenskroon.
- Pick 'n Pay, Viljoenskroon
- Hinterland, Viljoenskroon
- Ella's Algemene Handelaars, Vierfontein.

Newspaper advertisements announcing the commencement of the assessment process, the availability of the BID and inviting members of the public to register on the IAP data base was placed in the regional paper, "VrystaatKroon" in English.

The release of the Draft BAR for public review will be communicated to all registered I&APs by e-mail. Copies of an Executive Summary will accompany the notification. See Appendix 3 for the Public Participation Report.

(ii) Summary of issue raised by I&APs

Interested and Affected Parties		Date	Issues raised	EAPs response to issue as mandated by the applicant	Section and paragraph refer in this report where the issues and response were incorporated
List the names of persons consulted in this column, and Mark with an x where those who must be consulted were in fact consulted		Comments Received			
<u>AFFECTED PARTIES</u>					
Landowner/s					
John Gossayn	X	N/A	N/A	N/A	N/A
Lawful occupier/s of the land					
John Gossayn	X	N/A	N/A	N/A	N/A
Landowners or lawful occupiers on adjacent properties					
Dr Gert Schutte	X	N/A	N/A	N/A	N/A
Andre Oosthuizen	X	N/A	N/A	N/A	N/A
Municipal councillor					
Mphikeleli Masumpa	X	N/A	N/A	N/A	N/A
Municipality					
Pieter Bredenkamp – Moqhaka LM	X	N/A	N/A	N/A	N/A
MS LM Molibeli Fezile Dabi DM	X	N/A	N/A	N/A	N/A
Organs of state (Responsible for infrastructure that may affected Roads Department, Eskom, Telkom, DWA etc					
DWS – Boitumelo Melato	X	14/09/2023	Waste management and water management	Thank you for your comments with regards to the proposed development. Kindly note that the waste- and water management concerns raised will be addressed within the Basic Assessment Report and the Environmental Management Plan. We will keep you updated as the project progresses.	Page 15 of the Public Participation Report (Appendix 3)
Communities					
N/A	N/A	N/A	N/A	N/A	N/A

Dept. Land Affairs					
Department of Agriculture and Rural Development – Jack Morton	X	N/A	N/A	N/A	N/A
Traditional Leaders					
N/A	N/A	N/A	N/A	N/A	N/A
Dept. Environmental Affairs					
DESTEA – Grace Mkhosana	X				
Other Competent Authorities Affected					
Department of Health	X	N/A	N/A	N/A	N/A
<u>OTHER AFFECTED PARTIES</u>					
See Appendix 3					
<u>INTERESTED PARTIES</u>					
Sphokazi Mbatha	X	14 September 2023	We require more information about the project	Thank you for your IAP registration forms for the proposed borrow pit developments. Kindly see attached the background information documents for the two projects. Kindly note that we will circulate the draft Basic Assessment Reports early next week and you will be included in the circulation.	Page 15 of the Public Participation Report (Appendix 3)

(iii) 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).

See Appendix 6 for the Baseline Environment Report.

b) Description of the current land uses

See Appendix 6 for the Baseline Environment Report.

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

See Appendix 6 for the Baseline Environment Report.

d) Environmental and current land use map.

(Show all environmental and current land use features)

See Appendix 6 for the Baseline Environment Report.

(iv) 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).

See Appendix 5 for the detailed Impact Assessment conducted for the project. No alternative site layout schemes were considered.

The site and access road establishment demarcation of areas (no-go areas, stockpile areas etc.) and fencing of the development has the potential impacts of dust pollution and the biological impact on the vegetation due to the direct destruction of the existing vegetation when the site is cleared.

- Probability – Definite
- Duration – Short term
- Scale – On site only
- Magnitude – Low
- Significance – Medium
- Reversibility – Yes
- Irreplaceable loss of resources – No
- Avoid, managed, or mitigated – Manageable and Mitigatable

The site establishment has the potential impact of a biological impact on vegetation due to direct destruction of vegetation through the clearance of the site. Other impacts are the loss of topsoil, where the physical disturbance of the surface will occur and sedimentation of water resources erosion (both water and wind erosion).

- Probability – Highly probable to definite
- Duration – Short term to long term
- Scale – On site only
- Magnitude – Moderate
- Significance – Medium
- Reversibility – Yes
- Irreplaceable loss of resources – No, except for erosion (loss of soil may occur).
- Avoid, managed, or mitigated – Manageable and Mitigatable

The excavation of gravel from the borrow pit site has the potential impacts of dust generation, erosion, hydrological impacts, cultural and historical impacts due to finding of historically significant artifacts or graves, land transformation due to waste generation, accidental fires and the health and safety impact due to unsafe areas created by heavy vehicles and open trenches that are excavated.

- Probability – Medium to Highly Probable
- Duration – Short term to long term
- Scale – On site to local
- Magnitude – Moderate to High
- Significance – Medium
- Reversibility – To some extent
- Irreplaceable loss of resources – Excavated gravel will leave site and erosion where loss of soil may occur.
- Avoid, managed, or mitigated – Manageable and Mitigatable

The vehicle and equipment usage during excavation of gravel from the borrow pit site will include (but not limited to) the excavation, loading, and hauling activities. These activities will have the potential impact of dust generation on site and along the gravel roads to -and from the site, generation of noise associated with heavy vehicles and machinery usage for the excavation and hauling of gravel. Spills of dangerous substances (i.e., oil or diesel) can also have a negative impact on soil, surface- and groundwater quality on site.

- Probability – Highly probable to definite
- Duration – Short term to long term
- Scale – On site to local
- Magnitude – Moderate to High
- Significance – Medium
- Reversibility – To some extent
- Irreplaceable loss of resources – No
- Avoid, managed, or mitigated – Manageable and Mitigatable

(v) 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).

The significance of the identified impacts will be determined by the following methodology. The methodology is mainly divided into two categories, namely, occurrence and severity of the impact. These two categories are further subdivided as can be seen in the table below.

Table 1: Description of Occurrence and Severity for Impact Assessment

OCCURRENCE		SEVERITY	
Probability of occurrence	Duration of occurrence	Magnitude of impact	Scale/extent of impact

To assess each of the impacts identified and listed during scoping process, the following ranking scales are to be used.

Table 2: Description of Probability, Duration, Scale and Magnitude for Impact Assessment

PROBABILITY	DURATION
0 – None	
1 – Improbable	1 – Immediate
2 – Low probability	2 – Short term (0 – 7 years)
3 – Medium probability	3 – Medium term (8 – 15 year)
4 – High probability	4 – Long term
5 – Definite / Don't know	5 – Permanent
SCALE	MAGNITUDE
0 – None	
1 – On site only	2 – Minor
2 – Local	4 – Low
3 – Regional	6 – Moderate
4 – National	8 – High
5 – International	10 – Very high / Don't know

Once all the possible impacts are ranked according to the factors listed in the tables above, an Impact Point out of 100 is given to the impact which relates to the severity of the impact. The mark allocated to each of the impacts is determined by the following formula:

$$\text{IP (Impact Point)} = (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability}$$

The IP can then be interpreted as follow to indicate significance as indicated in the table below.

Table 3: Significance indication for Impact Assessment

IP > 75	Indicates high environmental significance	Major impact. Can influence the decision whether to carry on with the development or not, regardless of mitigation
IP 30 – 75	Indicates moderate environmental significance	An impact sufficiently important to require proper management, which could have an influence on the decision if not mitigated
IP <30	Indicates low environmental significance	Impacts with very little effect which should have a small or no impact on the project designs and needs limited mitigation
IP +	Positive impact	Impact that is an improvement on the current standings of the project site

(vi) 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)

See Appendix 5 for the detailed Impact Assessment conducted for the proposed project. No alternative site layout schemes were considered.

Negative impacts include:

- Increased dust levels due to the excavation as well as the loading and hauling of gravel.
- Direct destruction of existing vegetation through site clearance.
- Loss of topsoil where physical disturbance of the surface will occur.
- Sedimentation of water resources and loss of soil.
- Inadequate stormwater management can have a negative impact on the hydrology (i.e., ponding in the pit).
- Noise pollution from excavation activities.
- Fire risk from both equipment and open fires started by worker (prohibited) and smoking outside designated areas.
- Generation of waste and litter.
- Safety and access impacts of open trenches, borrow pits and unsafe areas due to heavy vehicle movement.
- Safety risk from general mining activities.

Positive impact include:

- Increase ease of traffic will reduce accidents along the road due to the special maintenance of the P15/2 road, and the required use and the availability of the excavated gravel from the borrow pit.
- Job opportunities and skill transfer training.

(vii) 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).

See Appendix 5 for the detailed Impact Assessment conducted for the project.

Some of the possible mitigation measures that could be applied to reduce the risk significance to low, are:

1) Dust suppression

Dust caused by activities shall be controlled by means such as water sprays, and water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitats or affecting farming activities or natural vegetation.

- 2) Noise reduction
The Contractor shall endeavour to keep noise generating activities to a minimum. Noise that could cause a major disturbance should be carried out during normal working hours (08:00 – 17:00) with due notification should activities proceed beyond working hours.
- 3) Site clearance
The Contractor has a responsibility to their staff of the need to be vigilant against any practise that will have a harmful effect on vegetation. Only the designated excavation area and access roads are to be cleared of vegetation.
- 4) Trespassing
Fences, demarcation, and training of all workers to respect private property, no hunting or access to such properties are allowed. Job seekers to remain in demarcated areas.
- 5) Sedimentation of water resources
Establish self-drainage systems in- and around the site for water (i.e., rainwater). In the case of wind erosion, the area can be stabilised with water sprays.
- 6) Solid waste and littering
Solid waste shall be stored in an appointed area with covered, tip-proof metal drums or similar containers for collection and disposal.
- 7) Accidental Fires
The contractor shall ensure that energy sources are always available for construction and supervision personnel for heating and cooking purposes. Smoking is only allowed in designated areas with sand baskets for cigarette butts.
- 8) Finding of any graves or other matter of historical significance
Known graves or other known historical sites will be designated as "no-go "areas with a 50-meter radius area from the mining activities. If a grave or midden is uncovered during excavation, all in the immediate vicinity of the graves/middens shall be stopped and the engineer should be informed of the discovery. The SAHRA and SAPS should be contacted.
- 9) Unsafe Areas
Protect dangerous excavations that may pose a hazard to humans and animals. Demarcate these areas with fencing as required and post the appropriate danger signs.
- 10) Spills
Soil, streams, and groundwater shall be protected from direct or indirect of pollutants (i.e., use of drip trays and silage plastics). In the event of a spillage, CSRT shall be liable to arrange for professional service providers to clear the affected area.

(viii) Motivation where no alternative sites were considered.

The borrow pit site on farm Witfontein was used in the past by CSRT to gather road building materials. Therefore, the area is previously disturbed. The borrow pit was also investigated due to its geological properties and proximity to the P15/2 road maintenance area. The borrow pit identified is required to provide sufficient material for the special maintenance of the road.

(ix) Statement motivating the alternative development location within the overall site. (Provide a statement motivating the final site layout that is proposed)

See Appendix 4 for the Site Plans.

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

See Appendix 5 for detailed Impact Assessment conducted for the project.

j) 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, ablation 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, ablation, 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 phase anticipated e.g. Construction, commissioning, operational decommissioning, closure, post closure)	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) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation.	SIGNIFICANCE If mitigated
See Appendix 5						

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix 5**

k) 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 Mark with an X where applicable	REFERENCE TO APPLICABLE SECTION OF THE REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Ecological Assessment (including wetlands)	<p>The main ecological impact management and mitigation measures are recommended for the proposed development:</p> <ul style="list-style-type: none"> • Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development. • Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. • Implement an adequate Stormwater and Erosion Management Plan during the construction and subsequent operational phases of the proposed development. This must be done to sufficiently manage storm water runoff and clean/dirty water separation, to prevent any significant soil erosion from occurring within and around the assessment area. • A closed inward-draining system design must be adopted for the proposed borrow pit. • Implement suitable dust management and prevention measures during the construction- and subsequent operational phases of the proposed development. • It is recommended that the construction phase of the proposed development must not commence during the aquatic avifaunal breeding season, if practicably/reasonably possible/feasible. 	X	Impact Assessment EMPr
Heritage Impact Assessment	<p>The proposed development will directly affect a late Quaternary aeolian overburden and fine-grained quartzitic sandstones considered to be of high palaeontological significance given the latter's potential for preservation of microbial mat features (stromatolites). Trace fossils may include wrinkle structures, sub rounded voids, small circular impressions, and positive ridges on bedding surfaces. A survey of old cuttings in the existing borrow pit was hampered by a lack of well-preserved</p>	X	Impact Assessment EMPr

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT Mark with an X where applicable	REFERENCE TO APPLICABLE SECTION OF THE REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<p>horizontal bedding surfaces. In terms of palaeontology, it is recommended that development can proceed, if excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open.</p> <p>Based on surface observations, the site is regarded as of low archaeological significance and is assigned a rating of Generally Protected C. As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.</p>		

Attach copies of Specialist Reports as appendices

See Specialist Studies in Appendix 7

I) Environmental impact statement

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

The significance of the identified impacts was rated by taking into account its duration, scale, and severity (magnitude and the probability that the impact may occur). The study concluded that most negative impacts will be mitigated to be of a low significance and all positive impacts will be enhanced to be of high significance, by implementing the mitigation measures described in the attached EMPr.

- The impacts before mitigation are “medium”.
- After mitigation the identified impacts were reduced to “low”.
- The no-go alternative has a negative impact due to the lack of gravel required for the Special Maintenance of the P15/2 road and the resulting social and safety risk posed by unsafe road conditions due to the deteriorating state of the road.

The findings of the ecological specialist studies undertaken during this study, provides an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project, subject to the adherence to the mitigation measures proposed and included in the EMPr. These findings conclude:

- All alien vegetation must be actively eradicated from the borrow pit area.
- Dust suppression methods should be implemented during both the construction and operational phase.
- Adequate stormwater and erosion management plans should be implemented.
- All construction and operational activities to be done within the demarcated borrow pit area and existing roads to be used as much as possible. This is to mitigate the transformation of vegetation type and the biodiversity area.
- Adequate rehabilitation to be implemented as soon as construction and operational activities cease.

The findings of the heritage impact assessment indicate the following:

- In terms of palaeontology, it is recommended that development can proceed, if excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open.
- As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.

(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. Attached as **Appendix 4**.

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

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
Site & Access Road establishment - demarcation and fencing	Air pollution - Dust Impact	Increase in dust levels around the trench	Construction Phase	Moderate	Control - Dust control measures	Low
	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	Construction Phase	Moderate	Control – limit to designated areas only	Low
	Ecological, Cultural, and historical impacts	Known cultural, historical, or ecological sensitive areas	Construction Phase	Moderate	Control – demarcation of no-go areas	Low
	Safety and security	Trespassing and illegal access onto private land and lack of access control	Construction Phase and Operational Phase	Moderate	Control – access to demarcated areas only	Low
Site & Access Road establishment - site clearance	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	Construction Phase	Moderate	Control – limit to designated areas only	Low
	Soil impacts – loss of topsoil	Loss of topsoil where physical disturbance of the surface will occur	Construction Phase	Moderate	Control – stockpiling of topsoil	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Construction Phase	Moderate	Control – self drainage systems	Low
Site office establishment and operation	Hydrological impact - effluent and sewage	Pollution of soil and water resources	Construction Phase and Operational Phase	Moderate	Control – sewage and effluent management and treatment	Low
	Land transformation – Fire from cooking / smoking	Accidental fire due to workers fires for cooking or heat or other irresponsible actions (i.e., smoking)	Construction Phase and Operational Phase	Moderate	Control – no open fires allowed, smoking in designated areas only	Low
	Land transformation - Waste	Littering and other solid waste pollution	Construction Phase and Operational Phase	Moderate	Control – solid waste management	Low
Excavation	Air pollution - Dust Impact	Increase in dust levels around the excavation site	Operational Phase	Moderate	Control – dust control measures	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Operational Phase	Moderate	Control - drainage system	Low
	Hydrological impact	Inadequate storm water management can impact negatively on the hydrology – i.e. ponding in the pit	Operational Phase	Moderate	Control - drainage system	Low
	Hydrological impact - water shortage	Inadequate supply of water required for dust suppression	Operational Phase	Moderate	Control – responsible water use	Low
	Cultural and historical (palaeontological) impacts - finding of historical aspects	Finding of any graves, stromatolites, or other matter of historical significance	Operational Phase	Moderate	Control – on identification stop work	Low
	Land transformation - Fire	Smoking or indiscriminate fires started by the labourers could also damage nearby buildings, structures and vegetation.	Operational Phase	Moderate	Control – training, no open fires and smoking in designated areas only	Low

	Land transformation - Waste	Generation of waste from Labourers at the site - litter and other waste	Operational Phase	Moderate	Control – waste management	Low
	Human Health and Safety – unsafe areas	Safety and access impacts of open trenches, borrow pits and to unsafe areas due to heavy vehicle movement	Operational Phase	Moderate	Control – demarcation and posting of signs	Low
	Human Health and Safety – Road maintenance	Increased ease of traffic safety will reduce occurrence of accidents along the road due to the ease of traffic flow with the special maintenance of the road for which the borrow pit development is an essential part.	Operational Phase	Positive	Benefit – enable special maintenance of the road	Positive
	Socio –Economic	Skills training and employment opportunities.	Operational Phase	Positive	Benefit – employment opportunities	Positive
Excavation - vehicle and equipment usage	Air pollution - Dust Impact	Increase in dust levels around the gravel and access roads	Operational Phase	Moderate	Control – dust control measures	Low
	Land transformation – Noise from excavation and hauling vehicles	Generation of noise associated with the heavy vehicles and machinery use for excavation and hauling of the material.	Operational Phase	Moderate	Control – noise control measures and limit of working hours	Low
	Land transformation – Spills	Spills of dangerous substances (i.e., oil or diesel) can have a negative impact on soil, surface, and groundwater quality around the excavation site.	Operational Phase	Moderate	Avoid – pollution. Control – prevention and clean-up measures	Low
	Human and animal safety	Accidents injuring humans or animals on the road or with the use of any equipment.	Operational Phase	Moderate	Control – limit the speed of vehicles	Low
Excavation - material stockpiles	Air pollution - Dust Impact	Increase in dust levels around the excavation site	Operational Phase	Moderate	Control – dust control measures	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Operational Phase	Moderate	Control – storm water drainage systems	Low
Closure	Land transformation	Site condition at closure	Closure and Rehabilitation Phase	Moderate	Control – site clean-up	Low
	Land transformation	Pit formation from the excavation	Closure and Rehabilitation Phase	Moderate	Control – backfill and gradual slopes	Low
	Hydrological impact	Lack of drainage and storm water accumulation	Closure and Rehabilitation Phase	Moderate	Control – storm water drainage systems	Low
	Biological impacts - vegetation impact	Vegetation of disturbed areas - invasion of alien species	Closure and Rehabilitation Phase	Moderate	Control – alien plant eradication and indigenous plant revegetation	Low

m) 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.

Impact management objectives include the following:

- Reduction or avoidance of detrimental environmental impacts. Including the following:
 - Implementation of stormwater management controls.
 - Avoid encroachment into non-mining/demarcated areas.
 - Effective dust control measures.
 - Effective noise abatement measures.
 - Safe disposal of waste.
 - Protection of known heritage resources if unearthed during operations.
 - Practical and implementable management- and rehabilitation measures.
 - Rehabilitation of affected areas to the agreed end land use.
 - Safe working environment for personnel as well as communities in the areas.

n) Final proposed alternative

(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)

The borrow pit on farm Witfontein 444 was identified and assessed on its geological sustainability, ecological impact, heritage impact and proximity to the P15/2 road undergoing special maintenance. This borrow pit was previously used by CSRT for acquiring road building materials.

See Appendix 4 for the site layout. Geological sustainability determined the layout and site location of the mining areas. Topography determined the layout of the stockpile area.

o) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

Recommendation for the construction phase:

- The contractor must adhere to all relevant legislation. All necessary permits, licenses and approvals must be obtained prior to the commencement of construction.
- The conditions and mitigation measures as described in the EMP must be implemented.
- And independent Environmental Control Officer must be appointed to conduct frequent compliance inspections.

Recommendations for the operational phase:

- The borrow pit operation must comply to all relevant legislation.

- Implement a programme to continuously monitor operations and implement measures to:
 - Keep the site clear from litter.
 - Maintain and clean stormwater structures/measures to be in good condition and clear from any blockages.
 - Control infestation of alien vegetation.
 - Keep fences intact and in good condition.
 - Protect ecological environments as well as historical and cultural aspects.
 - Ensure that all parties hold to the “no open fire” policy and smoking provision to prevent accidental fires.
 - Ensure that all parties hold to the designated areas and do not encroach onto private property.

Recommendation for the closure and rehabilitation phase:

- The applicant must adhere to all relevant legislation.
- The conditions and mitigation described in the EMP and Rehabilitation Plan must be implemented.
- The site must be cleaned-up and the pit shaped to facilitate ease of exist for animals and humans. Appropriate self-drainage systems must be implemented and borrow pit site must be re-vegetated with indigenous vegetation occurring in the area.

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

(Which relate to the assessment and mitigation measures proposed)

Inevitability, when undertaking scientific studies, challenges and limitations are encountered. For this specific Environmental Assessment, the following was encountered:

- All information provided by the Engineering team to the EAP was correct and valid at the time.
- All information provided by the Specialist team to the EAP was correct and valid at the time. The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with mining activities.

This Environmental Impact Assessment process provides an indication of likely/potential environmental impacts based on subjective criteria, the public consultation process, maps of the site, and nature of the receiving environment. As such the impact assessment process is a predictive tool that cannot provide actual impact measurements and will therefore always have a level of uncertainty.

q) Reasoned opinion as to whether the proposed activity should or should not be authorised

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

The Environmental Assessment has been undertaken in accordance with the EIA Regulations 2014 (as amended in 2021) in terms of Section 24(5) of the

National Environmental Act (Act No. 107 of 1998) (as amended) as per the template provided by DMR. The project, in the EAP's opinion, does not pose a detrimental impact on the receiving environment and its inhabitants. Impacts can be mitigated through the measures and recommendations proposed by the specialist disciplines and the EMPr.

The EAP therefore recommends the activity of the borrow pit on Farm Witfontein 444 be duly authorised.

(ii) Conditions that must be included in the authorisation

The conditions and mitigation measures as described in the EMPr must be implemented.

r) Period for which the Environmental Authorisation is required.

The Environmental Authorisation is required for a period of 3 years.

s) 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 undertaking is provided at the end of the EMPr and is applicable to the BAR and EMPr.

t) Financial Provision

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

(i) Explain how the aforesaid amount was derived.

The Financial Provision has been calculated using the Guideline Document for the Evaluation for the Quantum of Closure Related to Financial Provision Provided by a Mine (DMR in September 2004 Report No.5863-5900-2-P 1.6) and updated in January 2005). The risk class of the aggregate (dolerite) mine is Class C i.e., low risk and the area sensitivities are low because the borrow pits are situated within agriculture grazing areas and a rural landscape with minimum economic impact. Therefore, Route 3: Flat Rate/Hectare for Class C mines has been followed.

A total amount of R200 168.39 was derived for the borrow pit on Farm Witfontein 444. See Appendix 8 for the calculation of the borrow pit.

(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 Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The Department of Community Safety, Roads and Transport as a State-Owned Company will make provision for the rehabilitation and the closure of the borrow pits.

- u) **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 prospecting 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 proposed borrow pit area is currently open veldt used for livestock grazing. The borrow pit area is owned by a private landowner. The landowner was consulted and is included in the I&AP database.

The landowner will be compensated for the use of his property. The compensation will be based on the fenced extent and the market value of the property. This will be for a minimum of 2 years. After completion of the construction, the borrow pit will be rehabilitated. After the rehabilitation has been completed the landowner will have to sign that he is satisfied with the rehabilitation work.

- (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 prospecting 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)(j)(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).

A Heritage Impact Assessment Specialist study was conducted - see Appendix 7 for the report. The proposed development will directly affect a late Quaternary aeolian overburden and fine-grained quartzitic sandstones considered to be of high palaeontological significance given the latter's potential for preservation of microbial mat features (stromatolites). Trace fossils may include wrinkle structures, sub rounded voids, small circular impressions, and positive ridges on bedding surfaces. A survey of old cuttings in the existing borrow pit was hampered by a lack of well-preserved horizontal bedding surfaces.

In terms of palaeontology, it is recommended that development can proceed, if excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open.

Based on surface observations, the site is regarded as of low archaeological significance and is assigned a rating of Generally Protected C. As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.

v) 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 4**).

The borrow pit on farm Witfontein 444 was identified and assessed based on the geotechnical suitability, ecological impact, and heritage impact. Should authorisation not be granted, CSRT will have to obtain material from other sources, which may be costly due to haul distances and paying for material from commercial sources, which will compromise the timeframes and financial viability for the special maintenance of the P15/2 road project. Therefore, the no-go alternative is not feasible.

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).

Confirm

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

The aspects of the activity that are covered by the draft EMPr is included in 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).

The locality map is included in Appendix 2, the site plans in Appendix 4 and the Sensitivity Map in Appendix 4.

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)

In terms of Section 38(1)(d) of the MPRDA, Integrated Environmental Management and Responsibility to Remedy: "The holder of a ... mining permit ... must as far as it is reasonably practicable, rehabilitate the environment affected by the ... mining operations to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development".

In line with the above, it was agreed with the applicant, CSRT and also the landowners that the land use would be restored to pre-mining conditions, i.e., natural areas with grazing capacity. The following closure objectives have been set to achieve this:

- Ensure the long-term stability and environmental quality of the site to minimise potential environmental and health risks.
- Ensure that the site can sustain an agreed post-mining land use and that sufficient land capability is reached to achieve this.
- The site must be safe for humans, domestic livestock and wildlife and cleared of any structures or equipment.

The decommissioning phase and closure of the Borrow Pit will involve removal of all debris and rehabilitation of areas. This will comprise the scarification of compacted areas, reshaping of areas, topsoiling, and regenerating all prepared surfaces. Any infrastructural development such as haulage roads and stockpile areas will also be created and be rehabilitated.

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

It is not anticipated that water will be required for the construction / operation of the borrow pit except where dust suppression is required by means of water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation.

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

No Water Use Licence application has not been submitted to date.

(iv) Impacts to be mitigated in their respective phases.

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

<p>ACTIVITIES (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.)</p>	<p>PHASE of operation in which activity will take place. State. Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>SIZE AND SCALE of disturbance (Volumes, tonnages and hectares or m²)</p>	<p>MITIGATION MEASURES (Describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>	<p>TIME PERIOD FOR IMPLEMENTATION Describe the period when the measures in the environmental management programme must be implemented Measures must be implemented when required. Regarding Rehabilitation specifically this must take place at the earliest opportunity. Regarding 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.</p>
<p>See Appendix 9 for the completed table</p>					

e) Impact Management Outcomes

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

<p>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, stormwater control, berms, roads, pipelines, power lines, conveyors, etc...etc.... etc.)</p>	<p>POTENTIAL IMPACT (e.g., dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.... etc...)</p>	<p>ASPECTS AFFECTED</p>	<p>PHASE In which impact is anticipated? (e.g., Construction, commissioning, operational Decommissioning, closure, post-closure)</p>	<p>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.) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation </p>	<p>STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.</p>
<p>See Appendix 9 for the completed table</p>					

f) Impact Management Actions

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

<p>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, stormwater control, berms, roads, pipelines, power lines, conveyors, etc...etc.... etc.)</p>	<p>POTENTIAL IMPACT (e.g., dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.... etc...)</p>	<p>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.) E.g. <ul style="list-style-type: none"> ▪ Modify through alternative method. ▪ Control through noise control ▪ Control through management and monitoring. ▪ Remedy through rehabilitation. </p>	<p>TIME PERIOD FOR IMPLEMENTATION Describe the time when the measures in the environmental management programme must be implemented Measures must be implemented when required. Regarding Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state: - Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling, or alluvial diamond prospecting.</p>	<p>COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.6 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)</p>
<p>See Appendix 9 for the completed table</p>				

i) Financial Provision

1. Determination of the amount of Financial Provision.

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

- Overburden rocks and coarse material must be used to backfill the borrow pit once the mining activity has ceased.
- The borrow pit must be shaped to ensure that no stockpiled heaps remain, and the area blends in with the existing landscape.
- The mining area must be levelled with topsoil and revegetated with indigenous plants that occur in the area.
- Temporary structures on the site (e.g., tanks containing potable water, toilets, refuse bins, generators) must be dismantled and removed.
- The soil must be checked for any spillages from construction vehicles. All spills must be cleared to the point of infiltration. Contaminated soils must be bagged for safe disposal at a licenced hazardous waste disposal site.
- All invasive alien plants that have colonised the mining site must be removed.
- To leave the area in a manner that is environmentally safe and does not pose any health or safety risks to the neighbouring communities or wildlife.

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

The environmental objectives in relation to closure as described in this programme will be used to consult with the landowner and interested and affected parties during the 30-day public review period where after confirmation will be provided.

(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.

See Appendix 9 for the Environmental and Rehabilitation Plan

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

The baseline environment was considered in setting the objectives, to ensure that reflect surrounding environment is not detrimentally affected, and that the end land use reflect that of pre-mining conditions. The Rehabilitation Plan ensures that the environment post-mining can be restored to the pre-mining environment to ensure:

- Reinstatement of ecological services.
- Reinstatement of topographical sequences.
- Re-instatement and protection of indigenous vegetation.
- Alien and invasive floral management.
- Erosion control and siltation management, including soil management and bank stabilisation.
- Aftercare and maintenance; and
- Monitoring of rehabilitation works.

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

The closure cost was estimated as R200 168.39. See Appendix 8 for the calculation of the borrow pit.

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

The Department of Community Safety Roads and Transport as a State-Owned Company will make provision for the rehabilitation and the closure of the Borrow Pit.

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

- a) **Monitoring of Impact Management Actions**
- b) **Monitoring and reporting frequency**
- c) **Responsible persons**
- d) **Time period for implementing impact management actions**
- e) **Mechanism for monitoring compliance**

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Demarcation and fencing of site	Integrity of fence / demarcated areas	Check the integrity of the fences and if any encroachment on "no-go" or other areas outside the designated mining area and demarcated areas occur	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance.</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>
Access road and site office	<ul style="list-style-type: none"> • General site condition, • Dust • smoking areas • fires (cooking / heating) • Litter 	<p>Check the site condition and for litter, dust, storm water management as well as for the use of the use and maintenance of the designated smoking areas.</p> <p>Check that no open fires are used for heating or cooking due to the fire risk</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance.</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>
Excavation, and material stockpiles	<ul style="list-style-type: none"> • Dust • Noise • storm water, erosion, and sedimentation • litter and other waste • alien vegetation 	<p>Check dust formation and requirements for dust suppression water spray on-site.</p> <p>Check storm water self-drainage system for effectiveness and blockages,</p> <p>Check site for any litter or other waste on site</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>

<p>Vehicle and equipment usage</p>	<ul style="list-style-type: none"> • spills • dust 	<p>Check site for any occurrences of spills (i.e., oil, fuel etc.)</p> <p>Check dust formation and requirements for dust suppression water spray on-site and in-route</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>
<p>Rehabilitation and closure</p>	<ul style="list-style-type: none"> • general site condition • storm water drainage • vegetation including occurrence of alien vegetation 	<p>Check the general site condition for spills, equipment or structures that needs to be cleared.</p> <p>Check storm water self-drainage system for effectiveness and blockages.</p> <p>Check site for any alien vegetation to be removed.</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>For the first year after rehabilitation and closure has started:</p> <ul style="list-style-type: none"> • DEO - monthly till closure • ECO - on final operation closure, during rehabilitation (monthly) and annually thereafter for a year. • Monthly Audit reports, Closure Report and final Annual Environmental Performance Report by ECO

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

During operation of the borrow pit, the Environmental Control Officer (ECO) will undertake an environmental audit monthly resulting in a monthly Environmental Audit Report. At closure and rehabilitation of the borrow pit operations a Closure Environmental Audit Report will be compiled by the ECO.

An Environmental Performance Assessment and Report will be compiled by the ECO one year after the closure and rehabilitation process has been completed on the borrow pit.

h) Environmental Awareness Plan

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

The following Environmental Awareness Plan will be implemented by CSRT to inform the Contractor and their employees of the environmental risk that may result from their work. The plan must be conducted as part of the induction process for all personnel that will perform work in terms of the proposed activities - typically conducted by the ECO. Proof of all training provided must be kept by CSRT and ECO.

- The Environmental Awareness Plan is referred to as the “SHE match” training programme. The training programme focuses on the following aspects:
- Explaining clearly what the environment is and what the environment consists of namely: air, water, soil, fauna, flora, and people.
- Once participants have grasped the description of what the environment entails, the training focuses on the potential impacts that the construction and operational activities may have on each one of these environmental components. This is done by making use of the aspect register, where each one of the environmental aspects and associated impacts has been identified.
- To ensure that the training is effective, visual aids are used. Photos are taken of actual and potential impacts occurring on site and in some cases, role-play is used to illustrate a potential impact.
- The participants are then exposed to a presentation that reflects the various environmental components.
 - Explanation of the importance of complying with the EMP.
 - Discussion of the potential environmental impacts of construction activities.
 - Explanation of the management structure of individuals responsible for matters pertaining to the EMP.
 - Explanation of the way environmental risks and impacts must be dealt with in order to avoid pollution and the degradation of the environment.
 - Employees’ roles and responsibilities, including emergency preparedness.
 - Explanation of the mitigation measures that must be implemented when carrying out their activities.
 - Explanation of the specifics of the EMP; and
 - Explanation of the Environmental DO’s and DON’T’s
 - By doing this the participants can understand the action as well as the potential consequence (environmental impact) of their action.
 - This general awareness training must be done before construction commences and when new employees start work. The training should be done every two years

during the Operational Phase. The presentation is posted in the communal area where the impacts are visualised and the photos rotated on a regular basis, for example, once a month.

Proof of all environmental training provided with attendance registers must be kept by CSRT and the ECO. All employees and contractor (compulsory) shall be given an induction presentation on environmental awareness before any activity commences.

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

Risks has been identified and mitigation measures has been prescribed in the impact assessment and resulting EMP. Should risks be identified on site that are not dealt with in terms of this EIR report, the following steps shall be undertaken to deal with the relevant risk:

- The level of risk shall be determined. CSRT shall notify the ECO of all medium and high-level risks immediately upon identification thereof.
- Emergency numbers shall be visibly kept on site for dealing with fires, floods, major spillages, and other emergencies. A method statement for environmental emergencies shall be developed.
- Should the above measures and those stipulated in this report not be sufficient to deal with the identified risk, the ECO shall provide further input into risk management.

i) Specific information required by the Competent Authority

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

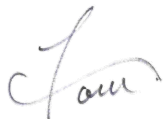
No specific information has been requested by the Competent Authority at this stage.

j) UNDERTAKING

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

X
X
X
X



Signature of the environmental assessment practitioner:

Name of company: **EnviroMatrix**

Date: 18 September 2023

-END-

Appendix 1

EAP Information

PROJECT CV: TOM HUGO

Name:	Mr Tom Hugo	
Profession:	Environmental Manager and Ecologist	
Date of Birth:	1962-07-20	
Parent Firm:	EnviroMatrix (Pty) Ltd	
Position in Firm	Director	
Environmental Experience:	Mar 2013 – Present Jul 2009 – Feb 2013 Nov 2002 – May 2007 Jan 1992 – Sep 2002	Director and Environmental Assessment Practitioner (EAP) – EnviroMatrix Environmental Services Co-Director and EAP – Metsi Metseng Environmental Services European Union Environmental Advisor – Botswana Wildlife and National Parks Manager of Protected Conservation Areas that include overseeing various type of Tourism Facilities such as camp sites, open air museums and small hotels
Nationality:	South African	
Academic Qualifications:	Master Degree in Environmental Management – Free State University, 2006 Higher Diploma in Forestry Conservation – Saasveld School of Forestry, 1994 Diploma in Nature Conservation – Pretoria Technikon, 1987	
Professional Qualifications & Affiliations:	Registered Environmental Assessment Practitioner (EAPASA – Reg.EAP2019/2013). Professional Environmental & Ecological Scientist (SACNASP Reg. No. 400124/96). Professional membership with the; (i) International Association for Impact Assessment, South Africa (ii) The Wildlife Management Association and (iii) The Game Rangers Association of Africa	
Languages:	Afrikaans 1 st language. English fully proficient in speaking, reading and writing	
Experience Overview	<p>Environmental management experience has been obtained through a variety of positions held within governmental bodies, the private sector, and consultancy interventions as laid out. Over the last 13 years I have been exposed to the environmental management field in Southern Africa that include approximately 15 on site environmental monitoring to 75 environmental impact assessments. Experience includes: i) The identification and assessment of negative environmental impacts and benefits through the review and manipulation of data. ii) The identification of practical and achievable mitigation and management measures and the development of appropriate environmental management plans. iii) The compilation of environmental reports in accordance with relevant environmental legislative requirements. iv) The formulation of environmental policies, strategies and guidelines. v) Implementation and monitoring of environmental management systems and plans according to governmental environmental authorisation or record of decision.</p> <p>Over the last 20 years I worked for international and national clients both in the public and private sectors within a project management environment with multi-cultural teams that require a participatory approach and transfer of knowledge and capacity building related to environmental management.</p> <p>During this time, I obtained experience in the use of donor funding for the promotion of community participation and entrepreneurial opportunities through the utilisation of natural resources, e.g., <i>South Africa National Economical Forum's Natural Resource Entrepreneurial Development Initiative</i>, the <i>South African Department of Water Affairs & Forestry's Work for Water Initiative</i> and the <i>European Union's Botswana CBNRM Programme</i>.</p>	
Other Skills	<ol style="list-style-type: none"> 1. Have been actively involved in personnel training as part of job function, in various posts held, and as an independent consultant. Training provided have included: natural resource management, environmental management practises, general management practices, basic project management, community based and natural resource management, ecotourism facility management and environmental induction for engineers, contractors and site agents at the start of construction. 2. Have been involved with various building, maintenance, and consulting projects as project manager/leader. Tasks include the compilation of tender documentation, tender negotiations, contractors' liaison as well as payment approvals and administration. 3. Computer literate with sound knowledge of Windows and Microsoft Office Suite applications 	

	<p>as well as workable knowledge of MS Project computer software. Have used GPS equipment and have a workable knowledge of ArcView GIS 3.2 mapping software.</p> <p>4. Have a basic knowledge of mechanics, construction and building and equipment maintenance as well as the use of various types of workshop equipment.</p>
General Environmental Management Experience:	<ol style="list-style-type: none"> 1. Project leader doing various Environmental Authorisations for road construction; waste sites, waste treatment works, cemeteries, agro processing as well as housing, industrial and tourism developments. 2. Environmental Control Officer for dam construction, waste disposal sites and transfer station; road building, stormwater management, pipe lines and maintenance as well as various size building and township development projects. 3. Team member doing specialist Palaeontologic assessments of various developments in RSA. 4. Team member doing various ground water exploration projects in the Eastern Free State. These projects include geophysical investigations, exploration drilling, borehole sustainability testing and pumping equipment and water articulation design 5. Compile Mining Permits applications and associated Environmental Management Plans to the Free State Department of Mineral Resources for the extraction of sand/gravel from borrow pits. 6. On-site assistance to Metsi Metseng Geological Services a geological based environmental consulting company. Tasks include the monitoring of dewatering activities as well as searching and recovering of fossils at Eskom's Ingula Pump Storage Scheme, KwaZulu-Natal..
Environmental Projects:	<ol style="list-style-type: none"> 1. Batsumi Consulting Engineers – Do environmental screening; coordinate specialist studies such as vegetation, agricultural and heritage assessments for the environmental authorisation of housing developments at Weenen, Colenso and Ladysmith in KZN. May 2012 – Apr 2015. 2. Grain Field Chickens Abattoir – Environmental authorisation amendment for changes in operational requirements (Jun 2012 to Nov 2012), waste management licence authorisation for waste water treatment works (Mar 2013 – Feb 2014) and poultry waste rendering plant (Jun 2014 – May 2015) as well as annual environmental audit of the abattoir form 2015. Environmental Auditor. 3. Free State Development Corporation – Do environmental screening; coordinate specialist studies such as vegetation, wetland, agricultural and heritage assessments for the environmental authorisation of the Maluti-A-Phofung Special Economical Zone, an industrial park at Tshiame, Harrismith. . During the construction phase do various building and infrastructure environmental monitoring and application for water use licence to work in and around water courses. Jun 2014 – Ongoing. Project leader and coordinator. 4. Nketoana Local Municipality - Environmental authorisations for cemeteries, landfill sites and waste water treatment works, water use licence applications for waste water treatment works and various municipality infrastructure construction environmental monitoring projects. Jun 2015 to Sep 2018. Project leader and coordinator. 5. Free State Department of Police, Roads and Transport – Section 24 G environmental authorisation for a bridge construction at Maseru Border Post and various environmental construction monitoring for road surfacing projects, including authorisation for borrow pits and water crossings in the Eastern Free State. Jul 2016 – Jul 2018. Project leader and coordinator. 6. Spilsbury Faming – Environmental authorisation for an abattoir and piggery as well as a waste management licence for a compost facility. Nov 2017 to Nov 2018. Project leader. 7. Dihlabeng Local Municipality – Environmental Authorisation for 6 cemeteries. Aug 2017 - Aug 2018. Project leader and coordinator. 8. Sedibeng Water and Maluti-A-Phofung Municipality – Environmental monitoring during the upgrade of various bulk interconnecting pipeline construction project in Qwaqwa. Sep 2017 to Mar 2019. Project leader 9. SANRAL and SNA Consulting Engineers – Environmental monitoring for the upgrade of the Kroonstad Traffic Control Centre. Jan 2018 to Apr 2019. Consultant. 10. Aurecon (Pretoria) – Environmental Services i.e. Environmental Authorisations, Mining Permits, Water Use Licensing, Environmental monitoring and closure of SANRAL N1 Upgrade (Winburg to Ventersburg) project. Nov 2018 to Dec 2023. Project Leader and coordinator
Contact Details:	<p>Tel: +082 070 0735 Fax: 086 619 2136 e-mail: tom@emtrix.co.za</p>



Registration No. 2019/2013

Herewith certifies that

Thomas Arnoldus Hugo

is registered as an

Environmental Assessment Practitioner

***Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as
amended).***

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar





herewith certifies that
Thomas Arnoldus Hugo
Registration Number: 400124/96
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)
Environmental Science (Professional Natural Scientist)

Effective **28 November 1996**

Expires **31 March 2024**



Chairperson

Chief Executive Officer





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IAIAsa Confirmation of Membership: 2023/2024
Tom Hugo Membership Number: 3781

17 Mar 2023

TO WHOM IT MAY CONCERN

Mr Tom Hugo, EnviroMatrix (Pty) Ltd (IAIAsa membership Number **3781**) is a paid-up Full Member in good standing of International Association for Impact Assessment, South Africa and has been a member of IAIAsa since 07 Aug 2014.

Membership has been continuous from 07 Aug 2014 to date.

This membership is valid from 01 Mar 2023 to 29 Feb 2024.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

IAIAsa is an Affiliate of IAIA which is an international body through a memorandum of understanding. IAIA is not responsible or liable for the actions or activities of the Affiliates. Membership of one does not imply membership of the other.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours sincerely

Monique Sham
President 2022/2023

PROJECT CV: JANUS BOTHA

Name:	Janus Botha	
Profession:	Environmental Consultant	
Date of Birth:	1995-11-02	
Parent Firm:	EnviroMatrix (Pty) Ltd	
Position in Firm:	Environmental Consultant	
Environmental Experience:	January 2022 – Present	EnviroMatrix Environmental Services – Environmental Consultant
Nationality:	South African	
Academic Qualifications:	BSc in Biological and Environmental Sciences (2014-2018).	
Professional Qualifications and Affiliations:	Member of IAIIAsa, membership number: 6936 Candidate Natural Scientist at the South African Council for Nature Scientific Professions (Registration Number: 151727). Candidate Environmental Assessment Practitioner at EAPASA (Registration number 2022/5280).	
Languages:	Afrikaans – native language. English – fully proficient in speaking, reading, and writing.	
General Environmental Management Experience	<ol style="list-style-type: none"> 1. Environmental Control Officer for various projects including roads. 2. Team member for Environmental Impact Assessment projects including feedlot development, freshwater pipeline installations, establishment of masts and power supply. 	
Environmental Projects	<ol style="list-style-type: none"> 1. Maluti-A-Phofung Local Municipality – Environmental Impact Assessment construction of a powerline in QwaQwa (2021). 2. Letaba Wireless Networks – Environmental Impact Assessment (2022-present). 3. Free State Department of Police Roads and Transport – various projects including: <ul style="list-style-type: none"> • Environmental Control Officer for special maintenance on road between Reitz and Tweeling (2022-present). • Environmental Control Officer for the special maintenance on the road between Tweeling and Frankfort (2022-present). • Environmental Control Officer for the special maintenance on the road Koppies and Schokenville (2022-present). • Environmental Control Officer for the special maintenance on the P2/1, P2/2 & P99/1 road between Virginia, Henneman and Kroonstad (2023-present). • Mining permit application for the use of 4 borrow pits between Virginia, Henneman, Kroonstad (2022-2023). • Environmental Control Officer for the special maintenance on the P15/2&3 road between Viljoenskroon and the R59 intersection to Orkney (2023-present). • Mining permit applications for the use of 3 Borrow Pits between Viljoenskroon and Orkney (2023-present). 4. South African National Road Agency Soc Limited (SANRAL) – various projects including: <ul style="list-style-type: none"> • Environmental Control Officer for the special maintenance on the road between Swartkei River and Quenstown (2022-present). • Environmental Control Officer for the special maintenance on the road between N6 to Dordrecht (2022-present). • Environmental Control Officer for the special maintenance on the road between Dordrecht and Indwe (2022-present). 	



Registration No. 2022/5280

Herewith certifies that

Petrus Jacobus Botha

is registered as an

**Candidate Environmental Assessment
Practitioner**

***Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as
amended).***

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar





herewith certifies that
Petrus Jacobus Botha
Registration Number: 151727
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Environmental Science (Candidate Natural Scientist)

Effective 14 July 2022

Expires 31 March 2024



Chairperson

Chief Executive Officer





IAIAsa Secretariat
Tel +27(0)11 655 7183
Fax 086 662 9849

Address:
43 Birchwood Court, Montrose
Street, Vorna Valley, Midrand,
1618

Postal address:
PO Box 11666, Vorna Valley,
1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2023/2024
Petrus (Janus) Botha Membership Number: 6936

17 Mar 2023

TO WHOM IT MAY CONCERN

Mr Petrus (Janus) Botha, EnvironMatrix PTY(Ltd) (IAIAsa membership Number **6936**) is a paid-up Full Member in good standing of International Association for Impact Assessment, South Africa and has been a member of IAIAsa since 04 Mar 2022.

Membership has been continuous from 04 Mar 2022 to date.

This membership is valid from 01 Mar 2023 to 29 Feb 2024.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

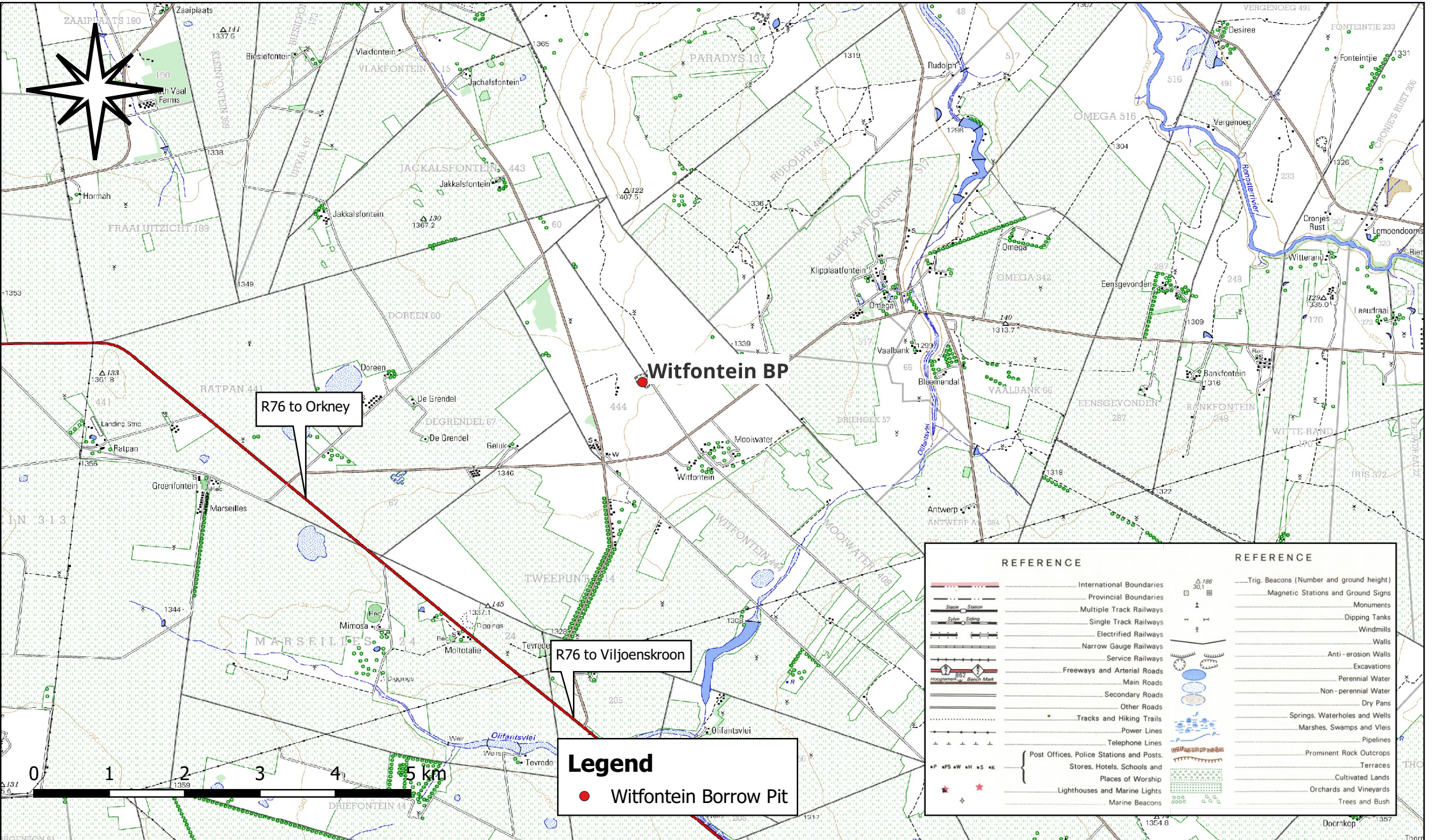
IAIAsa is an Affiliate of IAIA which is an international body through a memorandum of understanding. IAIA is not responsible or liable for the actions or activities of the Affiliates. Membership of one does not imply membership of the other.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours sincerely

Monique Sham
President 2022/2023

Appendix 2
Locality Map



R76 to Orkney

R76 to Viljoenskroon

Legend
 ● Witfontein Borrow Pit

REFERENCE		REFERENCE	
	International Boundaries		Trig. Beacons (Number and ground height)
	Provincial Boundaries		Magnetic Stations and Ground Signs
	Multiple Track Railways		Monuments
	Single Track Railways		Dipping Tanks
	Electrified Railways		Windmills
	Narrow Gauge Railways		Walls
	Service Railways		Anti-erosion Walls
	Freeways and Arterial Roads		Excavations
	Main Roads		Perennial Water
	Secondary Roads		Non-perennial Water
	Other Roads		Dry Pans
	Tracks and Hiking Trails		Springs, Waterholes and Wells
	Power Lines		Marshes, Swamps and Vleis
	Telephone Lines		Pipelines
	Post Offices, Police Stations and Posts		Prominent Rock Outcrops
	Stores, Hotels, Schools and Places of Worship		Terraces
	Lighthouses and Marine Lights		Cultivated Lands
	Marine Beacons		Orchards and Vineyards
			Trees and Bush

PROJECT:
 THE PROPOSED BORROW PIT
 DEVELOPMENT ON FARM WITFONTEIN
 444 AS PART OF THE SPECIAL
 MAINTENANCE OF THE P15/2&3 ROAD
 BETWEEN VILJOENSKROON AND R59
 INTERSECTION TO ORKNEY

MAP NAME:
 LOCALITY MAP

MAP SCALE:
 1 : 50 000

Coordinate System: GCS WGS
 1984
 Datum: WGS 1984
 Units: Degree

APPLICANT:
 DEPARTMENT OF COMMUNITY
 SAFETY, ROADS AND TRANSPORT

GENERAL GPS COORDINATES:
 27°03'18.83"S & 26°53'07.71"E

info@emtrix.co.za
 www.emtrix.co.za

**ENVIRO
 MATRIX**
 ENVIRONMENTAL CONSULTANTS

082 070 0735

Appendix 3
Public Participation Report

**BORROW PIT DEVELOPMENT ON FARM
WITFONTEIN 444 AS PART OF THE SPECIAL
MAINTENANCE ON THE P15/2 ROAD
BETWEEN VILJOENSKROON AND THE R59
INTERSECTION TO ORKNEY**

PUBLIC PARTICIPATION REPORT



2023/09/18

REF NO: FS30/5/1/1/2/02140BP

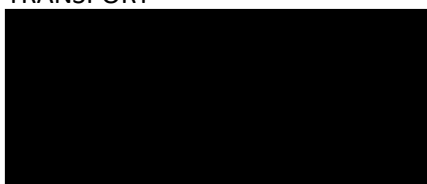
ENVIROMATRIX

PROJECT DETAILS

PROJECT TITLE: BORROW PIT DEVELOPMENT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON THE P15/2 ROAD BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

REFERENCE NO: FS30/5/1/1/2/02140BP

PROJECT PROPONENT: DEPARTMENT OF COMMUNITY SAFETY, ROADS AND TRANSPORT



ENVIRONMENTAL CONSULTANT: ENVIROMATRIX
P.O. Box 2580
Bethlehem, 9700
Phone: 082 070 0735
Fax: 086 619 2136

LEAD EAP: Tom Hugo
Pri.Sci.Nat. (Reg.400124/96)
EAPASA Registered EAP (2020/3033)
Email: tom@emtrix.co.za

ASSESSMENT TEAM: Tom Hugo
Janus Botha

DOCUMENT COMPILED BY: Janus Botha

DOCUMENT STATUS: Draft

DATE: 18 September 2023



TABLE OF CONTENTS

1.	PUBLIC PARTICIPATION PROCESS	1
1.1	Objectives and Approach to Stakeholder Engagement	1
1.2	Stakeholder Engagement process.....	1
1.3	Identification of Stakeholders.....	1
1.4	Notification of BAR process	2
1.5	Stakeholder Meetings	2
1.6	Release of the draft Basic Assessment Report (BAR).....	2
1.7	Restricted use of Personal Information	2
2	NOTIFICATION OF INTERESTED AND AFFECTED PARTIES	2
3	NOTIFICATION OF REPORTS FOR REVIEW AND COMMENT	3
4	NOTIFICATION OF AUTHORISATION DECISION.....	3

APPENDICES

APPENDIX E1 – Advertisement

APPENDIX E2 – Written Notification

APPENDIX E3 – Comments and Responses

APPENDIX E4 – Notification of Authorities and Organs of State

APPENDIX E5 – List of Interested and Affected Parties

APPENDIX E6 – Correspondence

APPENDIX E7 – Draft BAR Review

1. PUBLIC PARTICIPATION PROCESS

1.1 Objectives and Approach to Stakeholder Engagement

The overall aim of stakeholder engagement is to ensure that all Interested and Affected Parties (I&APs) have adequate opportunity to provide input into the process and raise their comments and concerns. More specifically, the objectives of stakeholder engagement are to:

- Identify IAPs and inform them about the proposed development and Basic Assessment process;
- Provide stakeholders with the opportunity to participate effectively in the process and identify relevant issues and concerns; and
- Provide stakeholders with the opportunity to review documentation and assist in identifying mitigation and management options to address potential environmental issues.

1.2 Stakeholder Engagement process

The following table provide the objective of each task in the public participation process:

TASK	OBJECTIVE
Conduct pre-consultation with DMRE	To confirm authority requirements if required.
Placement of site notices, placement of newspaper adverts and the release of Background Information Document (BID)	To notify stakeholders of the proposed project and the commencement of the Basic Assessment process, and to request registration as IAPs.
Initial IAP registration period	To provide stakeholders with the opportunity to register as IAPs for the project.
Release of the draft Basic Assessment Report for stakeholder comment	To provide stakeholders with a description of the proposed project and the affected environment, as well as a description of potential environmental issues
Public comment period	To provide stakeholders with the opportunity to review and comment on the results of the Draft Basic Assessment report for a period of at least 30 days.

1.3 Identification of Stakeholders

In line with the requirements of EIA Regulations GN R982, relevant local, provincial and national authorities, conservation bodies, local forums, and representatives of affected landowners and occupants must be notified of the environmental impact assessment process.

The following stakeholders were included:

- Affected land owners and neighbours;
- Moqhaka Local Municipality Representatives;
- Fezile Dabi District Municipality, Representatives
- Department of Agriculture and Rural Development;
- Department of Water and Sanitation, Middel Vaal;
- Department of Health, Free State
- Department of Community Safety, Roads and Transport

- DESTEA
- Other registered Interested and affected parties.

1.4 Notification of BAR process

A BID containing information about the proposed project and the Basic Assessment (BA) process was compiled and distributed to the initial list of key stakeholders by hand, post and/or email. Notices were also placed at the following locations:

- Mophaka Local Municipality, Viljoenskroon Offices
- Viljoenskroon Public Library
- Pick 'n Pay, Viljoenskroon
- Hinterland, Viljoenskroon
- SPAR, Viljoenskroon
- Ella's Algemene Handelaars, Vierfontein

Newspaper advertisements announcing the commencement of the BA process, the availability of the BID and inviting members of the public to register on the IAP database will be placed in a regional paper, "VrystaatKroon" in English.

1.5 Stakeholder Meetings

No public meeting will be held due to the danger as highlighted by the recent pandemic, but all registered parties will receive all communications such as comments and response report, draft assessment documents and authorization outcomes. If needed focus group meetings will be held via virtual platform such as Skype or Zoom.

1.6 Release of the draft Basic Assessment Report (BAR)

The release of the draft BAR for public review will be communicated to all registered I&AP's by sms or email; Copies of an Executive Summary will accompany the email notifications. I&AP will be invited to access the BAR and/or any of the appendices should they request it in writing.

1.7 Restricted use of Personal Information

With regards to the applicability of the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA) to the requirements of National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 the contact details, comments and correspondence is for the explicit use of the Competent Authority Department of Mineral Resources (DMRE) only and may not be distributed to any other party.

2 NOTIFICATION OF INTERESTED AND AFFECTED PARTIES

A Background Information Document (BID) containing information about the proposed project and the Basic Assessment process was compiled in English and distributed to the initial list of key stakeholders by hand and/or email. Notices were also placed at the site and other strategic locations. Advertisements were placed in newspapers – "VrystaatKroon" - announcing the commencement of the environmental assessment process and the availability of the BID documents as well as to invite members of the public to register as Interested and Affected Parties on the project. The following table provide the detail of the engagement as well as the location of the proof thereof:

DATE	DESCRIPTION	PROOF
23 August 2023	Advertisement was placed in the following two newspapers – VrystaatKroon	Appendix E1
10 August 2023	Placement of notices (English) at the following locations: <ul style="list-style-type: none"> • At the proposed site • Mokhaka Local Municipality, Viljoenskroon Offices • Public Library, Viljoenskroon • Pick ‘n Pay, Viljoenskroon • Hinterland, Viljoenskroon • SPAR, Viljoenskroon • Ells’s Algemene Handelaar Photographic record of placement also available in the Appendix.	Appendix E2
10 August 2023	Handout of BID to key stakeholders and I&AP with distribution register	Appendix E2
14 August 2023	Email and distribution of BID to identified Interested and Affected Parties (identified key stakeholders and Organs of State etc.)	Appendix E5
September 2023	E-mail notification of availability of Draft Basic Assessment Report was sent to Authorities and I&APs for comment during the period from end August 2023 to end September 2023 for more than 30 days.	Appendix E7

3 NOTIFICATION OF REPORTS FOR REVIEW AND COMMENT

The Draft Basic Assessment Report will be circulated for comment to Authorities and notification of its availability for review was sent to I&APs during the period from middle September 2023 to middle October 2023 for time of at least 30 days. The notification to the I&APs included an Executive Summary of the Draft BAR and an invitation to request the full document for review. See Appendix E7 for notification, comments and correspondence in this regard.

All concerns raised on the Draft Basic Assessment Report will be addressed and incorporated into the Final Basic Assessment Report.

4 NOTIFICATION OF AUTHORISATION DECISION

The Environmental Authorisation for this project has not yet been issued.

APPENDIX E1

Advertisement



J.J. Saayman

In terms of section 35 (5) of the Administration of Estates Act, No. 66 of 1965, notice is hereby given that copies of the liquidation and distribution accounts (first and final, unless otherwise stated) in the estates specified below will be open for the inspection of all persons with an interest therein for a period of 21 days (or shorter or longer if specially stated) from the date specified or from the date of publication hereof, whichever may be the later, and at the offices of the Masters of the High Court and at the offices of the Masters of the High Court and Magistrates as stated. Should no objection thereto be lodged with the Masters concerned during the specified period, the executors will proceed to make payments in accordance with the accounts.

Late estate **JOHANNES JURIE SAAYMAN**, ID no. 573457 5035 85 2 of Farm Trina, Bothsem, Province of the Master's Office Free State, Magistrate's Office Bothsem and Master's Office Bloemfontein, Estate no. 3154/2018.

PGS TRUST (PTY) LTD, Davene Astrid Made Sedras, Nominee, Proffier Walk, Gert Henning Drive, Dan Pienaar, Bloemfontein, Email: Ems@klohnara@pgs.co.za, Tel. 087 829 7151.

EKSEKUSIE VERKOPING

GEREGTELIK VEILING



AUCTION

IN THE HIGH COURT OF SOUTH AFRICA FREE STATE DIVISION, BLOEMFONTEIN

CASE NO: 4037/2022

In the matter between:

FIRSTSTRAND BANK LIMITED

Applicant

and

KROONHOFWEL TILLING STATION (PTY) LTD

1st Respondent

(Sic no: 2015/44425/07)

BENJAMIN JACOBUS KEYSER

2nd Respondent

(Id no: 7506/07 5018 106 6)

LOUIS GEORGE KEYSER

3rd Respondent

(Id no: 550124 5070 00 1)

NOTICE OF SALE IN EXECUTION

IN PURSUANCE OF A JUDGMENT granted on 22 September 2022 in the above Honourable Court, a SALE IN EXECUTION by virtue of a Mandate of Execution, in terms whereof the movable property of the Respondents (as property attached and will be sold in execution on THURSDAY, 7TH DAY OF SEPTEMBER 2023 at 10H00 by the SHERIFF KRONSTAD at 168 Church Street, Kroonstad for cash to the highest bidder namely:

1.1 1X COCA-COLA REFRIGERATOR (NOT COCA-COLA PROPERTY)

1.2 1X RED HAWK - 3 PHASE INDUSTRIAL CARWASH MACHINE

1.3 1X BLUE COOLPOWER GASOLINE HIGHPOWER COOLLESS CARWASHER

1.4 2X EREY 96G GAS BOTTLES

1.5 1X GREEN 14KG GAS BOTTLE

1.6 1X LARGE & NEW 340W INDUSTRIAL SOLAR PANELS

1.7 2X LARGE TREADMILLS (1 YELLOW & 1 GREEN)

1.8 1X COLOURED PLASTIC GARDEN CHAIRS

1.9 1X LARGE INDUSTRIAL NOVA SMOKELESS DOUBLE EXPRESSO MACHINE

1.10 1X INDUSTRIAL COFFEE GRINDER

1.11 1X SILVER GREY DEFFY REFRIGERATOR

1.12 1X ORIGINAL DOOR TILING CABINET

1.13 1X WHITE SMALL BOX FREEZER

1.14 1X 500 KIC BOX FREEZER

1.15 1X DOUBLE INDUSTRIAL MILKSHAKE MACHINES

1.16 1X ROLINO INDUSTRIAL WATTLE MACHINES

1.17 1X STICK WAFFLE MACHINE

1.18 2X DOUBLE SAUN MARIES

1.19 2X DEEP-FRYER

1.20 2X HIGH & 3X SMALL STEEL COFFEE SHOP CHAIRS

1.21 1X INDUSTRIAL ICE CRUSHER

1.22 CHAKOAL VESPA

1.23 BUNNIG BAG

1.24 POWER CAGE GYM

1.25 DUMBBELLS (24 large & 24 small)

1.26 BLACK VW JETTA REG NO: FG19195

TAKE FURTHER NOTICE THAT:

1. This is a sale in execution pursuant to a judgment obtained in the above court;

2. Rules of this auction is available 24 hours; ranging the sale at the office of the Sheriff, 168 Church Street, Kroonstad;

3. Registration as a buyer, subject to certain conditions, is required i.e.:

3.1. Directives of the Consumer Protection Act 68 of 2008. (URL: <http://www.info.gov.za/view/DownloadContentPages.aspx?nid=9996>);

3.2. FIC legislation i.e. Identity & address particulars;

3.3. Payment of refundable registration fees;

3.4. Registration conditions.

4. The office of the Sheriff Kronestad will conduct the sale.

5. Advertising costs at current publication tariffs & sale costs according Court Rules will apply.

DATED at BLOEMFONTEIN on this 14th day of AUGUST 2023.

HONEY ATTORNEYS

ATTORNEYS FOR APPLICANT

111 WILKINSONS

1ST FLOOR, HONEY CHAMBERS

NORTHBRIDGE MALL

KENNETH SAUNDA ROAD

P.O. BOX 29

DOCK 20

BLOEMFONTEIN

TEL: 051 403 6200

photoshop@hennah.co.za

AUCTION

THE HIGH COURT OF SOUTH AFRICA FREE STATE DIVISION, BLOEMFONTEIN

CASE NO. 999/2020

In the matter between:

ODS VRYSTAAT KAAP OPERASIES LTD

Plaintiff

and

ANDRIES JODEPHUS SCHEEPERS

First Defendant

(Identity Number: 960816 57 280)

AMELIA SCHLAPFUS

N.D.

Second Defendant

(In his capacity as trustee of DRINUS TRUST: IT1359/2000)

and

WILLEM MARTINIUS SCHEEPERS

N.D.

Third Defendant

(In his capacity as trustee of DRINUS TRUST: IT1359/2000)

In execution of a judgment of the High Court of South Africa (Free State Division, Bloemfontein) in the above mentioned suit, a sale with reserve will be held at 12:00 pm on 8 SEPTEMBER 2023 at the office of the SHERIFF REITZ at 22 DE WET STREET, BLOEMFONTEIN on the conditions to be read out by the auctioneer at the time of the sale and which conditions may be inspected at the SHERIFF REITZ at 22 DE WET STREET, BLOEMFONTEIN.

CERTAIN PORTION OF THE FARM ROUENFONTEIN SUID DISTRICT REITZ, FREE STATE PROVINCE

1.12.1X 120 KW ONE PHASE INKRED AND TWENTY

EIGHT COMMA FOUR SEVEN NINE EIGHT) HECTARES AS HELD BY DEED OF TRANSFER T2494/2002

Subject to the conditions therein contained.

HELD BY DRINUS TRUST, IT1359/2000 situated at FARM VERKRY, REITZ, FREE STATE PROVINCE.

THE PROPERTY IS ZONED: Agricultural.

The following information is furnished here the improvements, though in this respect nothing is guaranteed:

75 HECTARES NATURAL FIELD;

32 HECTARES 'OULANDOROSS' FIELD;

HUNTERS HOUSE;

3 x BEDROOMS;

1 KITCHEN;

DINING LOUNGE AREA;

1 BATHROOM

1 0 0 STABLES

2 x GROUND DAMS.

TERMS: Ten per cent of the purchase price in cash on the day of the sale, the balance to be secured by a bank or building society or other acceptable guarantee to be furnished to the Sheriff within 21 days from the date of sale. According to the Plaintiff's records DRINUS TRUST, IT1359/2000 is registered as a VOT Vendor. The Plaintiff does not warrant this.

Should the property be bought by the first bondholder, the cash payment of 10% need not be made. Should the purchaser receive possession of the property, the purchaser shall be liable for occupation rental at the rate of 1% of the purchase price per month. Pro-rata occupational rental shall be payable to the purchaser on the date of possession and thereafter monthly on or before the 1st of each month until date of registration of transfer.

TAKE FURTHER NOTICE THAT:

This is a sale in execution of the property, a judgment obtained in the above Court. Rules of this auction is available 24 hours foregoing the sale at the office of the Sheriff. Registration as a buyer, subject to certain conditions is required i.e.:

1. Directives of the CONSUMER PROTECTION ACT 68 OF

2008 as Amended, (URL: <http://www.info.gov.za/view/DownloadContentPages.aspx?nid=9996>);

2. FIC-regulation i.e. identity & address particulars;

3. Payment of registration fees;

4. Registration conditions.

The office of the Sheriff REITZ will conduct the sale with auctioneer W.F. NUNNIE, or his deputy.

Advertising costs at current publication tariffs & sale costs according court rules will apply.

SHERIFF OF THE HIGH COURT

for the district of REITZ

Advertiser:

AUCKLANDS FOR PLAIN (P) PHOTOSHOP HENNAH INC.

35 MARNGRAAFF STREET WESTVIEW

BLOEMFONTEIN

TEL. NR. 051 400 4090

EMAIL: ra@hennah.co.za

R.F. KRUGER/20615

NOTICE OF APPLICATION FOR SPECIAL CONSENT IN TERMS OF SECTION 56 OF THE MOQHAKA LOCAL MUNICIPALITY BY-LAW ON MUNICIPAL LAND USE PLANNING, 2015, READ TOGETHER WITH THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT NO. 16 OF 2013), THE FARM GROOT VADERS BOSCH NO. 592, WILJOENSKROON DISTRICT

I, Johannes Gerhardus Benade (ID No. 621015 5065 08 1) of the firm Maxim Planning Solutions (Pty) Ltd (2022/0736307) being the authorised agent of the owner of the Farm Groot Vaders Bosch No. 592, Wiljoenskroon District, hereby gives notice in terms of Section 56 of the Moqhaka Local Municipality By-Law on Municipal Land Use Planning, 2015, that we have applied in terms of Section 16 of the Moqhaka Local Municipality By-Law on Municipal Land Use Planning, 2015, read together with the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and with Schedule 7 of the Moqhaka Land Use Scheme, 2018, to the Moqhaka Local Municipality for the special consent of the Moqhaka Local Municipality to utilize a portion of the Farm Groot Vaders Bosch No. 592, Wiljoenskroon District, situated adjacent to a gravel road off a tarred road (Mokha Khutong Operations Road), off the R592 Road (Ooswildekroon/Orkney Road), approximately 30km to the north of Verloren, approximately 6.5km to the east of Orkney and to the south of the Vaal River, for the purposes of generating works, with specific reference to a solar power plant. The purpose of the application is to utilize a portion of the concerned property, covering an area of 275ha, for the purposes of a solar power plant, to be referred to as Thakatu Solar Power Plant. The remaining portion of the concerned property will still be utilized for agricultural purposes.

Particulars of the application will lie for inspection during normal office hours at the office of the Municipal Manager, Moqhaka Local Municipality, 181 Street, Kroonstad, 9500, for the period of 30 days from 23 August 2023. Comments, objections or representations in respect of the application, together with the reasons therefor, must be lodged with or made in writing to the authorised agent and the Municipal Manager, Moqhaka Local Municipality at the above address or posted to P.O. Box 302, Kroonstad, 9500 within a period of 30 days from 23 August 2023. The closing date for submission of comment, objections or representations is 22 September 2023. Any person who cannot write may during office hours come to the address stated in the notice, where Mr. Rebeke Mabeane (056 216 9271) of the Moqhaka Local Municipality will assist those persons by transcribing their objections, comments or representations. Any person who submitted an objection, comment or representation will be notified in writing of a hearing which will be held in respect of the application.

Contact details of owner: Die Leu Trust, Farm Groot Vaders Bosch, Wiljoenskroon District, 9520; By address Subsolar Energy (Pty) Ltd, P.O. Box 785553, Sandton, 2146.

ADDRESS OF AUTHORISED AGENT: MAXIM PLANNING SOLUTIONS (PTY) LTD (2022/017393/07), UNIT 35 CORPUS NOVEM OFFICE PARK, 35 DR. YUSUF DADOO AVENUE, WILKOPPIES, KLERKSDORP, 2571, P.O. BOX 6844, FLAMWOOD, 2572, TEL: 011 648 6366 (21782)

VACANCY MARKETING MANAGER

Thuso Mills, a successful maize mill in Bothaville, requires the services of a **MARKETING MANAGER**

RESPONSIBILITIES:

The successful candidate will be responsible for the marketing and promotion of a range of products in a wide geographical area

REQUIREMENTS:

- NQF4 qualification
- 5 Years applicable marketing experience
- Good communication and negotiating skills
- Goal driven
- Innovative and energetic
- Good management skills
- Good client service

DUTIES:

- Marketing of a range of products to existing clients
- Expansion of client base
- Manage marketers and agents
- Handle customer complaints
- Administrative tasks of the position

The appointment will be in terms of the company's equity plan and policy. Please submit a detailed CV to the following before 29 August 2023:

CEO, Thuso Mills, PO Box 1492, BOTHAVILLE 9660.

Email: hennah@thuso.co.za Fax: 056-5152188

23 August 2023 **VrystaatKroon**

The sale in execution is conducted in accordance to the Consumer Protection Act 68 of 2008 as Amended, in pursuant of an order granted against the defendants for money owing to the Plaintiff.

The conditions of sale will lie open for inspection during business hours at the offices of the SHERIFF OF THE HIGH COURT REITZ at 22 DE WET STREET, REITZ or at the execution plaintiff's attorneys.

TAKE FURTHER NOTICE THAT:

This is a sale in execution of the property, a judgment obtained in the above Court. Rules of this auction is available 24 hours foregoing the sale at the office of the Sheriff. Registration as a buyer, subject to certain conditions is required i.e.:

1. Directives of the CONSUMER PROTECTION ACT 68 OF

2008 as Amended, (URL: <http://www.info.gov.za/view/DownloadContentPages.aspx?nid=9996>);

2. FIC-regulation i.e. identity & address particulars;

3. Payment of registration fees;

4. Registration conditions.

The office of the Sheriff REITZ will conduct the sale with auctioneer W.F. NUNNIE, or his deputy.

Advertising costs at current publication tariffs & sale costs according court rules will apply.

SHERIFF OF THE HIGH COURT

for the district of REITZ

Advertiser:

AUCKLANDS FOR PLAIN (P) PHOTOSHOP HENNAH INC.

35 MARNGRAAFF STREET WESTVIEW

BLOEMFONTEIN

TEL. NR. 051 400 4090

EMAIL: ra@hennah.co.za

R.F. KRUGER/20615

CLASSIFIEDS **GEKLASSIFISEERD 19**

GEKLASSIFISEERD

DISCLAIMER

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2008 as Amended, (URL: <http://www.info.gov.za/view/DownloadContentPages.aspx?nid=9996>);

2. FIC-regulation i.e. identity & address particulars;

3. Payment of registration fees;

4. Registration conditions.

The office of the Sheriff REITZ will conduct the sale with auctioneer W.F. NUNNIE, or his deputy.

Advertising costs at current publication tariffs & sale costs according court rules will apply.

SHERIFF OF THE HIGH COURT

for the district of REITZ

Advertiser:

AUCKLANDS FOR PLAIN (P) PHOTOSHOP HENNAH INC.

35 MARNGRAAFF STREET WESTVIEW

BLOEMFONTEIN

TEL. NR. 051 400 4090

EMAIL: ra@hennah.co.za

R.F. KRUGER/20615

NOTICE OF APPLICATION FOR A MINING PERMIT AND AN ENVIRONMENTAL IMPACT ASSESSMENT

DEVELOPMENT OF 3 BORROW PITS AS PART OF THE SPECIAL MAINTENANCE OF THE P15233 ROAD BETWEEN WILJOENSKROON TO THE R59 INTERSECTION TO ORKNEY, MOQHAKA LOCAL MUNICIPALITY

Notice is hereby given in terms of Mineral and Petroleum Resources Development Act 28 of 2002 to apply for a Mining Permit application and in terms of GN R 982 to 985 of 4 December 2014 as amended under the National Environmental Management Act, 107 of 1998 to apply for environmental authorisation for the following:

- GN R983: Activity 21: Process that require a mining permit application
- Activity 21 (E): CSRT is exempted from section 106(1) of the Mineral and Petroleum Resources Development Act.
- GN R983: Activity 27: Clearance of an area (<20Ha) of indigenous vegetation

LOCATION

General coordinates of proposed borrow pits: 27°37'43"S & 27°9'33.78"E; 27°3'18.83"S & 26°53'7.71"E; 27°3'15.78"S & 26°53'12.45"E.

PUBLIC INFORMATION

Interested and Affected Parties are invited to register and submit comments on the proposed development to **EnviroMatrix** by 15 September 2023. For further information, please contact: Janus at cell 066 485 3275 or e-mail: janus@ematrix.co.za



VAKATURE BEMARKINGS BESTUURDER

Thuso Meule, 'n suksesvolle mieliebedryf in Bothaville, verlang die dienste van 'n **BEMARKINGS BESTUURDER**

APPENDIX E2

Written notification



NOTICE OF APPLICATION FOR A MINING PERMIT AS WELL AS AN ENVIRONMENTAL IMPACT ASSESSMENT

Notice is hereby given in terms of National Environmental Management Act, (Act No. 107 of 1998) (NEMA) as well as Mineral and Petroleum Resources Development Act (Act No 28 of 2002) (MPRDA), that Maximus Earthworks (Pty) Ltd intend to carry out the following project which will follow a Mining Permit application as well as an Environmental Impact Assessment process:

DEVELOPMENT OF A BORROW PIT ON FARM MOOIWATER 408 AS PART OF THE SPECIAL MAINTENANCE OF THE P15/2&3 ROAD BETWEEN VILJOENSKROON TO THE R59 INTERSECTION TO ORKNEY, MOQHAKA LOCAL MUNICIPALITY

ACTIVITIES

Environmental Authorisation for the borrow pit is regulated by the NEMA (107 of 1998):

GN R983 in GG 38382 of 4 December 2014: Listing notice 1: (GN R983) as amended list the following:

- Activity 21; Process that require a mining permit application.
- Activity 21 (E): CSRT is exempted from of section 106(1) of the Mineral and Petroleum Resources Development Act
- Activity 27; Clearance of an area (< 20Ha) of indigenous vegetation

THE PROJECT BACKGROUND

The Department of Community Safety, Roads and Transport (CSRT) intends to establish a borrow pit on farm Mooiwater 408 close to the R76 between Viljoenskroon and Orkney in the Mqohaka Municipality, Free State. The objective is to generate good quality road building material for the Special Maintenance of the road between Viljoenskroon and Orkney.

EnviroMatrix (Pty) Ltd, an Environmental Management Company has been appointed as Independent Environmental Consultants by CSRT to undertake the Mining Permit application and associated Basic Impact Assessment as part of the environmental authorisations process.

LOCATION

The project entails the development of a borrow pit on farm Mooiwater 408 close to the R76 road between Viljoenskroon and the R59 intersection to Orkney. The borrow pit sites are located within the Mqohaka municipal boundaries. The coordinate of the pit sites are:

No	Farm Name	Coordinates	
1	Mooiwater 408	27° 3'15.78"S	26°53'12.45"E

REGISTRATION AS INTERESTED AND AFFECTED PARTY

In order to ensure you are identified as an interested and/or affected party, please submit your name, contact information and interest in the matter to the contact persons below on or **before 15 September 2023**. A background information document will be provided to you after registration.

Tom Hugo
Janus Botha

Cell: 082 070 0735
Cell: 066 485 3275

E-Mail: tom@emtrix.co.za
E-Mail: janus@emtrix.co.za

Please take note that this is not a notice for a job application. The notice relates to the possible environmental impacts

Proof of placement of notices



Photo 1: Notice at proposed site



Photo 2: Notice at Moqhaka Local Council, Viljoenskroon

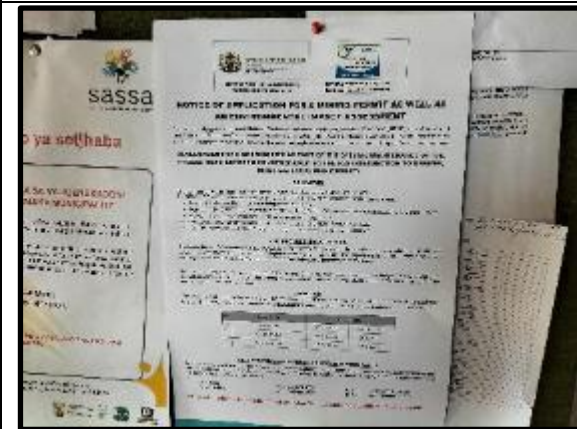


Photo 3: Notice at Public Library, Viljoenskroon

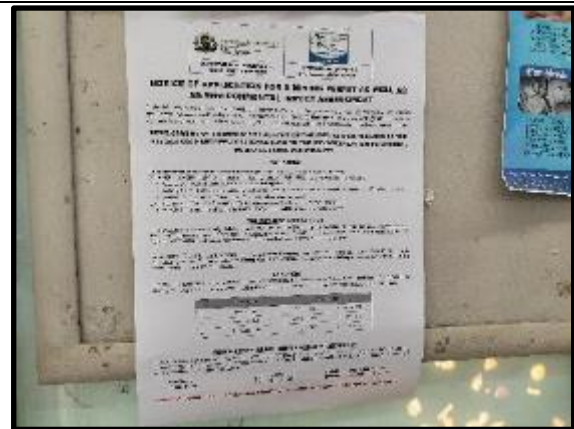


Photo 4: Notice at Pick 'n Pay, Viljoenskroon

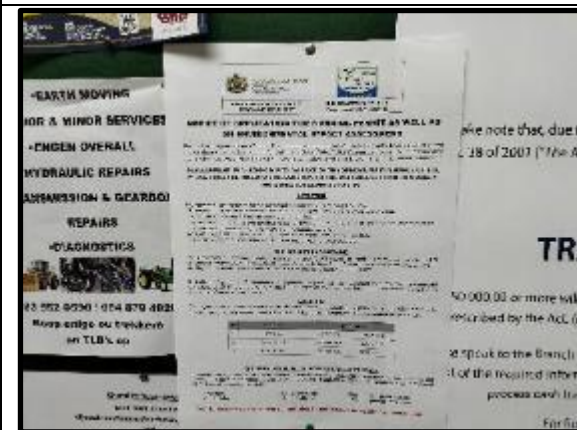


Photo 5: Notice at Hinterland, Viljoenskroon



Photo 6: Notice at SPAR, Viljoenskroon



Photo 7: Notice at Ella's Algemene Handelaars, Viljoenskroon



community safety, roads & transport
Department of
Community Safety, Roads & Transport
FREE STATE PROVINCE



**DEPARTMENT OF COMMUNITY SAFETY, ROADS AND
TRANSPORT**

**ENVIROMATRIX (Pty) Ltd
Environmental Consultants**

BACKGROUND INFORMATION DOCUMENT

DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE OF THE P15/2&3 ROAD BETWEEN VILJOENSKROON TO THE R59 INTERSECTION TO ORKNEY, MOQHAKA LOCAL MUNICIPALITY

PURPOSE OF THIS DOCUMENT

The purpose of Background Information Document (BID) is to provide potential stakeholders with the background information regarding the proposed development of a borrow pit on farm Witfontein 444 in the Moqhaka Local Municipality in the Free State Province. The BID provides an opportunity for stakeholders to register as Interested and Affected Parties (IAP's) and to obtain initial information regarding the planned mining and environmental related assessments.

A mining permit application process as well as an environmental authorisation process will have to be followed to obtain authorization for the planned borrow pit development. The purpose of the application processes is to identify and evaluate potential impacts, feasible alternatives and to recommend mitigation measures to avoid or minimize potential negative impacts by the development and to enhance any positive impacts. The responsible authority for the mine authorisation is the Department of Mineral Resources and Energy (DMRE) with their offices located in Welkom.

BACKGROUND

The Department of Community Safety, Roads, and Transport (CSRT) intends to establish a borrow pit on farm Witfontein 444 close to the R76 between Viljoenskroon and Orkney in the Moqhaka Municipality, Free State. The objective is to generate good quality road building material for the Special Maintenance of the road between Viljoenskroon and Orkney.

EnviroMatrix (Pty) Ltd, an Environmental Management Company has been appointed as Independent Environmental Consultants by CSRT to undertake the Mining Permit application and associated Basic Impact Assessment as part of the environmental authorisations process.

APPLICABLE LEGISLATION

1. The **Environmental Authorisation for borrow pits** is regulated by the National Environmental Management Act, Act 107 of 1998 (NEMA) and Environmental Impact Assessment Regulations GN R982 -985 as amended that regulate the environmental authorisation process and list activities that may not commence without

Environmental Authorisation from the Competent Authority. It is anticipated that the planned development of the borrow pits will trigger the following activities:

GN R983 in GG 38382 of 4 December 2014: Listing notice 1: List of activities and competent authorities identified in terms of sections 24 (2) and 24 D (GN R983) as amended:

- Activity 21; Process that require a mining permit application.
- Activity 21(E); CSRT is exempted from of section 106(1) of the Mineral and Petroleum Resources Development Act
- Activity 27; Clearance of an area (< 20Ha) of indigenous vegetation

GN R985 in GG 38382 of 4 December 2014: Listing notice 3: List of activities and competent authorities identified in terms of sections 24 (2) and 24 D (GN R985) for the Free State:

- Activity 12; Clearance of 300m² indigenous vegetation within 100 metres from the edge of a watercourse or wetland.

2. The **Mining Right for the borrow pits excavation and closure** is governed by the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA). However, as an organ of state, CSRT has obtained exemption from the provisions of section 16, 20, 22 and 27 (application process) of the MPRDA (as per NEMA EIA Regulations 2014) in respect of any activity to remove any material for the construction and maintenance of dams, harbours, roads, and railway lines and for the purposes incidental thereto, as allowed by the sad act in section 106(1). As such the utilisation of resources is subject only to the preparation, submission, and approval of an Environmental Impact Report, compiled in accordance with the requirements of NEMA and MPRDA.

PROJECT LOCALITY

The project entails the development of a borrow pit on farm Witfontein 444 close to the R76 road between Viljoenskroon and the R59 intersection to Orkney as illustrated in Figure 1 below. The borrow pit site is located within the Moqhaka municipal boundaries. The coordinates of the pit site are:

No	Farm Name	Coordinates	
1	Witfontein 444	27° 3.314'S	26° 53.129'E



Figure 1: Borrow Pit locality.

PROJECT DESCRIPTION

The scope of work for the project will include the following major aspects:

- Developing of borrow pits as legalised by a duly authorised mining permit.
- Excavation of the aggregate and rock from the borrow pit.
- Stockpiling, hauling and transportation rock of various sizes.
- Access roads to the excavation site.

All excavation activities will be undertaken with due cognisance to minimise the impact on the environment and limiting the disruptions to the local community.

APPLICATION PROCESSES

The **Basic Assessment Process** as part of the Environmental Authorisation for the proposed borrow pit establishment is governed by the NEMA to collect, organise, interpret and communicate information regarding the project. The Basic Assessment process is a planning and decision-making tool that is used to identify possible negative and positive impacts resulting from a proposed project and to recommend ways of avoiding or minimising negative impacts and enhancing positive impacts.

The EIA comprises of various stages where different aspects of the process is addressed. Below is a schematic diagram of the process that will be followed. The public participation stages are marked in grey. The process is currently in the Project Announcement stage.

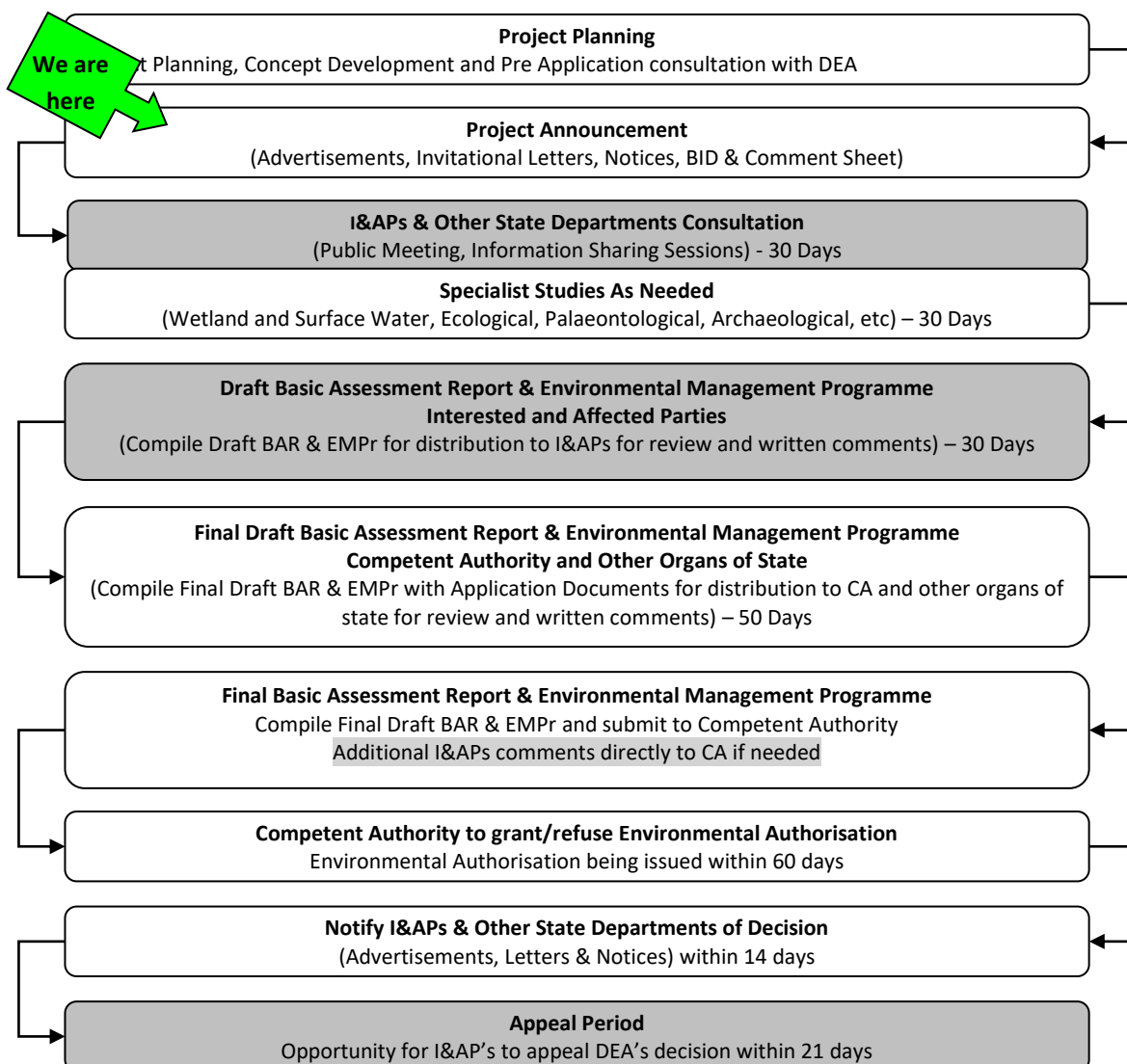


Figure 2: Basic Assessment Process

Specialist studies proposed in support of the EIA are the following:

- Cultural and Heritage study Phase 1,
- Ecological and wetland study,

PRESUMED ISSUES

Preliminary prediction of possible environmental impacts that may occur and need to be managed as part of the Environmental Management Programme (EMPr) may include:

- Possible impact to ecology with the mining of sand;
- Possible impact on protected fauna and flora in areas where excavation will take place;
- Possible erosion of soils and loss of topsoil;
- Possible invasion of exotic species;
- Possible pollution of fuels and oil as a result of vehicle movement; and
- Possible noise and dust pollution during the excavation process.

These are not necessarily all issues that will be addressed, and more issues may be identified and added as the project progresses. Mitigation measures are available in the EMP which can be reviewed at the farm office. Stakeholders are, however, welcome to comment on these issues and provide additional observations, issues, or concerns by completing the attached comment form.

PUBLIC PARTICIPATION PROCESS

Public Participation forms an integral component of the Mining Right and EIA application processes. Interested and Affected Parties (IAP's) can get involved by; (i) Registering their interest in the project through completing the attached IAP Registration Form and returning it to the Consultant, (ii) Responding to our invitation for their involvement as advertised in local newspapers, (iii) Telephonically contacting the Consultant if they have a query, comment or require further information, (iv) Reviewing the various reports within the specified comment period and (v) As a registered IAP attending any feedback meetings, which may be held during the review period.

You are encouraged to register and submit comments on the proposed project to the Environmental Consultant by 15 September 2023. This can be done by completing the attached IAP registration form and returning it to the consultant.

If any further information is required, please contact Tom Hugo or Janus Botha the Environmental Consultants:

Tom	Cell: 082 070 0735	E-Mail: tom@emtrix.co.za
Janus	Cell: 066 485 3275	E-Mail: janus@emtrix.co.za

With regards to the applicability of the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA) to the requirements of National Environmental Management Act, 1998 (Act No. 107 of 1998)(NEMA) and the Environmental Impact Assessment Regulations, 2014 as amended - the contact details, comments and correspondence of any Interested and Affected Party is for the explicit use of the Competent Authority - the Department of Mineral Resources and Energy (DMRE). By returning the Registration Form, a party gives consent for its content to be used in the Basic Assessment Report to be submitted to DMRE.

Please take note that this is not an advertisement for a job application. The background information document relates to the possible impacts on the surrounding environment.

STAKEHOLDER REGISTRATION FORM

DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444

Please complete and return as soon as possible, but not later than 15 September 2023 to:

EnviroMatrix, Mr Janus Botha, PO Box 2580, Bethlehem, 9700

Cell: 066 485 3275

Fax: 086 619 2136

E-mail: janus@emtrix.co.za

1. PERSONAL DETAILS

TITLE: _____ NAME: _____ SURNAME: _____

NATURE OF INVOLVEMENT: _____

PHYSICAL ADDRESS: _____

POSTAL ADDRESS: _____

TEL: _____ CELL: _____ E-MAIL: _____

2. COMMENTS - It would be useful if you could answer the questions below but please feel free to provide any comments you would like to raise. Please continue on additional paper if required.

What are the primary concerns faced by you / your community / your organisation with regards to the proposed project?

Are you in favour of or against the proposed project? Please provide a reason for your answer. _____

Any other stakeholders you think we need to contact: _____

3. DECLARATION

I, Mr/Ms _____ of/from _____ hereby declare that I have been informed of the applications for a mining permit in terms of the MPRDA Act 28 of 2002 and environmental authorisation in terms of NEMA Act No 107 of 1998 and give consent for the use of the content of this form in terms of POPIA (Act No. 14 of 2013).

Signed: _____ at: _____ Date: _____

**DEVELOPMENT OF THREE BORROW PITS AS PART OF THE SPECIAL MAINTENANCE ON 15/2&3
ROAD BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY**

Background Information Document (BID) Distribution Register

Date	Name & Surname	Organisation	Postal Address	Contact Number	E-mail Address	Signature
1	10/6/2008 MURIEL MURIEL	[REDACTED]	[REDACTED]	[REDACTED]	viljoenskroon@gmail.com	[Signature]
2	10/6/08 Suzanne Van Haver	[REDACTED]	[REDACTED]	[REDACTED]		[Signature]
3						
4						
5						
6						
7						
8						

BID distribution email

janus@emtrix.co.za

From: janus@emtrix.co.za
Sent: 14 August 2023 04:13 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY
Attachments: 230710 BID Witfontein BP.pdf

14 August 2023

Attention: Interested and Affected Parties
Fezile Dabi District Municipality Representatives
Mqohaka Local Municipality Representatives
Department of Health, Free State
Department of Agriculture and Rural Development
Department of Water and Sanitation
Department of Economic, Small Business Development, Tourism and Environmental Affairs
Department of Community Safety Roads and Transport
Free State Heritage Resource Agency
South African Heritage Resource Agency

RE: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

You/Your organisation has been identified as a possible interested and/or Affected Party for the above-mentioned project. Herewith included is the Background Information Document (BID) for your perusal.

You are invited to register/comment as an Interested and Affected Party (see registration form attached to the BID) and make representations with respect to the application on the form. You can send us your written response to me via-email to Janus Botha at E-mail: janus@emtrix.co.za on or before 15 September 2023. Thank you for your feedback and assistance in this regard.

If there are any enquiries, do not hesitate to contact us
Janus Botha
066 485 3275



APPENDIX E3

Comments and Response

Summary of main issues raised by I&APs	Summary of response from EAP
<p>Boitumelo Melato – DWS Representative Main concerns are waste and water mangement</p>	<p>Thank you for your comments with regards to the proposed development. Kindly note that the waste- and water management concerns raised will be addressed within the Basic Assessment Report and the Environmental Management Plan. We will keep you updated as the project progresses.</p>
<p>Ms Sphokazi Mbatha – Registered IAP We require more information about the project</p>	<p>Thank you for your IAP registration forms for the proposed borrow pit developments. Kindly see attached the background information documents for the two projects.</p> <p>Kindly note that we will circulate the draft Basic Assessment Reports early next week and you will be included in the circulation.</p>

APPENDIX E4

Notification of Authorities and Organs of State

With regards to the applicability of the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA) to the requirements of National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 the contact details, comments and correspondence is for the explicit use of the Competent Authority Department of Mineral Resources and Energy (DMRE) only and may not be distributed to any other party.

Interested and Affected Party	Contact Person	Tel No.	E-mail
Fezile Dabi District Municipality	Ms LM Molibeli		
Moqhaka Municipality Representative	Pieter Bredenkamp		
Moqhaka Municipality Representative/Speaker	Mphikeleli Masumpa		
Department of Health, Free State	Lizel van Rensburg		
Department of Water and Sanitation	Biotumelo Melato		
Department of Agriculture and Rural Development	Jack Morton		
Department of Police Roads and Transport	Hannes Maree		
Department of Mineral Resources	Tuwani Monyani		
DESTEA	Grace Mkhosana		

janus@emtrix.co.za

From: janus@emtrix.co.za
Sent: 14 August 2023 04:13 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY
Attachments: 230710 BID Witfontein BP.pdf

14 August 2023

Attention: Interested and Affected Parties
Fezile Dabi District Municipality Representatives
Moghaka Local Municipality Representatives
Department of Health, Free State
Department of Agriculture and Rural Development
Department of Water and Sanitation
Department of Economic, Small Business Development, Tourism and Environmental Affairs
Department of Community Safety Roads and Transport
Free State Heritage Resource Agency
South African Heritage Resource Agency

RE: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

You/Your organisation has been identified as a possible interested and/or Affected Party for the above-mentioned project. Herewith included is the Background Information Document (BID) for your perusal.

You are invited to register/comment as an Interested and Affected Party (see registration form attached to the BID) and make representations with respect to the application on the form. You can send us your written response to me via-email to Janus Botha at E-mail: janus@emtrix.co.za on or before 15 September 2023. Thank you for your feedback and assistance in this regard.

If there are any enquiries, do not hesitate to contact us
Janus Botha
066 485 3275



APPENDIX E5

List of Interested and Affected Parties

With regards to the applicability of the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA) to the requirements of National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 the contact details, comments and correspondence is for the explicit use of the Competent Authority Department of Mineral Resources and Energy only and may not be distributed to any other party.

Interested and Affected Party	Contact Person	Tel No.	E-mail
Fezile Dabi District Municipality	Ms LM Molibeli		
Moqhaka Municipality Representative	Pieter Bredenkamp		
Moqhaka Municipality Representative/Speaker	Mphikeleli Masumpa		
Department of Health, Free State	Lizel van Rensburg		
Department of Water and Sanitation	Biotumelo Melato		
Department of Agriculture and Rural Development	Jack Morton		
Department of Police Roads and Transport	Hannes Maree		
Department of Mineral Resources	Tuwani Monyani		
DESTEA	Grace Mkhosana		
Eskom	Rene de Bruin		
SAHRA	N/A		
Landowner – Witfontein 444	John Gossayn		
Land Occupier - Witfontein 444	Andre Oosthuizen		
Neighbour	Dr Gert Schutte		
IAP	Sphokazi Mbatha (Mulilo RDP)		

APPENDIX E6

Correspondence

With regards to the applicability of the requirements of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA) to the requirements of National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 the contact details, comments and correspondence is for the explicit use of the Competent Authority Department of Mineral Resources and Energy (DMRE) only and may not be distributed to any other party.

STAKEHOLDER REGISTRATION FORM

DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444

Please complete and return as soon as possible, but not later than 15 September 2023 to:

EnviroMatrix, Mr Janus Botha, PO Box 2580, Bethlehem, 9700

Cell: 066 485 3275

Fax: 086 619 2136

E-mail: janus@emtrix.co.za

1. PERSONAL DETAILS

TITLE: Mrs NAME: Boitumelo SURNAME: Melato

NATURE OF INVOLVEMENT: Environmental Management



2. COMMENTS - It would be useful if you could answer the questions below but please feel free to provide any comments you would like to raise. Please continue on additional paper if required.

What are the primary concerns faced by you / your community / your organisation with regards to the proposed project?

Waste management, ~~and~~ ^{and} water ~~and~~ management

Are you in favour of or against the proposed project? Please provide a reason for your answer.

Comments will be submitted based on the information contained in the document.

Any other stakeholders you think we need to contact: Department of Environmental Affairs

3. DECLARATION

I, Mr/Ms Ms of/from Dept. Water and Sanitation hereby declare that I have been informed of the applications for a mining permit in terms of the MPRDA Act 28 of 2002 and environmental authorisation in terms of NEMA Act No 107 of 1998 and give consent for the use of the content of this form in terms of POPIA (Act No. 14 of 2013).

Signed: [Signature] at: Bloemfontein Date: 14/09/2023

janus@emtrix.co.za

From: janus@emtrix.co.za
Sent: 14 September 2023 02:40 PM
To: 'Melato Boitumelo (BFN)'
Subject: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

Good afternoon Boitumelo.

Thank you for your comments with regards to the proposed development. Kindly note that the waste- and water management concerns raised will be addressed within the Basic Assessment Report and the Environmental Management Plan. We will keep you updated as the project progresses.

Kind regards
Janus Botha



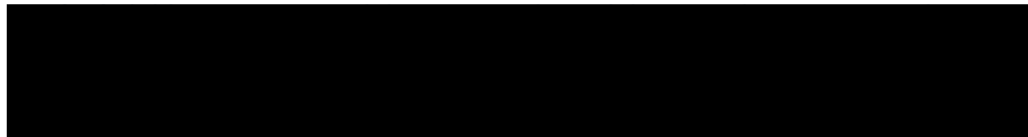
From: Melato Boitumelo (BFN) [REDACTED]
Sent: Thursday, September 14, 2023 2:32 PM
To: janus@emtrix.co.za
Subject: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

Good day,

Kindly find attached for your further attention.

Regards,
Boitumelo Melato
[REDACTED]

From: janus@emtrix.co.za <janus@emtrix.co.za>
Sent: Monday, 14 August 2023 16:13



Subject: RE: DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2&3 BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY

14 August 2023

STAKEHOLDER REGISTRATION FORM

DEVELOPMENT OF A BORROW PIT ON FARM WITFONTEIN 444

Please complete and return as soon as possible, but not later than 15 September 2023 to:

EnviroMatrix, Mr Janus Botha, PO Box 2580, Bethlehem, 9700

Cell: 066 485 3275

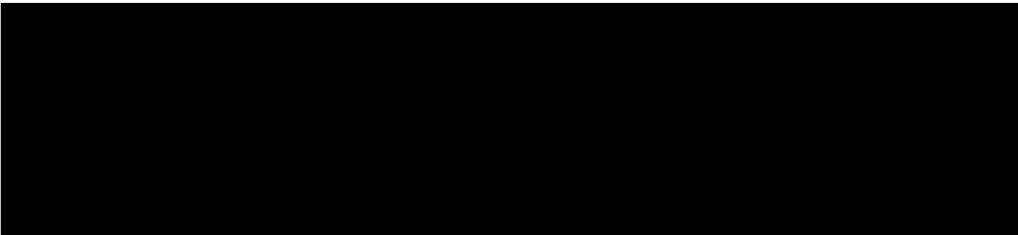
Fax: 086 619 2136

E-mail: janus@emtrix.co.za

1. PERSONAL DETAILS

TITLE: Ms. NAME: Sphokazi SURNAME: Mbatha

NATURE OF INVOLVEMENT: I & AP



2. COMMENTS - It would be useful if you could answer the questions below but please feel free to provide any comments you would like to raise. Please continue on additional paper if required.

What are the primary concerns faced by you / your community / your organisation with regards to the proposed project?

We require more information about the project.

Are you in favour of or against the proposed project? Please provide a reason for your answer. _____

Any other stakeholders you think we need to contact: _____

3. DECLARATION

I, Mr/Ms Sphokazi Mbatha of/from Mulilo Energy Holdings hereby declare that I have been informed of the applications for a mining permit in terms of the MPRDA Act 28 of 2002 and environmental authorisation in terms of NEMA Act No 107 of 1998 and give consent for the use of the content of this form in terms of POPIA (Act No. 14 of 2013).

Signed: [Signature] at: Mowbray Date: 14 / September / 2023

janus@emtrix.co.za

From: janus@emtrix.co.za
Sent: 14 September 2023 03:51 PM
To: 'Sphokazi Mbatha'
Subject: RE: Request to Register as IAP - Proposed Borrow Pits: Farm Mooiwater and Witfontein
Attachments: 230710 BID Mooiwater BP.pdf; 230710 BID Witfontein BP.pdf

Good afternoon

Thank you for your IAP registration forms for the proposed borrow pit developments. Kindly see attached the background information documents for the two projects.

Kindly note that we will circulate the draft Basic Assessment Reports early next week and you will be included in the circulation.

If there are any other enquires, please do not hesitate to contact us.

Kind regards
Janus Botha



From: Sphokazi Mbatha [REDACTED]
Sent: Thursday, September 14, 2023 3:31 PM
To: janus@emtrix.co.za
Cc: Ameesha Sanke [REDACTED]
Subject: Request to Register as IAP - Proposed Borrow Pits: Farm Mooiwater and Witfontein

Dear Mr. Janus Botha,

I hope you are well.

Please find attached, the completed IAP registration form for the proposed development of a borrow pit on Farm Mooiwater and farm Witfontein.

Kindly inform me if you require more information to aid registration.

Thanks and best regards

Sphokazi Mbatha
Environmental and Permitting

APPENDIX E7

Draft BAR Review

Not applicable at this stage

Appendix 4

Site Plans

WITFONTEIN BORROW PIT

Site Layout

Legend

-  Borrow Pit
-  Existing Road
-  Fenced Area
-  Stockpile Area



Vermeasdrift Rd

Google Earth

Image © 2023 Airbus

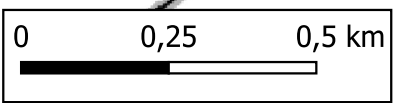


500 m



COORDINATES:
 1 - 27°03'14.07"S; 26°53'08.17"E
 2 - 27°03'20.14"S; 26°53'12.30"E
 3 - 27°03'24.19"S; 26°53'06.08"E
 4 - 27°03'17.65"S; 26°53'01.33"E

EXTENT - 4.93 Ha



Legend

- Stockpile Area
- Fenced Area
- Existing Road
- Borrow Pit

REFERENCE		REFERENCE	
	International Boundaries		Trig. Beacons (Number and ground height)
	Provincial Boundaries		Magnetic Stations and Ground Signs
	Multiple Track Railways		Monuments
	Single Track Railways		Dipping Tanks
	Electrified Railways		Windmills
	Narrow Gauge Railways		Walls
	Service Railways		Anti-erosion Walls
	Freeways and Arterial Roads		Excavations
	Main Roads		Perennial Water
	Secondary Roads		Non-perennial Water
	Other Roads		Dry Pans
	Tracks and Hiking Trails		Springs, Waterholes and Wells
	Power Lines		Marshes, Swamps and Vleis
	Telephone Lines		Pipelines
	Post Offices, Police Stations and Posts.		Prominent Rock Outcrops
	Stores, Hotels, Schools and Places of Worship		Terraces
	Lighthouses and Marine Lights		Cultivated Lands
	Marine Beacons		Orchards and Vineyards
			Trees and Bush

PROJECT:
 THE PROPOSED BORROW PIT
 DEVELOPMENT ON FARM WITFONTEIN
 444 AS PART OF THE SPECIAL
 MAINTENANCE OF THE P15/2&3 ROAD
 BETWEEN VILJOENSKROON AND R59
 INTERSECTION TO ORKNEY

MAP NAME:
 REGULATION 2(2)
 MAP

MAP SCALE:
 1 : 10 000

Coordinate System: GCS WGS
 1984
 Datum: WGS 1984
 Units: Degree

APPLICANT:
 DEPARTMENT OF COMMUNITY
 SAFETY, ROADS AND TRANSPORT

info@emtrix.co.za
 www.emtrix.co.za

**ENVIRO
 MATRIX**

ENVIRONMENTAL CONSULTANTS

082 070 0735

Appendix 5

Impact Assessment

IMPACT ASSESSMENT

Impact Assessment Methodology

The impact of the identified impacts will be determined by way of the following methodology. The methodology is mainly divided into two categories, namely occurrence and severity of the impact.

These two categories are further subdivided as can be seen in the tables below.

Table 1: Description of Occurrence and Severity for Impact Assessment

OCCURRENCE		SEVERITY	
Probability of occurrence	Duration of occurrence	Magnitude of impact	Scale/extent of impact

To assess each of the impacts identified and listed during the scoping process, the following ranking scales are to be used.

Table 2: Description of Probability, Duration, Scale and Magnitude for Impact Assessment

PROBABILITY	DURATION
0 – None	
1 – Improbable	1 – Immediate
2 – Low probability	2 – Short term (0 – 7years)
3 – Medium probability	3 – Medium term (8 – 15 years)
4 – High probability	4 – Long term
5 – Definite / Don't know	5 - Permanent

SCALE	MAGNITUDE
0 – None	
1 – On site only	2 – Minor
2 – Local	4 – Low
3 - Regional	6 – Moderate
4 - National	8 – High
5 - International	10 – Very high / Don't know

Once all of the possible impacts are ranked according to the factors listed in the tables above, an Impact Point out of 100 is given to the impact which relates to the severity of the impact. The mark allocated to each of the impacts is determined by the following formula:

$$\text{IP (Impact Point)} = (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability}$$

The IP can then be interpreted as follow to indicate significance as indicated in the table below.

Table 3: Significance indication for Impact Assessment

IP > 75	Indicates high environmental significance	Major impact. Can influence the decision whether or not to carry on with the development or not, regardless of mitigation
IP 30 – 75	Indicates moderate environmental significance	An impact sufficiently important to require proper management, which could have a influence on the decision if not mitigated
IP <30	Indicates low environmental significance	Impacts with very little effect which should have a small or no impact on the project designs and needs limited mitigation
IP +	Positive impact	Impact that is an improvement on the current standings of the project site

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...)	ASPECTS AFFECTED	PHASE In which phase anticipated e.g. Construction, commissioning, operational decommissioning, closure, post closure)	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) E.g., Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation.	SIGNIFICANCE If mitigated
Site & Access Road establishment - demarcation and fencing	Air pollution - Dust Impact	Increase in dust levels around the trench	Construction Phase	Moderate	Control - Dust control measures	Low
	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	Construction Phase	Moderate	Control – limit to designated areas only	Low
	Ecological, Cultural, and historical impacts	Known cultural, historical, or ecological sensitive areas	Construction Phase	Moderate	Control – demarcation of no-go areas	Low

	Safety and security	Trespassing and illegal access onto private land and lack of access control	Construction Phase and Operational Phase	Moderate	Control – access to demarcated areas only	Low
Site & Access Road establishment - site clearance	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	Construction Phase	Moderate	Control – limit to designated areas only	Low
	Soil impacts – loss of topsoil	Loss of topsoil where physical disturbance of the surface will occur	Construction Phase	Moderate	Control – stockpiling of topsoil	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Construction Phase	Moderate	Control – self drainage systems	Low
Site office establishment and operation	Hydrological impact - effluent and sewage	Pollution of soil and water resources	Construction Phase and Operational Phase	Moderate	Control – sewage and effluent management and treatment	Low
	Land transformation – Fire from cooking / smoking	Accidental fire due to workers fires for cooking or heat or other irresponsible actions (i.e., smoking)	Construction Phase and Operational Phase	Moderate	Control – no open fires allowed, smoking in designated areas only	Low
	Land transformation - Waste	Littering and other solid waste pollution	Construction Phase and Operational Phase	Moderate	Control – solid waste management	Low
Excavation	Air pollution - Dust Impact	Increase in dust levels around the excavation site	Operational Phase	Moderate	Control – dust control measures	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Operational Phase	Moderate	Control -drainage system	Low
	Hydrological impact	Inadequate storm water management can impact negatively on the hydrology – i.e., ponding in the pit	Operational Phase	Moderate	Control -drainage system	Low
	Hydrological impact - water shortage	Inadequate supply of water required for dust suppression	Operational Phase	Moderate	Control – responsible water use	Low

	Cultural and historical (palaeontological) impacts - finding of historical aspects	Finding of any graves, stromatolites, or other matter of historical significance	Operational Phase	Moderate	Control – on identification stop work	Low
	Land transformation - Fire	Smoking or indiscriminate fires started by the labourers could also damage nearby buildings, structures and vegetation.	Operational Phase	Moderate	Control – training, no open fires and smoking in designated areas only	Low
	Land transformation - Waste	Generation of waste from Labourers at the site - litter and other waste	Operational Phase	Moderate	Control – waste management	Low
	Human Health and Safety – unsafe areas	Safety and access impacts of open trenches, borrow pits and to unsafe areas due to heavy vehicle movement	Operational Phase	Moderate	Control – demarcation and posting of signs	Low
	Human Health and Safety – Road maintenance	Increased ease of traffic safety will reduce occurrence of accidents along the road due to the ease of traffic flow with the special maintenance of the road for which the borrow pit development is an essential part.	Operational Phase	Positive	Benefit – enable special maintenance of the road	Positive
	Socio –Economic	Skills training and employment opportunities.	Operational Phase	Positive	Benefit – employment opportunities	Positive
Excavation - vehicle and equipment usage	Air pollution - Dust Impact	Increase in dust levels around the gravel and access roads	Operational Phase	Moderate	Control – dust control measures	Low

	Land transformation – Noise from excavation and hauling vehicles	Generation of noise associated with the heavy vehicles and machinery use for excavation and hauling of the material.	Operational Phase	Moderate	Control – noise control measures and limit of working hours	Low
	Land transformation – Spills	Spills of dangerous substances (i.e., oil or diesel) can have a negative impact on soil, surface, and groundwater quality around the excavation site.	Operational Phase	Moderate	Avoid – pollution. Control – prevention and clean-up measures	Low
	Human and animal safety	Accidents injuring humans or animals on the road or with the use of any equipment.	Operational Phase	Moderate	Control – limit the speed of vehicles	Low
Excavation - material stockpiles	Air pollution - Dust Impact	Increase in dust levels around the excavation site	Operational Phase	Moderate	Control – dust control measures	Low
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	Operational Phase	Moderate	Control – storm water drainage systems	Low
Closure	Land transformation	Site condition at closure	Closure and Rehabilitation Phase	Moderate	Control – site clean-up	Low
	Land transformation	Pit formation from the excavation	Closure and Rehabilitation Phase	Moderate	Control – backfill and gradual slopes	Low
	Hydrological impact	Lack of drainage and storm water accumulation	Closure and Rehabilitation Phase	Moderate	Control – storm water drainage systems	Low
	Biological impacts - vegetation impact	Vegetation of disturbed areas - invasion of alien species	Closure and Rehabilitation Phase	Moderate	Control – alien plant eradication and indigenous plant revegetation	Low

Full Impact Assessment

IP = (Magnitude + Duration + Scale) x Probability

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION	OCCURANCE		SEVERITY		IP SCORE	SIGNIFICANCE	MITIGATION
					Probability	Duration	Scale	Magnitude			
Site & Access Road establishment - demarcation and fencing	Air pollution - Dust Impact	Increase in dust levels around the trench	CP	Without	5	2	1	4	35	Moderate	Dust cause by excavating the fence trench shall be kept to a minimum by backfilling and re-establishment of vegetation as soon as the fence is in place.
				With	2	1	1	4	12	Low	
	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	CP	Without	5	2	1	6	45	Moderate	Only designated area is to be cleared of vegetation. Topsoil and plants are to be stored and re-established as soon as the fence is in place. Provincial protected species to be removed with approval and relocated.
				With	3	1	1	4	18	Low	
	Ecological, Cultural, and historical impacts	Known cultural, historical, or ecological sensitive areas	CP	Without	4	5	2	8	60	Moderate	Demarcation of identified ecological, cultural, or historical areas with specific significance as no-go areas.
				With	1	4	1	4	9	Low	
	Safety and security	Trespassing and illegal access onto private land and lack of access control	CP and OP	Without	4	2	2	8	48	Moderate	Fencing, demarcation, and training of all workers to respect private property, no hunting or access to such land allowed. Job seekers to remain in demarcated areas.
				With	2	2	2	4	16	Low	

Site & Access Road establishment - site clearance	Biological impacts - vegetation impact	Direct destruction of existing vegetation through clearance	CP	Without	5	3	1	8	60	Moderate	The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation. Only the designated excavation area and access road are to be cleared of vegetation.	
				With	5	1	1	4	30	Low		
	Soil impacts – loss of topsoil	Loss of topsoil where physical disturbance of the surface will occur	CP	Without	4	4	1	6	44	Moderate		Preservation and stockpiling of topsoil from areas where physical disturbance of the surface will occur
				With	3	2	1	4	21	Low		
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	CP	Without	4	2	1	6	36	Moderate		Establish self-drainage systems in and around the site for water (i.e. Rain water). In the case of wind erosion, the area can be stabilised with water sprays.
				With	2	1	1	4	12	Low		
Site office establishment and operation	Hydrological impact - effluent and sewage	Pollution of soil and water resources	OP	Without	4	2	1	8	44	Moderate	Particular reference in the site establishment plan shall be given to the treatment of sewage and effluent generated at the site offices. Safe and effective sewage treatment will be by the best suitable sewage handling method based on site geology etc.	
				With	2	2	1	4	14	Low		

Site office establishment and operation	Land transformation – Accidental fire from cooking / smoking	Accidental fire due to workers fires for cooking or heat or other irresponsible actions (i.e., smoking)	OP	Without	4	2	2	8	48	Moderate	The contractor shall ensure that energy sources are always available for construction and supervision personnel for heating and cooking purposes. Smoking only allowed in designated areas with sand baskets for cigarette butts.
				With	2	1	2	4	14	Low	
	Land transformation - Waste	Littering and other solid waste pollution	OP	Without	4	2	1	6	36	Moderate	Solid waste shall be stored in an appointed area in covered, tip-proof metal drums or similar container for collection and disposal. No littering by construction workers shall be allowed
				With	2	1	1	4	12	Low	
Excavation	Air pollution - Dust Impact	Increase in dust levels around the excavation site	OP	Without	4	4	2	6	48	Moderate	Dust caused by excavation activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation.
				With	2	4	1	4	18	Low	
	Soil impacts – erosion	Sedimentation of water resources and loss of soil	OP	Without	4	4	2	6	48	Moderate	Establish drainage systems in and around the site. In the case of wind erosion, the area can be stabilised with water sprays.
				With	2	4	2	4	20	Low	

Excavation	Hydrological impact	Inadequate storm water management can impact negatively on the hydrology – i.e. ponding in the pit	OP	Without	4	4	1	8	52	Moderate	Develop where possible self-drainage storm water systems for the pit to ensure that ponding will not take place.
				With	2	1	1	4	12	Low	
	Hydrological impact - water shortage	Inadequate supply of water required for dust suppression	OP	Without	4	2	2	8	48	Moderate	The Contractor has a responsibility to use water responsibly and shall take into consideration that it is a scarce commodity that shall be optimised.
				With	3	1	1	4	18	Low	
	Cultural and historical (palaeontological) impacts - finding of historical aspects	Finding of any graves, stromatolites, or other matter of historical significance	OP	Without	3	2	2	8	36	Moderate	If a graves or any palaeontological significant artifact is uncovered during excavation all work in the immediate vicinity of the area shall be stopped and the engineer informed of the discovery. The SAHRA and SAPS should be contacted.
				With	2	1	1	2	8	Low	

Excavation	Land transformation - Fire	Smoking or indiscriminate fires started by the labourers could also damage nearby buildings, structures, and vegetation.	OP	Without	4	2	2	8	48	Moderate	CSRT and Contractor to take adequate precautions and training to ensure that fires are not started because of Works on site, smoking or open fires. Smoking and open fires are forbidden on site. Should a fire occur, the local farmers must be informed immediately, and the necessary firefighting measures implemented to contain and extinguish the fire as soon as noticed.	
				With	2	1	2	6	18	Low		
	Land transformation - Waste	Generation of waste from Labourers at the site - litter and other waste	OP	Without	4	2	2	6	40	Moderate		Littering is strictly forbidden, and waste refuge bins must be provided and emptied on a regular basis. Waste to be removed to a licensed waste facility.
				With	2	1	1	4	12	Low		
	Human Health and Safety – unsafe areas	Safety and access impacts of open trenches, borrow pits and to unsafe areas due to heavy vehicle movement	OP	Without	4	4	2	10	64	Moderate		Protect dangerous excavations that may pose a hazard to humans and animals. Demarcate these areas with fencing as required and post the appropriate danger signs.
				With	3	2	2	6	30	Low		

Excavation	Human Health and Safety - road maintenance	Increased ease of traffic safety will reduce occurrence of accidents along the road due to the ease of traffic flow with the maintenance of the road for which the borrow pit development is an essential part.	OP						0	Positive	Positive benefit of the project due to the maintenance of the road and storm water systems that has the indirect consequence of better road safety and reduction of accidents.
				With					0		
	Socio –Economic	Skills training and employment opportunities.	OP						0	Positive	Cumulative impact on the development of the local economic environment due to additional employment opportunities.
				With					0		
Excavation - vehicle and equipment usage	Air pollution - Dust Impact	Increase in dust levels around the gravel and access roads	OP	Without	5	4	2	8	70	Moderate	Dust caused by vehicle, equipment and hauling activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation.
				With	3	2	2	4	24	Low	

Excavation - vehicle and equipment usage	Land transformation – Noise from excavation and hauling vehicles	Generation of noise associated with the heavy vehicles and machinery use for excavation and hauling of the material.	OP	Without	4	4	2	6	48	Moderate	The Contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance should only be carried out during normal working hours with due notification should activities proceed beyond working hours.		
				With	3	2	2	4	24	Low			
	Land transformation – Spills	Spills of dangerous substances (i.e., oil or diesel) can have a negative impact on soil, surface, and groundwater quality around the site.	OP	Without	4	2	1	6	36	Moderate		Soil, streams and groundwater shall be protected from direct or indirect spillage of pollutants (i.e., use of drip trays). In the event of a spillage, the Contractor shall be liable to arrange for professional service providers to clear the affected area.	
				With	2	1	1	4	12	Low			
	Human and animal safety	Accidents injuring humans or animals on the road or with the use of any equipment.	OP	Without	3	2	3	8	39	Moderate			Vehicles to keep to designated areas only. Driving speed to be always kept to less than 50 km/hr. Equipment to be used as prescribed only.
				With	2	2	3	4	18	Low			
Excavation - material stockpiles	Air pollution - Dust Impact	Increase in dust levels around the excavation site	OP	Without	4	4	2	6	48	Moderate	Dust caused by excavation activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation.		
				With	2	4	1	4	18	Low			

Excavation - material stockpiles	Soil impacts – erosion	Sedimentation of water resources and loss of soil	OP	Without	4	4	2	6	48	Moderate	Establish storm water drainage systems in and around the site. In the case of wind erosion, the area can be stabilised with water sprays.
				With	2	4	2	4	20	Low	
Closure	Land transformation	Site condition at closure	CR	Without	4	4	1	6	44	Moderate	The Contractor has a responsibility to clean up the site when the excavation of material stops. This includes the removal of any structures, equipment, refuge bins, waste material and any invasive alien species that have invaded the disturbed areas.
				With	2	2	1	4	14	Low	
	Land transformation	Pit formation from the excavation	CR	Without	5	4	1	8	65	Moderate	Using waste rock material to backfill the excavated pit area and shaping the sides to a gradual gradient to facilitate plant growth and human and animal exiting the pit.
				With	3	2	1	4	21	Low	
	Hydrological impact	Lack of drainage and storm water accumulation	CR	Without	4	3	1	8	48	Moderate	Develop where possible storm water self-drainage systems for the pit to ensure that ponding will not take place.
				With	2	1	1	4	12	Low	
	Biological impacts - vegetation impact	Vegetation of disturbed areas - invasion of alien species	CR	Without	4	3	1	6	40	Moderate	Raking of disturbed areas to enhance seed germination. Re-vegetation of the disturbed area with indigenous plants to rehabilitate the area.
				With	3	1	1	4	18	Low	

CP = Construction Phase; OP = Operational Phase; CR = Closure and Rehabilitation Phase

Appendix 6
Environmental Baseline

ENVIRONMENTAL ATTRIBUTES BASELINE

1. TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

The special maintenance of the P15/2&3 road between Viljoenskroon and the R59 intersection to Orkney is located within the Free State Province, within the Fezile Dabi District Municipality, and the Moqhaka Local Municipality.

The Moqhaka Municipality is an impoverished semi-urban area with high unemployment rates. The main economic sectors are agriculture, mining, and community services. Moqhaka consists of an area of 7925km² including the towns of Kroonstad, Maokeng, Matlwangtlwang, Rammulutsi, Steynsrus, Vaal Reefs Mine, Vierfontein and Viljoenskroon. Large sections of the Moqhaka Local Municipality area have been transformed due to human intervention. The biggest driver of transformation in the area is cultivation.

Twelve broad vegetation types occur in the Moqhaka area. The most dominant vegetation type is the Vaal- Vet Sandy Grassland, which covers approximately 46% (350,000ha) of the total study area, followed by the Central Free State Grassland which covers approximately 39% of the study area. Four other vegetation types cover more than 1% of the Moqhaka Area, i.e., Rand Highveld Grassland (6%), Vredefort Dome Granite Grassland (5%), Andesite Mountain Bushveld (2%) and Highveld Alluvial Vegetation (1%). The remaining six vegetation types are the Carletonville Dolomite Grassland, the Vaal Reefs Dolomite Sinkhole Woodland, the Eastern Free State Clay Grassland, the Highveld Salt Pans, the Gold Reef Mountain Bushveld and the Northern Free State Shrubland, each of which covers less than 1% of the Moqhaka area.

There is one endangered ecosystem, namely Vaal-Vet Sandy Grassland. The four threatened ecosystems in the study area are the Vaal-Vet Sandy Grassland (96 541 ha in extent), the Rand Highveld Grassland (23 587 ha in extent), the Vredefort Dome Granite Grassland (22 284 ha in extent) and the Eastern Free State Clay Grassland (2 128 ha in extent).

Table 1: Moqhaka Local Municipality demographics

	2016	2011
Population	154 732	160 532
Age Structure		
Population under 15	24.5%	27.0%
Population 15 to 64	67.8%	66.4%
Population over 65	7.7%	6.5%
Dependency Ratio		
Per 100 (15-64)	47.6	50.5
Sex Ratio		
Males per 100 females	97.0	98.1
Population growth		
Per annum	-0.84%	n/a
Labour Marker		
Unemployment rate (official)	n/a	35.2%
Youth unemployment rate (official) 15-34	n/a	47.2%

Education (aged 20+)		
No Schooling	3.8%	5.4%
Matric	31.5%	27.8%
Higher Education	6.7%	8.6%
Household Dynamics		
Households	53 601	45 661
Average Household Size	2.9	3.2
Female Headed Households	40.9%	40.9%
Formal Dwellings	85.9%	88.7%
Housing Owned	62.1%	56.1%
Household Services		
Flush toilets connected to sewage	89.7%	85.6%
Weekly refuse removal	84.0%	84.9%
Piped water inside dwelling	48.6%	57.7%
Electricity for lighting	96.3%	93.3%

2. ENVIRONMENTAL CONTEXT

2.1 Climate Conditions

The prevailing climate in Viljoenskroon and Orkey is known as a local steppe climate. During the year, there is little rainfall in Viljoenskroon and Orkney. The temperature here averages 17.7 °C. The annual rainfall is 600mm-623 mm.

The driest month is July. There is 5-6 mm of precipitation in July. Most precipitation falls in December, with an average of 108 mm. With an average of 22.8 °C-23°C, January is the warmest month. In July, the average temperature is 10.0°C - 10.4°C. It is the lowest average temperature of the whole year.

The average temperature and rainfall data over the year for Viljoenskroon and Orkney is given in the figures below:

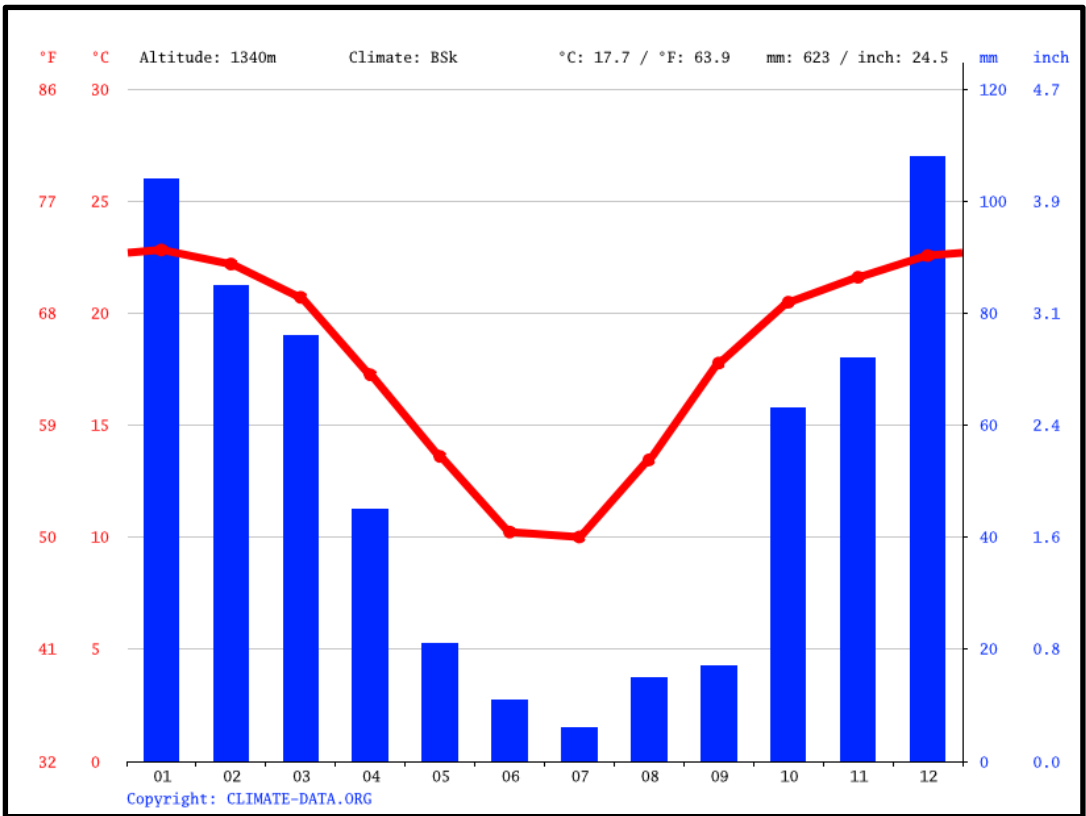


Figure 1: Average temperature and rainfall data for Viljoenskroon

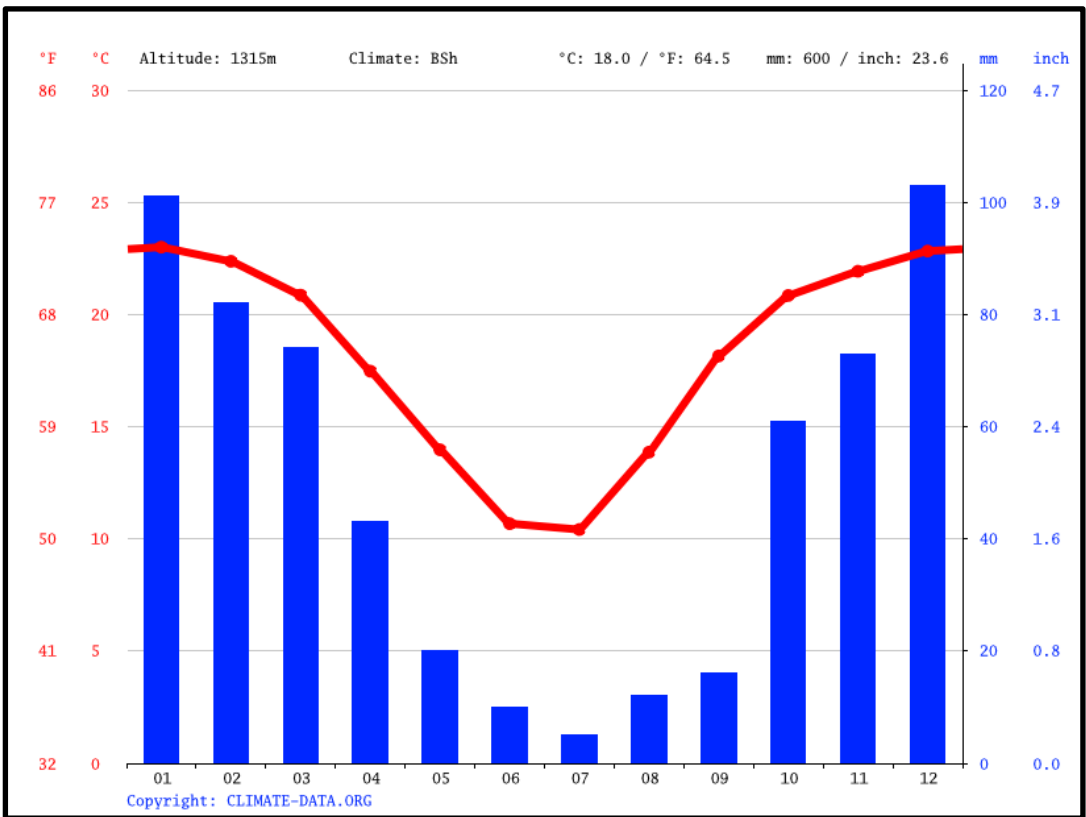


Figure 2: Average temperature and rainfall data for Orkney

2.2 Groundwater, soil and Geological stability of the site

According to Mucina & Rutherford (2006) the geology of the landscape and associated vegetation type can be described as the following:

Aeolian and colluvial sand overlaying sandstone, mudstone and shale of the Karoo Supergroup as well as the older Ventersdorp Supergroup. Soils are mainly Avalon, Westleigh and Clovelly.

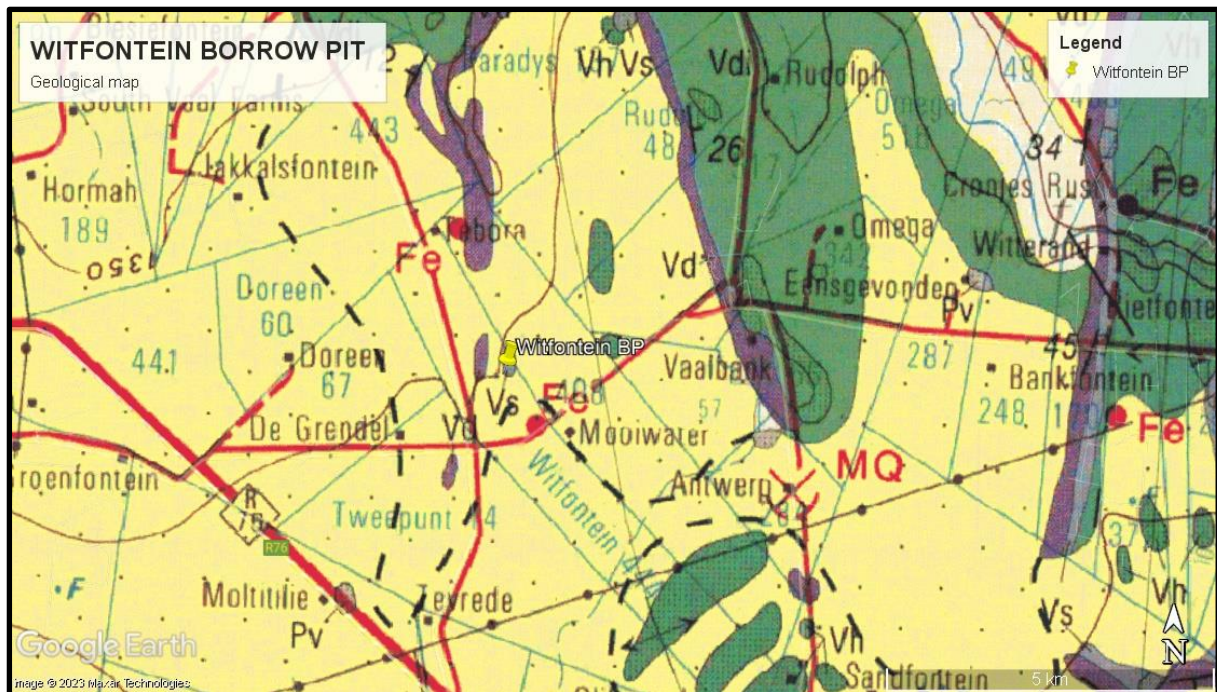


Figure 3: Geology (GeoMap 2726 Kroonstad)

2.3 Vegetation and fauna (biota)

According to SANBI (2006-2019), the entire assessment area falls within the Vaal-Vet Sandy Grassland vegetation type (Gh 10), which is characterised by a plains-dominated landscape, with some scattered, slightly irregular undulating plains and hills. The vegetation usually consists of low tussock grasslands with an abundant karroid element (SANBI, 2006-2019). Dominance of the grass species *Themeda triandra* is an important feature of the natural condition of this vegetation type, while localised lower cover of this species and an associated increase in cover of grass species such as *Elionurus muticus*,

Cymbopogon pospischilii and *Aristida congesta* is usually an indication of heavy grazing and/or erratic rainfall (SANBI, 2006-2019). This vegetation type is classified as Endangered (SANBI, 2006-2019).



Figure 4: Vegetation at Mooiwater Borrow Pit

2.4 Topography and drainage (flow and sediment regimes)

The topography of the catchment areas is mostly grasslands and farm (cultivated) lands. There are few light bushes sparsely distributed in the catchments. The vegetation type also contains numerous Highveld Salt Pans (AZi 10) and other wetlands imbedded within the landscape. These must all be considered as wetlands and are therefore considered sensitive areas and no-go zones. The topography of this vegetation type consists of a plain dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element.

2.5 Water resources setting

The assessment area falls within the Middle Vaal Water Management Area (WMA 09) and the associated C24B quaternary surface water catchment- and drainage area. It is furthermore situated in the C24B – 1980 Sub Quaternary Reach (SQR), within the Highveld Ecoregion (11). The assessment area and surrounding landscape generally slopes slightly to moderately, in a south-westerly direction.

There are no significant perennial or non-perennial watercourses within the vicinity of the assessment area. According to the National Freshwater Ecosystem Priority Areas Database (NFEP, 2011), the portion of the C70K – 1977 Sub Quaternary Reach (SQR) associated with the assessment area, does not fall within any Fish Support Area, -Sanctuary, -Corridor, -Rehabilitation Area or Freshwater Ecosystem Priority Area (FEPA). No populations of conservational significant threatened fish species have been recorded throughout the assessment area or local downstream region or are expected to specifically utilise the assessment area as refuge or for breeding, foraging and/or persistence purposes.

3. DESCRIPTION OF CURRENT LAND USES

The proposed borrow pit site on farm Witfontein 444 is situated on land that is mainly defined as agricultural use with natural grazing dominant.

4. DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON SITE

The Witfontein borrow pit assessment area is not reminiscent of the natural climactic state of the relevant Vaal-Vet Sandy Grassland vegetation type (Gh10). No significant infrastructure was observed on site.

5. ENVIRONMENTAL AND CURRENT LAND USE MAPS

Below the map indicating environmental features, land use as well as infrastructure can be found for the borrow pit on Farm Witfontein 444.



Figure 5: Sensitivity Map – Witfontein Borrow pit.

PHOTOGRAPHIC RECORD



Appendix 7
Specialist Studies Reports

Ecological Assessment

Report

**Witfontein Borrow Pit Development,
Viljoenskroon, Free State Province**

August 2023

Compiled for:



Compiled by:

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Table of Content

1.	Introduction	1
2.	Date of Ecological Site Assessment	2
3.	Assessment Rational	3
4.	Objectives of the Assessment	4
5.	Methodology	6
6.	Assessment Area	17
6.1.	Climate	19
6.2.	Geology and Soils	19
6.3.	Vegetation Type and Conservation Status	19
7.	Assumptions, Uncertainties and Gaps in Knowledge	22
8.	Results and Discussion	24
8.1.	Proposed Development Area Clearance	24
8.2.	Aquatic Environment	24
8.2.1.	Water Catchment and Drainage	24
8.2.2.	Watercourse Baseline Information	24
8.3.	Terrestrial Environment	26
8.3.1.	Current Existing Vegetation and Site Description	26
8.4.	Plant Species List for the Assessment Area	29
8.5.	Fauna and Avifauna	30
8.6.	Site Ecological Importance (SEI)	31
8.7.	Main Mitigation Recommendations	32
9.	Ecological Impact Assessment	33
9.1.	Construction Phase	33
9.2.	Operational Phase	39
9.3.	Cumulative Impacts	41
9.4.	Risk Ratings of Potential Ecological Impacts	43
9.4.1.	Construction Phase	44
9.4.2.	Operational Phase	54
10.	Summary and Conclusion	59
11.	References	65
12.	Details of the Specialist	66

Executive Summary

The project applicant, Free State Department of Community Safety Roads and Transport, proposes to formally excavate a gravel borrow pit of approximately 4.93 ha in size, approximately 17 km north-west of the town of Viljoenskroon, Free State Province. The materials to be mined from the borrow pit will be used for existing road upgrades and maintenance purposes.

EnviroMatrix was appointed by the applicant as the independent Environmental Assessment Practitioner (EAP), to conduct the legally required Basic Assessment (BA) process.

Due to the nature of potential ecological impacts posed by the proposed development to the local ecosystem and ecology, an Ecological study is required. This is required in order to determine the potential presence of ecologically sensitive/conservationally significant areas, plant- and faunal species as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, which may be adversely affected by the proposed development.

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, must be identified, evaluated, rated and discussed. Impact mitigation and management measures in accordance with the requirements of the National Environmental Management Act (Act 107 of 1998) Mitigation Hierarchy, must subsequently be recommended. This must be done in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts associated with the proposed development.

EcoFocus Consulting was consequently appointed by the EAP as the independent ecological specialist, to conduct the required Ecological study for the proposed development. This report constitutes the Ecological Assessment.

Date of Ecological Site Assessment

A site assessment of the proposed development area was conducted on 08 August 2023. This date forms part of the winter season. It must therefore be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

Methodology

The assessment area was assessed on foot in a grid formation. Visual observations/identifications were made of general terrestrial botanical/vegetation habitats and their conditions as well as any ecologically sensitive/conservationally significant areas/habitats within the assessment area. Visual observations/identifications were made of general and conservationally significant plant species encountered within the assessment area. Identified plant species were listed and categorised as per the Red Data Species List; Protected Species List of the National Forests Act (Act 84 of 1998), Provincially Protected species of the Free State's Nature Conservation Ordinance (No 8 of 1969) as well as the Invasive Species List of the National Environmental Management: Biodiversity Act (Act 10 of 2004), Alien and Invasive Species Regulations, 2014. A desktop assessment was conducted of conservationally significant faunal and avifaunal species which can potentially be encountered within the assessment area.

Significant watercourses and/or wetlands and/or other aquatic ecological features/habitats were identified, delineated and discussed as per the accepted methodology, if potentially found to be present within the assessment area.

Georeferenced photographs were taken of any Red Data Species Listed-, nationally- or provincially protected plant species, ecologically sensitive/conservationally significant areas as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if encountered within the assessment area. This was done in order to indicate their specific locations in a Geographic Information System (GIS) mapping format.

The Site Ecological Importance (SEI), Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) as well as Recommended Ecological Category (REC) of the assessment area were determined and discussed.

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, were identified, evaluated, rated and discussed.

Assessment Area

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The assessment area is situated on the Remaining Extent of the Farm Witfontein No. 444 (SG 21 Digit Code: F0360000000044400000), approximately 17 km north-west of the town of Viljoenskroon, Free State Province. The town forms part of the Moqhaka Local Municipality which in turn, forms part of the Fezile Dabi District Municipality. The assessment area falls outside the municipal urban edge. Access to the assessment area is obtained by way of the R76 provincial road and subsequent Vermaasdrift roads, from the south.

Conclusion

The assessment area scored a very low Site Ecological Importance (SEI) value and is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats (see heading 8.6).

It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

It is furthermore also not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape

No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Continued dust generation and emissions was identified and addressed as the only significant potential long-term ecological impact, associated with the operational phase of the established borrow pit.

The potential long-term ecological impacts identified for the proposed development, could potentially merely add low cumulative impact to the existing negative impacts caused by the extensive historical and existing agricultural cropland cultivation transformation, throughout the local and broader surrounding landscape.

It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential cumulative ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will add any significant residual cumulative ecological impacts to the surrounding environment, if all recommended mitigation measures as per this ecological report are adequately implemented and managed, for both the construction- and subsequent operational phases of the proposed development.

It is the opinion of the specialist that the proposed development of the assessment area should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this ecological report must however be adequately implemented and managed for both the construction- and subsequent operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.

List of Figures

Figure 1: Locality map illustrating the assessment area.....	18
Figure 2: Vegetation type map illustrating the vegetation type associated with the assessment area	20
Figure 3: Conservation status map illustrating the conservation status/category associated with the assessment area.....	21
Figure 4: Water catchment and drainage map illustrating the main watercourses and quaternary surface water catchment- and drainage area associated with the assessment area	25
Figure 5: Two images illustrating the presence of the existing historically excavated borrow pit associated with the majority of the assessment area, which is in a significantly disturbed and degraded ecological state.....	26
Figure 6: Two images illustrating examples of the moderate to highly disturbed and degraded low-growing terrestrial grassland habitat, associated with the narrow linear western portion of the assessment area; the moderate to dense infestation of the undesired indicator species of bush encroachment <i>Seriphium plumosum</i> , is also evident	28

List of Tables

Table 1: Criteria for CI calculations.....	7
Table 2: Criteria for FI calculations.....	8
Table 3: Criteria for BI calculations	8
Table 4: Criteria for RR calculations	9
Table 5: Criteria for SEI calculations.....	9
Table 6: Interpretation of SEI calculation results.....	9
Table 7: Criteria for PES calculations.....	11
Table 8: Criteria for EIS calculations.....	12
Table 9: Criteria for Environmental Risk Rating calculations	14
Table 10: Interpretation of Environmental Significance Rating calculation results.....	16
Table 11: Environmental Risk and Significance Ratings.....	44
Table 12: Environmental Risk and Significance Ratings.....	54

Abbreviations

BA	Basic Assessment
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CBA	Critical Biodiversity Area
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
ESA	Ecological Support Area
MAP	Mean Annual Precipitation
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEMA	National Environmental Management Act (Act 107 of 1998)
NFA	National Forests Act (Act 84 of 1998)
NWA	National Water Act (Act 36 of 1998)
ONA	Other Natural Area
PES	Present Ecological State
REC	Recommended Ecological Category
SACNASP	South African Council for Natural Scientific Professions
SANBI	South African National Biodiversity Institute
SEI	Site Ecological Importance
WULA	Water Use License Application

Declaration of Independence

I, Adriaan Johannes Hendrikus Lamprecht, declare that I:

- am the Director and Ecological Specialist of EcoFocus Consulting (Pty) Ltd
- act as an independent specialist consultant in the field of botany and ecology
- am assigned as the Ecological Specialist consultant by the Environmental Assessment Practitioner (EAP), EnviroMatrix, for the proposed development
- do not have or will not have any financial interest in the undertaking of the proposed project activity other than remuneration for work as stipulated in the Purchase Order terms of reference
- confirm that remuneration for my services relating to the proposed development is not linked to approval or rejection of the project by the competent authority
- have no interest in secondary or subsequent developments as a result of the authorisation of the proposed project
- have no and will not engage in any conflicting interests in the undertaking of the activity
- undertake to disclose to the applicant and the competent authority any information that has or may have the potential to influence the decision of the competent authority
- will provide the applicant and competent authority with access to all relevant project information in my possession whether favourable or not

AJH Lamprecht



Signature

1. Introduction

The project applicant, Free State Department of Community Safety Roads and Transport, proposes to formally excavate a gravel borrow pit of approximately 4.93 ha in size, approximately 17 km north-west of the town of Viljoenskroon, Free State Province. The materials to be mined from the borrow pit will be used for existing road upgrades and maintenance purposes.

EnviroMatrix was appointed by the applicant as the independent Environmental Assessment Practitioner (EAP), to conduct the legally required Basic Assessment (BA) process.

Due to the nature of potential ecological impacts posed by the proposed development to the local ecosystem and ecology, an Ecological study is required. This is required in order to determine the potential presence of ecologically sensitive/conservationally significant areas, plant- and faunal species as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, which may be adversely affected by the proposed development.

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, must be identified, evaluated, rated and discussed. Impact mitigation and management measures in accordance with the requirements of the National Environmental Management Act (Act 107 of 1998) Mitigation Hierarchy, must subsequently be recommended. This must be done in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts associated with the proposed development.

EcoFocus Consulting was consequently appointed by the EAP as the independent ecological specialist, to conduct the required Ecological study for the proposed development. This report constitutes the Ecological Assessment.

Preliminary preparations conducted prior to the ecological site assessment, were as follows:

- Georeferenced spatial information was obtained of the proposed development area, in order to determine the direct impact footprint area.
- A desktop study was conducted of the most up-to-date information/data available on the relevant vegetation types, national/provincial conservation significance status and the potential/likely presence of watercourses/wetlands associated with the proposed development area.
- A desktop study was conducted of conservationally significant faunal and avifaunal species which can potentially be encountered within the proposed development area.

2. Date of Ecological Site Assessment

A site assessment of the proposed development area was conducted on 08 August 2023. This date forms part of the winter season. It must therefore be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

3. Assessment Rational

South Africa is a country rich in natural resources and splendour and is rated as having some of the highest biodiversity in the world. Other than the pure aesthetic value which our biodiversity and natural resources provides, it also plays a significant positive role in our national economy. While continuous economic development and progress is a key national focus area, which forms a cornerstone in the socio-economic improvement of society and the livelihoods of communities and individuals, the preservation and management of the integrity and sustainability of our natural resources is also essential in achieving this objective.

Socio-economic development and progress can therefore not be completely inhibited for the sake of ensuring environmental conservation; solutions and compromises rather need to be explored in order to achieve the need for socio-economic development without unreasonably jeopardising the needs of environmental conservation. A sustainable and responsible balance needs to be maintained in order to accommodate the requirements of both.

Adequate, sustainable and responsible utilisation and management of our natural resources is crucial. Finding the required balance between socio-economic development and environmental conservation, should therefore always be a priority focus point during any proposed development process.

Various environmental legislation in South Africa makes provision for the protection of our natural resources and the functionality of ecological systems in order to ensure sustainability. Such acts include the National Environmental Management: Biodiversity Act (Act 10 of 2004), National Forests Act (Act 84 of 1998), Conservation of Agricultural Resources Act (Act 43 of 1983), National Water Act (Act 36 of 1998) and framework legislation such as the National Environmental Management Act (Act 10 of 2004).

An Ecological Assessment of the proposed development area was therefore conducted in order to identify and quantify any potential ecological impacts, associated with the proposed development.

4. Objectives of the Assessment

- Describe the general terrestrial botanical/vegetation habitats within the assessment area and identify and list conservationally significant plant species encountered within the assessment area.
 - List any nationally- and/or provincially protected- and/or Red Data Listed plant species.
- Identify and discuss any ecologically sensitive/conservationally significant areas/habitats, if potentially found to be present within the assessment area.
- Conduct a desktop assessment of conservationally significant faunal species which can potentially be encountered within the assessment area.
- Assess and discuss the Site Ecological Importance (SEI) of the assessment area and directly surrounding areas, in order to provide an indication of the overall ecological conservational significance/value of the assessment area.
- Identify, delineate and discuss any significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if potentially found to be present within the assessment area.
 - Assess and discuss the simplified Present Ecological State (PES) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas. This must be done in order to provide an indication of the current ecological condition as well as the extent and severity of degradation and/or transformation of the aquatic features, if applicable.
 - Assess and discuss the Ecological Importance and Sensitivity (EIS) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas. This must be done in order to provide an indication of the ecological sensitivity/conservational significance/value of the aquatic features, if applicable.
 - Assess and discuss the Recommended Ecological Category (REC) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas.

- Identify, evaluate, rate and discuss any potential ecological impacts associated with the proposed development.
 - Provide recommendations on impact mitigation and management measures in accordance with the requirements of the NEMA (Act 107 of 1998) Mitigation Hierarchy, in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts.
- Provide recommendations on the ecological suitability/acceptability of the assessment area for the proposed development.
- A digital report (this document) as well as digital .KML files will be provided to the EAP, of any identified ecologically sensitive/conservationally significant areas and/or significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if potentially found to be present within the assessment area.

5. Methodology

- The proposed development area was assessed on foot in a grid formation.
- Visual observations/identifications were made of general terrestrial botanical/vegetation habitats and their conditions as well as any ecologically sensitive/conservationally significant areas/habitats within the assessment area.
- Visual observations/identifications were made of general and conservationally significant plant species encountered within the assessment area.
 - Identified plant species were listed and categorised as per the Red Data Species List; Protected Species List of the National Forests Act (Act 84 of 1998), Provincially Protected species of the Free State's Nature Conservation Ordinance (No 8 of 1969) as well as the Invasive Species List of the National Environmental Management: Biodiversity Act (Act 10 of 2004), Alien and Invasive Species Regulations, 2014.
- A desktop assessment was conducted of conservationally significant faunal species which can potentially be encountered within the assessment area.
 - The Virtual Museum and the IUCN Red List of Threatened Species were used for the desktop assessment.
 - The likelihood was discussed of identified faunal species utilising the terrestrial botanical/vegetation habitats and significant aquatic ecological features/habitats within the assessment area as refuge or for breeding, foraging and/or persistence purposes.
 - No actual on-site trapping, sampling or specifically focused assessments of any faunal species was conducted.
 - Faunal species encountered during the site visit were however noted and discussed.

The **Site Ecological Importance (SEI)** of the assessment area was determined and discussed as per the tables below.

- The SEI of an area is considered to be a function of the Biodiversity Importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site) and its resilience to impacts, expressed as Receptor Resilience (RR).
 - $SEI = BI + RR$
- BI in turn, is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor
 - $BI = CI + FI$

Table 1: Criteria for CI calculations

Conservation Importance	Fulfilling Criteria
Very High	<p>Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or Critically Rare species that have a global EOO of < 10 km².</p> <p>Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type.</p> <p>Globally significant populations of congregatory species (> 10% of global population).</p>
High	<p>Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km². IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining.</p> <p>Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type.</p> <p>Presence of Rare species.</p> <p>Globally significant populations of congregatory species (> 1% but < 10% of global population).</p>
Medium	<p>Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals.</p> <p>Any area of natural habitat of threatened ecosystem type with status of VU.</p> <p>Presence of range-restricted species.</p> <p>> 50% of receptor contains natural habitat with potential to support SCC.</p>
Low	<p>No confirmed or highly likely populations of SCC.</p> <p>No confirmed or highly likely populations of range-restricted species.</p> <p>< 50% of receptor contains natural habitat with limited potential to support SCC.</p>
Very Low	<p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species.</p> <p>No natural habitat remaining.</p>

Table 2: Criteria for FI calculations

Functional Integrity	Fulfilling Criteria
Very High	<p>Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.</p> <p>No or minimal current negative ecological impacts with no signs of major past disturbance (e.g. ploughing).</p>
High	<p>Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types.</p> <p>Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches.</p> <p>Only minor current negative ecological impacts (e.g. few livestock utilising area) with no signs of major past disturbance (e.g. ploughing) and good rehabilitation potential.</p>
Medium	<p>Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types.</p> <p>Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches.</p> <p>Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Moderate rehabilitation potential.</p>
Low	<p>Small (> 1 ha but < 5 ha) area.</p> <p>Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential.</p> <p>Several minor and major current negative ecological impacts.</p>
Very Low	<p>Very small (< 1 ha) area.</p> <p>No habitat connectivity except for flying species or flora with wind-dispersed seeds.</p> <p>Several major current negative ecological impacts.</p>

Table 3: Criteria for BI calculations

Biodiversity Importance		Conservation Importance				
		Very High	High	Medium	Low	Very Low
Functional Integrity	Very High	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

Table 4: Criteria for RR calculations

Receptor Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

Table 5: Criteria for SEI calculations

Site Ecological Importance		Biodiversity Importance				
		Very High	High	Medium	Low	Very Low
Receptor Resilience	Very High	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

Table 6: Interpretation of SEI calculation results

Site Ecological Importance	Interpretation in relation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

- Significant watercourses and/or wetlands and/or other aquatic ecological features/habitats were identified, delineated and discussed as per the accepted methodology described below, if potentially found to be present within the assessment area.
 - For the purposes of this investigation a wetland was defined according to the definition in the National Water Act (Act 36 of 1998) as: “land which is transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which in normal circumstances, supports or would support vegetation typically adapted to life in saturated soil.”
 - In 2005 DWAF published a wetland delineation procedure in a guideline document titled “A Practical Field Procedure for the Identification and Delineation of Wetlands and Riparian Areas”. These guidelines contain a number of stipulations relating to the protection of wetlands and the undertaking of wetland assessments.
 - To delineate any wetland, the following criteria is used in accordance with the Department of Water Affairs (DWA): Updated manual for identification and delineation of wetlands and riparian areas, Edition 2 September 2008.
 - The wetland delineation procedure identifies the outer edge of the temporary zone of the wetland, which marks the boundary between the wetland and adjacent terrestrial areas. This constitutes the part of the wetland that might remain flooded or saturated close to the soil surface for only a few weeks in the year, but long enough to develop anaerobic conditions and determine the nature of the plants growing in the soil.
 - The guidelines also state that the locating of the outer edge of the temporary zone must make use of four specific indicators namely:
 - terrain unit indicator
 - soil form indicator
 - soil wetness indicator
 - vegetation indicator
 - In addition, the watercourse/wetland and a protective buffer zone beginning from the outer edge of the wetland temporary zone, was designated as sensitive in a sensitivity map. The guidelines stipulate buffers to be delineated around the boundary of a wetland. An adequate protective buffer zone, beginning from the outer edge of the wetland temporary zone, was implemented and designated as sensitive within which no development must be allowed to occur.
- Georeferenced photographs were taken of any Red Data Species Listed-, nationally- or provincially protected plant species, ecologically sensitive/conservationally significant areas as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if encountered within the assessment area. This was done in order to indicate their specific locations in a Geographic Information System (GIS) mapping format.

The **Present Ecological State (PES)** of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Present Ecological State (PES) refers to the current state or condition of an area in terms of all its characteristics and reflects the change to the area from its reference condition. The value gives an indication of the alterations that have occurred in the ecosystem.

Table 7: Criteria for PES calculations

PES Category	Score	Description
A	0 – 0.9 > 90 - 100%	Unmodified , natural and pristine.
B	1 – 1.9 > 80 - 90%	Largely natural . A small change in natural habitats and biota may have taken place but the ecosystem functionality has remained essentially unchanged.
C	2 – 3.9 > 60 - 80%	Moderately modified . Moderate loss and transformation of natural habitat and biota have occurred, but the basic ecosystem functionality has still remained predominantly unchanged.
D	4 – 5.9 > 40 - 60%	Largely modified . A significant loss of natural habitat, biota and subsequent basic ecosystem functionality has occurred.
E	6 – 7.9 > 20 - 40%	Seriously modified . The loss of natural habitat, biota and basic ecosystem functionality is extensive.
F	8 – 10 0 - 20%	Critically/Extremely modified . Transformation has reached a critical level and the ecosystem has been modified completely with a virtually complete loss of natural habitat and biota. The basic ecosystem functionality has virtually been destroyed and the transformation is irreversible.

The **Ecological Importance and Sensitivity (EIS)** of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Ecological Importance and Sensitivity (EIS) of an area is an expression of its importance to the maintenance of ecological diversity and functioning on local and wider scales. Both abiotic and biotic components of the system are taken into consideration. Sensitivity refers to the system's ability to resist disturbance and its capability to recover from disturbance, once it has occurred.

Table 8: Criteria for EIS calculations

EIS Category	Score	Description
D	≤ 1.0	Low/Marginal. Not ecologically important and/or sensitive on any scale. Biodiversity is ubiquitous and not unique or sensitive to habitat modifications.
C	1.1 - 2	Moderate. Ecologically important and sensitive on local or possibly provincial scale. Biodiversity is still relatively ubiquitous and not usually sensitive to habitat modifications.
B	2.1 - 3	High. Ecologically important and sensitive on provincial or possibly national scale. Biodiversity is relatively unique and may be sensitive to habitat modifications.
A	3.1 - 4	Very High. Ecologically important and sensitive on national and possibly international scale. Biodiversity is very unique and sensitive to habitat modifications.

The **Recommended Ecological Category (REC)** of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Recommended Ecological Category (REC) of an area is an expression of the ecological category, within which it is recommended for a water resource to be managed. In the event of a high EIS value, the management objective should constitute improvement of the water resource condition. In the event of a medium or low EIS value, the management objective should constitute maintenance of the current water resource condition. The PES value however also bears relevance in determining a feasible REC value.

PES Category	EIS Category			
	Very High	High	Moderate	Low
A	A - Maintain	A - Maintain	A - Maintain	A - Maintain
B	A - Improve	A/B - Improve	B - Maintain	B - Maintain
C	B - Improve	B/C - Improve	C - Maintain	C - Maintain
D	C - Improve	C/A - Improve	D - Maintain	D - Maintain
E	D - Improve	D - Improve	D - Improve	D - Improve
F	D - Improve	D - Improve	D - Improve	D - Improve

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, were identified, evaluated, rated and discussed as per the methodology described below. The tables below indicate and explain the methodology and criteria used for the evaluation of the Environmental Risk Ratings as well as the calculation of the final Environmental Significance Ratings of the identified potential ecological impacts. Each identified potential ecological impact is scored for each of the Evaluation Components, as per the table below.

Table 9: Criteria for Environmental Risk Rating calculations

Evaluation Component	Rating Scale and Description/Criteria
Magnitude of Negative or Positive Impact	<p>10 - Very high: Bio-physical features and/or ecological functionality/processes may be severely impacted upon.</p> <p>8 - High: Bio-physical features and/or ecological functionality/processes may be significantly impacted upon.</p> <p>6 - Medium: Bio-physical features and/or ecological functionality/processes may be moderately impacted upon.</p> <p>4 - Low: Bio-physical features and/or ecological functionality/processes may be slightly impacted upon.</p> <p>2 - Very Low: Bio-physical features and/or ecological functionality/processes may be slightly impacted upon.</p> <p>0 - Zero: Bio-physical features and/or ecological functionality/processes will not be impacted upon.</p>
Duration of Negative or Positive Impact	<p>5 – Permanent: Impact will continue on a permanent basis.</p> <p>4 - Long term: Impact should cease a period (> 40 years) after the operational phase/project life of the activity.</p> <p>3 - Medium term: Impact may occur for the period of the operational phase/project life of the activity.</p> <p>2 - Short term: Impact may only occur during the construction phase of the activity after which it will cease.</p> <p>1 - Immediate: Impact may only occur as a once off during the construction phase of the activity.</p>
Extent of Positive or Negative Impact	<p>5 - International: Impact will extend beyond National boundaries.</p> <p>4 - National: Impact will extend beyond Provincial boundaries but remain within National boundaries.</p> <p>3 - Regional: Impact will extend beyond 5 km of the development footprint but remain within Provincial boundaries.</p> <p>2 - Local: Impact will not extend beyond 5 km of the development footprint.</p> <p>1 - Site-specific: Impact will only occur on or within 200 m of the development footprint.</p> <p>0 – No impact.</p>
Irreplaceability of Natural Resources being impacted upon	<p>5 – Definite loss of irreplaceable natural resources.</p> <p>4 – High potential for loss of irreplaceable natural resources.</p> <p>3 – Moderate potential for loss of irreplaceable natural resources.</p> <p>2 – Low potential for loss of irreplaceable natural resources.</p> <p>1 – Very low potential for loss of irreplaceable natural resources.</p> <p>0 – No impact.</p>

Reversibility of Impact	<p>5 – Impact cannot be reversed.</p> <p>4 – Low potential that impact may be reversed.</p> <p>3 – Moderate potential that impact may be reversed.</p> <p>2 – High potential that impact may be reversed.</p> <p>1 – Impact will be reversible.</p> <p>0 – No impact.</p>
Probability of Impact Occurrence	<p>5 - Definite: Probability of impact occurring is > 95 %.</p> <p>4 - High: Probability of impact occurring is > 75 %.</p> <p>3 - Medium: Probability of impact occurring is between 25 % - 75 %.</p> <p>2 - Low: Probability of impact occurring is between 5 % - 25 %.</p> <p>1 - Improbable: Probability of impact occurring is < 5 %.</p>
Cumulative Impact	<p>High: Numerous similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts.</p> <p>Medium: Few similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts.</p> <p>Low: Virtually no similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts. The development is anticipated to be an isolated occurrence and should therefore have a negligible cumulative impact.</p> <p>None: No cumulative impact.</p>

Once the Environmental Risk Ratings have been evaluated for each identified potential ecological impact, the Significance Score of each impact is calculated by using the following formula:

- **SS (Significance Score) = (magnitude + duration + extent + irreplaceable + reversibility) x probability.**
- **The maximum Significance Score value is 150.**

The Significance Score is then used to rate the Environmental Significance of each identified potential ecological impact, as per Table 4 below. The Environmental Significance rating process is completed for all identified potential ecological impacts for the construction- and subsequent operational phases of the proposed development, both before and after implementation of the recommended mitigation measures.

Table 10: Interpretation of Environmental Significance Rating calculation results

Environmental Significance Score	Environmental Significance Rating	Description/Criteria
125 – 150	Very High	An impact of very high significance after mitigation will mean that the development may not take place. The impact cannot be suitably reduced and mitigated to within acceptable levels.
100 – 124	High	An impact of high significance after mitigation should influence a decision about whether or not to proceed with the development. Additional, impact-specific mitigation measures must be implemented if the continuation of the development is to be considered.
75 – 99	Medium-High	Additional, impact-specific mitigation measures must be implemented for an impact of medium-high significance if the continuation of the development is to be considered.
50 – 74	Medium	An impact of medium significance after mitigation must be adequately managed in accordance with the mitigation measures provided by the specialist.
< 50	Low	If any mitigation measures are provided by the specialist for an impact of low significance after mitigation, the impact must be adequately managed in accordance with these measures.
+	Positive impact	A positive impact is likely to result in a beneficial consequence/effect and should therefore be viewed as a motivation for the development to proceed.

6. Assessment Area

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The assessment area is situated on the Remaining Extent of the Farm Witfontein No. 444 (SG 21 Digit Code: F0360000000044400000), approximately 17 km north-west of the town of Viljoenskroon, Free State Province. The town forms part of the Moqhaka Local Municipality which in turn, forms part of the Fezile Dabi District Municipality. The assessment area falls outside the municipal urban edge. Access to the assessment area is obtained by way of the R76 provincial road and subsequent Vermaasdrift roads, from the south.

See locality map below (see A3 sized maps in the Appendices).



Figure 1: Locality map illustrating the assessment area

6.1. Climate

The rainfall of the region peaks during the summer months and the Mean Annual Precipitation (MAP) of the area is approximately 615 mm (www.climate-data.org). The maximum average monthly temperature is approximately 22.6°C in the summer months while the minimum average monthly temperature is approximately 9.7°C during the winter (www.climate-data.org). Maximum daily temperatures can reach up to 28.9°C in the summer months and dip to as low as 2.6°C during the winter (www.climate-data.org).

6.2. Geology and Soils

According to Mucina & Rutherford (2006) the geology of the landscape and associated vegetation type can be described as the following:

Aeolian and colluvial sand overlaying sandstone, mudstone and shale of the Karoo Supergroup as well as the older Ventersdorp Supergroup. Soils are mainly Avalon, Westleigh and Clovelly.

6.3. Vegetation Type and Conservation Status

Vegetation Type

According to SANBI (2006-2019), the entire assessment area falls within the Vaal-Vet Sandy Grassland vegetation type (Gh 10), which is characterised by a plains-dominated landscape, with some scattered, slightly irregular undulating plains and hills. The vegetation usually consists of low tussock grasslands with an abundant karroid element (SANBI, 2006-2019). Dominance of the grass species *Themeda triandra* is an important feature of the natural condition of this vegetation type, while localised lower cover of this species and an associated increase in cover of grass species such as *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is usually an indication of heavy grazing and/or erratic rainfall (SANBI, 2006-2019). This vegetation type is classified as Endangered (SANBI, 2006-2019).

Conservation Status

The entire assessment area and local surrounding landscape is categorised as Other Natural Area (ONA), according to the Free State Provincial Spatial Biodiversity Plan (Collins, 2018), which sets out biodiversity priority areas in the province.

See vegetation type- and conservation status maps below (see A3 sized maps in the Appendices).



Figure 2: Vegetation type map illustrating the vegetation type associated with the assessment area

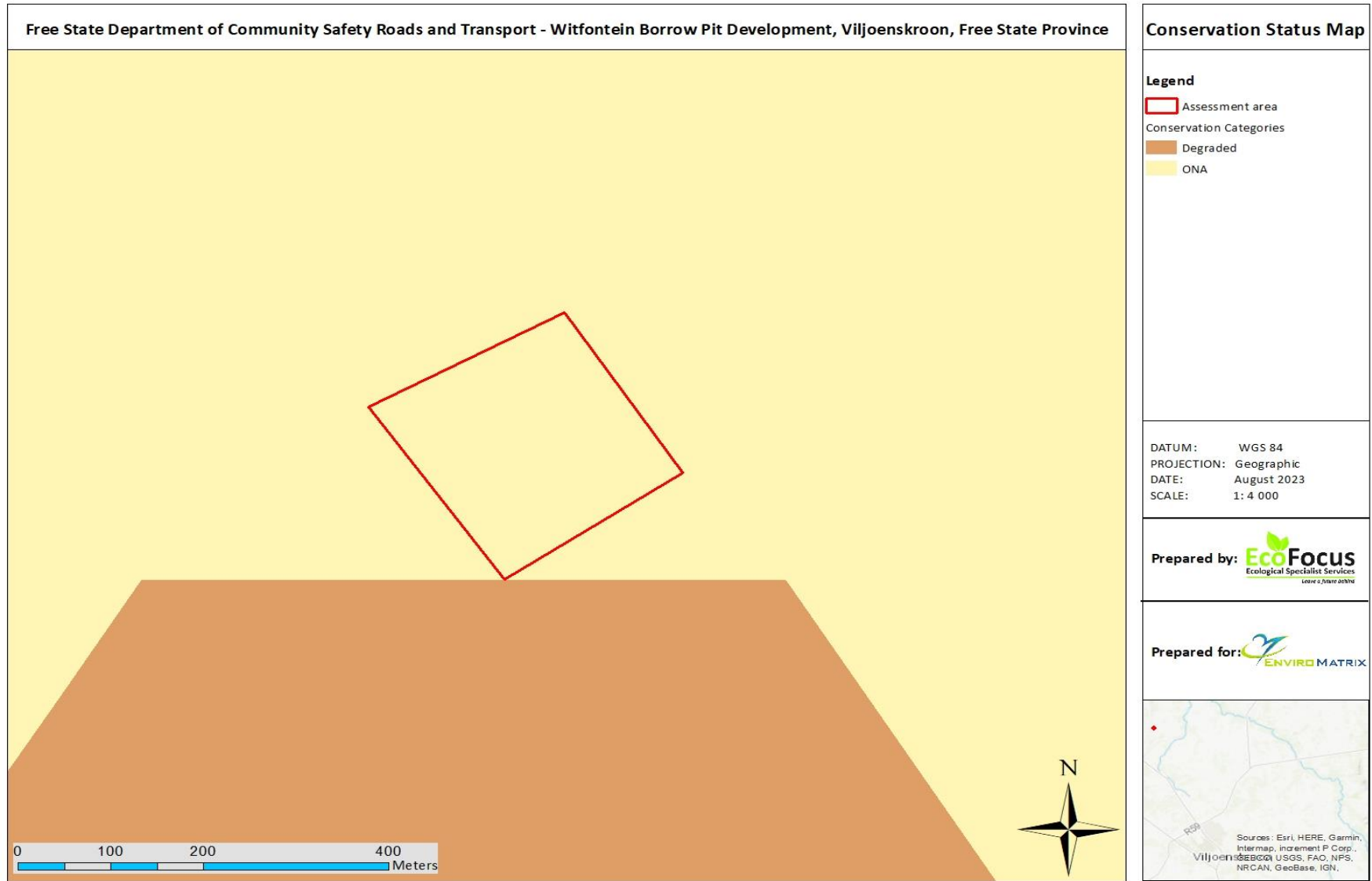


Figure 3: Conservation status map illustrating the conservation status/category associated with the assessment area

7. Assumptions, Uncertainties and Gaps in Knowledge

Various assumptions need to be made during the assessment process, at the hand of the relevant specialist. It is assumed that:

- all relevant project information provided to the ecological specialist by the EAP, was correct and valid at the time that it was provided.
- the proposed development area as provided by the EAP, is correct and will not be significantly deviated from, as this was the only area assessed.
- strategic level investigations undertaken by the applicant prior to the commencement of the Basic Assessment process, determined that the proposed development area represents a potentially suitable and technically acceptable location.
- the public, local communities, relevant organs of state and surrounding landowners will receive a sufficient reoccurring opportunity to participate and comment on the proposed development during the Basic Assessment process, through the provision of adequately facilitated public participation interventions and timeframes as stipulated in the NEMA: EIA Regulations, 2014.
- the need and desirability of the proposed development is based on strategic national, provincial and local plans and policies, which reflect the interests of both statutory and public viewpoints.
- the BA process is a project-level framework and the specialists are limited to assessing the anticipated environmental impacts, associated with the construction- and subsequent operational phases of the proposed development.
- it is assumed that strategic level decision making by the relevant authorities will be conducted through cooperative governance principles, with the consideration of environmentally sustainable and responsible development principles underpinning all decision making.

Given that an BA involves prediction, the uncertainty factor forms part of the assessment process. Two types of uncertainty are associated with the BA process, namely process-related and prediction-related.

- Uncertainty of prediction is critical at the data collection phase as observations, recommendations and conclusions are made, solely based on professional specialist opinion. Final certainty will only be obtained upon actual implementation of the proposed development. Adequate research, specialist experience and expertise should however minimise this uncertainty.
- Uncertainty of relevant decision making relates to the interpretation of provided information by relevant authorities during the BA process. Continual two-way communication and coordination between EAP's and relevant authorities should however decrease the uncertainty of subjective interpretation. The importance of widespread/comprehensive consultation towards minimising the risk/possibility of omitting significant information and impacts is further stressed. The use of quantitative impact significance rating formulas (as utilised in this document) can further standardise the objective interpretation of results and limit the occurrence and scale of uncertainty and subjectivity.
- The principle of human nature provides for uncertainties and unpredictability with regards to the socio-economic impacts of the proposed developments and the subsequent public reaction/opinion, which will be received during the Public Participation Process (PPP).

Gaps in knowledge can be attributed to:

- The ecological assessment process was undertaken prior to the availing of certain information, which would only be derived from the final development design and layout. The design layout for the proposed development, had not been finalised yet at the time of the ecological assessment.
- Extensive historical and existing agricultural cropland cultivation transformation is evident throughout the local and broader surrounding landscape, intertwined to a lesser extent, with undeveloped reasonably natural habitat.
- The potential for future similar developments in the same geographical area, which could lead to further cumulative impacts, cannot be meaningfully anticipated. Another proposed borrow pit is however currently being applied for directly adjacent east of the assessment area.

EcoFocus Consulting is an independent ecological specialist company. All information and recommendations as per this report are therefore provided in a fair and unbiased/objective manner and are solely based on qualitative data gathered as well as professional specialist observation and opinion.

8. Results and Discussion

8.1. Proposed Development Area Clearance

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

8.2. Aquatic Environment

According to the Environmental Screening Tool Report, the Aquatic Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

8.2.1. Water Catchment and Drainage

The assessment area falls within the Middle Vaal Water Management Area (WMA 09) and the associated C70K quaternary surface water catchment- and drainage area. It is furthermore situated in the C70K – 1977 Sub Quaternary Reach (SQR), within the Highveld Ecoregion (11). The assessment area and surrounding landscape generally slopes slightly, in a southerly direction.

8.2.2. Watercourse Baseline Information

There are no significant perennial or non-perennial watercourses or wetlands within the vicinity of the assessment area. According to the National Freshwater Ecosystem Priority Areas Database (NFEPA, 2011), the portion of the C70K – 1977 Sub Quaternary Reach (SQR) associated with the assessment area, does not fall within any Fish Support Area, -Sanctuary, -Corridor, -Rehabilitation Area or Freshwater Ecosystem Priority Area (FEPA). No populations of conservationally significant threatened fish species have been recorded throughout the assessment area or local downstream region or are expected to specifically utilise the assessment area as refuge or for breeding, foraging and/or persistence purposes.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Aquatic Biodiversity Theme sensitivity rating of the assessment area.

See water catchment and drainage map below (see A3 sized maps in the Appendices).

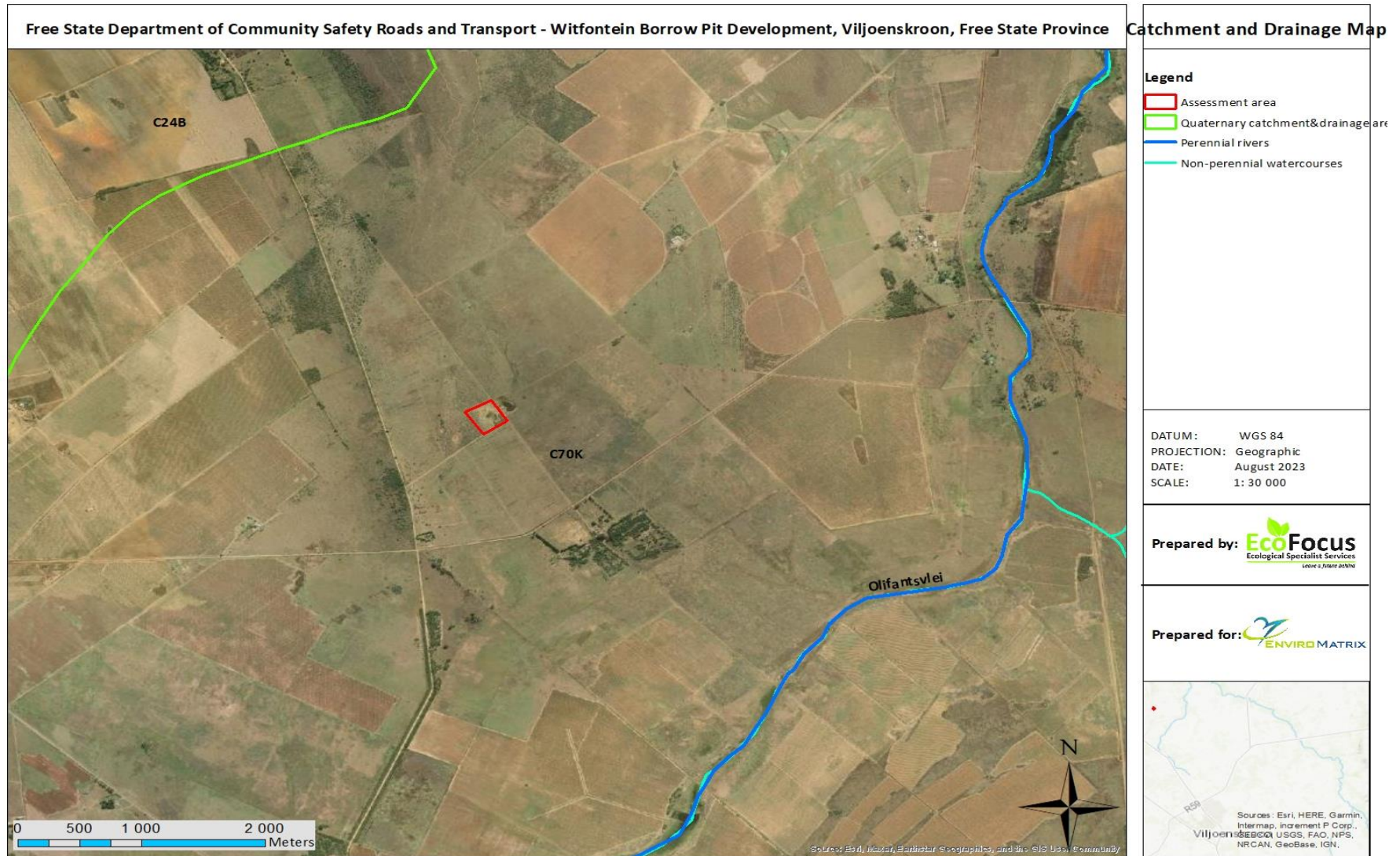


Figure 4: Water catchment and drainage map illustrating the main watercourses and quaternary surface water catchment- and drainage area associated with the assessment area

8.3. Terrestrial Environment

According to the Environmental Screening Tool Report, the Terrestrial Biodiversity Theme of the majority of the assessment area is rated as being of 'very high sensitivity' for the presence of the Endangered Vaal-Vet Sandy Grassland vegetation type (Gh 10).

8.3.1. Current Existing Vegetation and Site Description

The majority of the assessment area constitutes an existing historically excavated borrow pit, which is in a significantly disturbed and degraded ecological state. These existing anthropogenic impacts have virtually completely transformed all previously existing natural surface vegetation throughout the pit area and bare soils are extensively present. The remaining sparse vegetation which is present throughout the pit area, mainly consists of opportunistic pioneer grass- and weed species and to a lesser extent, legally declared alien invasive species.



Figure 5: Two images illustrating the presence of the existing historically excavated borrow pit associated with the majority of the assessment area, which is in a significantly disturbed and degraded ecological state

The narrow linear western portion of the assessment area constitutes a slightly sloping low-growing terrestrial grassland habitat. The grassland habitat is however in a moderate to highly disturbed and degraded ecological state, most likely as a result of historical and continued long-term overgrazing by livestock on the farm.

The grassland habitat is mainly dominated by the robust/resilient Increaser 2 type grass species *Eragrostis chloromelas*, *Cynodon dactylon* and *Aristida spp.* (Van Oudtshoorn, 2004). This overwhelming dominance of hardy Increaser 2 type grass species along with the complete absence of desired palatable Decreaser type climax grass species, confirms the disturbed and degraded ecological state of the assessment area.

The grassland habitat is also moderately to densely infested with the undesired indicator species of bush encroachment *Seriphium plumosum*, which further reiterates the disturbed and degraded ecological state.

A diverse forb-, succulent or shrub layer was not evident throughout the grassland habitat, during the site assessment. This is most likely as a result of the disturbed and degraded ecological state of the area.

No Red Data Listed-, nationally protected- or provincially protected plant species or any other plant species of conservational significance/value, were found to be present throughout the assessment area. As stated under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, the assessment area is therefore not in any way representative/reminiscent of the relevant Vaal-Vet Sandy Grassland vegetation type (Gh 10), which virtually completely negates the conservational significance of the area. It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with the 'very high' Terrestrial Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.



Figure 6: Two images illustrating examples of the moderate to highly disturbed and degraded low-growing terrestrial grassland habitat, associated with the narrow linear western portion of the assessment area; the moderate to dense infestation of the undesired indicator species of bush encroachment *Seriphium plumosum*, is also evident

8.4. Plant Species List for the Assessment Area

According to the Environmental Screening Tool Report, the Plant Species Biodiversity Theme of the assessment area is rated as being of 'medium sensitivity' for the potential presence of the two Nationally Vulnerable Red Listed plant Species 691 & 1261. These species were however not found to be present throughout the assessment area and are also not expected to be present throughout the surrounding moderate to highly disturbed and degraded terrestrial grassland habitat. Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with this rating, but rather concludes that the assessment area is rated as 'low sensitivity'.

Table 5: Plant species list for the assessment area

Graminoids	Forbs & Succulents	Woody Shrubs/Trees
<i>Aristida spp.</i>	Opportunistic pioneer weed species	<i>Seriphium plumosum</i>
<i>Cynodon dactylon</i>	-	-
<i>Eragrostis chloromelas</i>	-	-

8.5. Fauna and Avifauna

According to the Environmental Screening Tool Report, the Animal Species Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

The assessment area does not fall within any Important Bird Areas (IBA) as per the latest IBA map obtained from the Birdlife SA website (<https://www.birdlife.org.za/what-we-do/important-bird-and-biodiversity-areas/media-and-resources/#1553597171790-6f83422a-a731>). No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the assessment area, during the site assessment. Only common local resident bird species were found to be present.

Although this is the case, the pit area houses a moderately sized anthropogenically/artificially created waterbody, which can potentially be utilised by limited common and habitat-specific aquatic bird- and amphibian species. The waterbody does however not possess any locally distinct or important aquatic- or semi-aquatic habitat, which reduces this likelihood. Various other significantly sized natural waterbodies are furthermore also present throughout the local and broader surrounding landscape, which provide ample alternative natural aquatic- and semi-aquatic avifaunal habitat.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, it is also not expected that the assessment area would specifically be utilised by any conservationally significant or important faunal or avifaunal species as refuge or for breeding, foraging and/or persistence purposes. The mobility of faunal/avifaunal species allows for individuals to simply leave an area where disturbance is taking place and relocate to surrounding similar, adequate areas.

It is therefore evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Animal Species Biodiversity Theme sensitivity rating of the assessment area.

8.6. Site Ecological Importance (SEI)

The Site Ecological Importance (SEI) of the assessment area is classified as **Very Low** as it is not viewed as being ecologically important and/or sensitive on any scale. Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The assessment area is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats.

Reasoning:

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, the assessment area is therefore not in any way representative/reminiscent of the relevant Vaal-Vet Sandy Grassland vegetation type (Gh 10), which virtually completely negates the conservational significance of the area. It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with the 'medium' Plant Species Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.

It is evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Animal Species Biodiversity Theme sensitivity rating of the assessment area.

Based on the outcomes and results of the site assessment, the specialist is not in agreement with the 'very high' Terrestrial Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.

8.7. Main Mitigation Recommendations

The following main ecological impact management and mitigation measures are recommended for the proposed development:

- Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.
- Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.
- It is recommended that a sufficient grazing management plan and practices must be implemented for livestock on the farm, in order to prevent continued significant overgrazing of the landscape and to attempt to improve/restore the ecological condition, over time.
- Implement an adequate Stormwater and Erosion Management Plan during the construction- and subsequent operational phases of the proposed development. This must be done to sufficiently manage storm water runoff and clean/dirty water separation, in order to prevent any significant soil erosion from occurring within and around the assessment area.
- A closed inward-draining system design must be adopted for the proposed borrow pit.
- Implement suitable dust management and prevention measures during the construction- and subsequent operational phases of the proposed development.
- Construction- as well as operational areas and -roads to be sufficiently wetted down during the construction- and subsequent operational phases of the proposed development, in order to prevent significant continual fugitive dust emissions.
- A Geo-hydrological assessment must be conducted in order to determine the direct impact of the proposed development on the underground aquifers/groundwater resources.

9. Ecological Impact Assessment

The following section identifies the potential ecological impacts (both positive and negative), which the proposed development will have on the surrounding environment.

Once the potential ecological impacts are identified, they are assessed by rating their Environmental Risk after which the final Environmental Significance is calculated and rated for each identified ecological impact.

The same Environmental Risk rating process is then followed for each ecological impact to determine the Environmental Significance, if the recommended mitigation measures were to be implemented.

The objective of this section is therefore firstly to identify all the potential ecological impacts associated with the proposed development and secondly to determine the significance of the impacts and how effective the recommended mitigation measures will be able to reduce their significance. The potential ecological impacts which are still rated as highly significant, even after implementation of mitigations, can then be identified in order to specifically focus on implementation of effective management strategies for them.

9.1. Construction Phase

Transformation of vegetation within the assessment area associated with the Vaal-Vet Sandy Grassland vegetation type (Gh 10)

According to SANBI (2006-2019), the entire assessment area falls within the Vaal-Vet Sandy Grassland vegetation type (Gh 10), which is characterised by a plains-dominated landscape, with some scattered, slightly irregular undulating plains and hills. The vegetation usually consists of low tussock grasslands with an abundant karroid element (SANBI, 2006-2019). Dominance of the grass species *Themeda triandra* is an important feature of the natural condition of this vegetation type, while localised lower cover of this species and an associated increase in cover of grass species such as *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is usually an indication of heavy grazing and/or erratic rainfall (SANBI, 2006-2019). This vegetation type is classified as Endangered (SANBI, 2006-2019).

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

The majority of the assessment area constitutes an existing historically excavated borrow pit, which is in a significantly disturbed and degraded ecological state. These existing anthropogenic impacts have virtually completely transformed all previously existing natural surface vegetation throughout the pit area and bare soils are extensively present. The remaining sparse vegetation which is present throughout the pit area, mainly consists of opportunistic pioneer grass- and weed species and to a lesser extent, legally declared alien invasive species.

The narrow linear western portion of the assessment area constitutes a slightly sloping low-growing terrestrial grassland habitat. The grassland habitat is however in a moderate to highly disturbed and degraded ecological state, most likely as a result of historical and continued long-term overgrazing by livestock on the farm.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, the assessment area is therefore not in any way representative/reminiscent of the relevant Vaal-Vet Sandy Grassland vegetation type (Gh 10), which virtually completely negates the conservational significance of the area. It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Destruction of-/damage to Red Data Listed, nationally- and/or provincially protected species individuals/habitats and consequent fragmentation of habitat connectivity, associated with the assessment area

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

No Red Data Listed-, nationally protected- or provincially protected plant species or any other plant species of conservational significance/value, were found to be present throughout the assessment area. As stated under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with the 'medium' Plant Species Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.

According to the Environmental Screening Tool Report, the Animal Species Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

The assessment area does not fall within any Important Bird Areas (IBA) as per the latest IBA map obtained from the Birdlife SA website (<https://www.birdlife.org.za/what-we-do/important-bird-and-biodiversity-areas/media-and-resources/#1553597171790-6f83422a-a731>). No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the assessment area, during the site assessment. Only common local resident bird species were found to be present.

Although this is the case, the pit area houses a moderately sized anthropogenically/artificially created waterbody, which can potentially be utilised by limited common and habitat-specific aquatic bird- and amphibian species. The waterbody does however not possess any locally distinct or important aquatic- or semi-aquatic habitat, which reduces this likelihood. Various other significantly sized natural waterbodies are furthermore also present throughout the local and broader surrounding landscape, which provide ample alternative natural aquatic- and semi-aquatic avifaunal habitat.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, it is also not expected that the assessment area would specifically be utilised by any conservationally significant or important faunal or avifaunal species as refuge or for breeding, foraging and/or persistence purposes. The mobility of faunal/avifaunal species allows for individuals to simply leave an area where disturbance is taking place and relocate to surrounding similar, adequate areas.

It is therefore evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Animal Species Biodiversity Theme sensitivity rating of the assessment area.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Terrestrial alien invasive species establishment

The majority of the assessment area constitutes an existing historically excavated borrow pit, which is in a significantly disturbed and degraded ecological state. These existing anthropogenic impacts have virtually completely transformed all previously existing natural surface vegetation throughout the pit area and bare soils are extensively present. The remaining sparse vegetation which is present throughout the pit area, mainly consists of opportunistic pioneer grass- and weed species and to a lesser extent, legally declared alien invasive species.

The narrow linear western portion of the assessment area constitutes a slightly sloping low-growing terrestrial grassland habitat. The grassland habitat is however in a moderate to highly disturbed and degraded ecological state, most likely as a result of historical and continued long-term overgrazing by livestock on the farm.

The grassland habitat is also moderately to densely infested with the undesired indicator species of bush encroachment *Seriphium plumosum*, which further reiterates the disturbed and degraded ecological state.

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

The assessment area could therefore potentially be prone to moderate alien invasive species establishment, due to surface disturbance and vegetation clearance caused by construction activities.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Surface material erosion

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

The assessment area and surrounding landscape generally slopes slightly, in a southerly direction. Due to the slightly sloping topography of the assessment area, the area could therefore potentially be prone to slight surface soil erosion, as a result of the loosening of materials and clearance of vegetation and excavation caused by construction activities, which usually binds surface material.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Dust generation and emissions

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

The construction activities associated with the proposed development, could potentially result in significant fugitive dust emissions, due to vegetation clearance and excavation as well as movement of machinery and equipment. Generated dust could potentially spread into- and contaminate the surrounding undeveloped landscape.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

9.2. Operational Phase

No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Once the construction phase of the proposed development has been completed, the subsequent operational phase should also not result in any significant additional potential ecological impacts, apart from the low-level potential long-term ecological impacts, as discussed under heading 9.1.

Along with the potential long-term ecological impacts as discussed under heading 9.1, the following additional potential ecological impacts could also occur during the operational phase. These impacts could continue throughout the entire operational phase and lifespan of the established borrow pit:

Continued dust generation and emissions

The construction- and subsequent operational excavation activities associated with the proposed borrow pit, will in all probability result in significant and continued fugitive dust emissions, due to continued movement of machinery and equipment. Generated dust could spread into- and continue to contaminate the local surrounding undeveloped landscape.

The significance of this potential impact will be **medium** prior to implementation of recommended mitigation measures, but will be reduced to **low** by the implementation.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Continued noise disturbance to fauna and avifauna associated with the local surrounding undeveloped landscape

The construction- and subsequent operational excavation activities associated with the proposed borrow pit, will in all probability result in significant and continued noise generation and emissions into the local surrounding undeveloped landscape. Such continual generation and emission of loud noise could potentially have a negative impact on faunal and avifaunal activities throughout the local surrounding undeveloped landscape.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

Contamination of the underground aquifers/groundwater resources

The construction- and subsequent operational excavation activities associated with the proposed borrow pit, could likely result in contamination of the underground aquifers/groundwater resources.

The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

Mitigation measures to reduce impacts are recommended under heading 9.4.

9.3. Cumulative Impacts

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

The assessment area scored a very low Site Ecological Importance (SEI) value and is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats (see heading 8.6).

It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

It is furthermore also not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Continued dust generation and emissions was identified and addressed as the only significant potential long-term ecological impact, associated with the operational phase of the established borrow pit.

The potential long-term ecological impacts identified for the proposed development, could potentially merely add low cumulative impact to the existing negative impacts caused by the extensive historical and existing agricultural cropland cultivation transformation, throughout the local and broader surrounding landscape.

It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential cumulative ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will add any significant residual cumulative ecological impacts to the surrounding environment, if all recommended mitigation measures as per this ecological report are adequately implemented and managed, for both the construction- and subsequent operational phases of the proposed development.

It is the opinion of the specialist that the proposed development of the assessment area should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this ecological report must however be adequately implemented and managed for both the construction- and subsequent operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.

9.4. Risk Ratings of Potential Ecological Impacts

The following section provides the Environmental Risk as well as the Environmental Significance Ratings for the potential ecological impacts associated with the proposed development, both before and after implementation of the recommended mitigation measures.

9.4.1. Construction Phase

Table 11: Environmental Risk and Significance Ratings

	Assessment area	No-go alternative
Identified Environmental Impact	Transformation of vegetation within the assessment area associated with the Vaal-Vet Sandy Grassland vegetation type (Gh 10)	
Magnitude of Negative or Positive Impact	Very low (2)	-
Duration of Negative or Positive Impact	Long term (4)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Low (4)	-
Probability of Impact Occurrence	Low (2)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (28)	-

Mitigation Measures to be implemented

The proposed development footprint area must be kept as small as practicably possible to reduce the surface impact on surrounding vegetation and no unnecessary/unauthorised footprint expansion into the surrounding undeveloped landscape may take place.

No site construction basecamps may be established within the surrounding undeveloped landscape.

Adequately cordon off the proposed development construction footprint area and ensure that no construction activities, machinery or equipment operate or impact within the surrounding undeveloped landscape outside the cordoned off area.

Adequate operational procedures for construction machinery and equipment must be developed in order to strictly govern and restrict movement of machinery only within the proposed development construction footprint area and to ensure environmentally responsible construction practices and activities.

Existing roads and farm tracks in close proximity to the proposed development construction footprint area, must be used during the construction phase. No new temporary roads or tracks may be constructed or implemented through the surrounding undeveloped landscape.

Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.

It is recommended that a sufficient grazing management plan and practices must be implemented for livestock on the farm, in order to prevent continued significant overgrazing of the landscape and to attempt to improve/restore the ecological condition, over time.

Cumulative Impact Rating after mitigation implementation	Low	-
Environmental Significance Score and Rating after mitigation implementation	Low (13)	-
	Assessment area	No-go alternative
Identified Environmental Impact	Destruction of-/damage to Red Data Listed, nationally- and/or provincially protected species individuals/habitats and consequent fragmentation of habitat connectivity, associated with the assessment area	
Magnitude of Negative or Positive Impact	Very low (2)	-
Duration of Negative or Positive Impact	Long term (4)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Low (4)	-
Probability of Impact Occurrence	Low (2)	-

Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (28)	-
Mitigation Measures to be implemented	<p>The proposed development footprint area must be kept as small as practicably possible to reduce the surface impact on surrounding vegetation and no unnecessary/unauthorised footprint expansion into the surrounding undeveloped landscape may take place.</p> <p>No site construction basecamps may be established within the surrounding undeveloped landscape.</p> <p>Adequately cordon off the proposed development construction footprint area and ensure that no construction activities, machinery or equipment operate or impact within the surrounding undeveloped landscape outside the cordoned off area.</p> <p>Adequate operational procedures for construction machinery and equipment must be developed in order to strictly govern and restrict movement of machinery only within the proposed development construction footprint area and to ensure environmentally responsible construction practices and activities.</p> <p>Existing roads and farm tracks in close proximity to the proposed development construction footprint area, must be used during the construction phase. No new temporary roads or tracks may be constructed or implemented through the surrounding undeveloped landscape.</p>	

	<p>Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.</p> <p>It is recommended that a sufficient grazing management plan and practices must be implemented for livestock on the farm, in order to prevent continued significant overgrazing of the landscape and to attempt to improve/restore the ecological condition, over time.</p>	
Cumulative Impact Rating after mitigation implementation	Low	-
Environmental Significance Score and Rating after mitigation implementation	Low (13)	-
	Assessment area	No-go alternative
Identified Environmental Impact	Terrestrial alien invasive species establishment	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Long term (4)	-

Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	High (2)	-
Probability of Impact Occurrence	Medium (3)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (42)	-
Mitigation Measures to be implemented	<p>Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.</p> <p>Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.</p>	
Cumulative Impact Rating after mitigation implementation	Low	-
Environmental Significance Score and Rating after mitigation implementation	Low (11)	-

	Assessment area	No-go alternative
Identified Environmental Impact	Surface material erosion	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Long term (4)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	High (2)	-
Probability of Impact Occurrence	Low (2)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (28)	-

<p>Mitigation Measures to be implemented</p>	<p>Implement an adequate Stormwater and Erosion Management Plan during the construction- and subsequent operational phases of the proposed development. This must be done to sufficiently manage storm water runoff and clean/dirty water separation, in order to prevent any significant soil erosion from occurring within and around the assessment area.</p> <p>A closed inward-draining system design must be adopted for the proposed borrow pit.</p> <p>Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.</p>	
<p>Cumulative Impact Rating after mitigation implementation</p>	<p>Low</p>	<p>-</p>
<p>Environmental Significance Score and Rating after mitigation implementation</p>	<p>Low (11)</p>	<p>-</p>

	Assessment area	No-go alternative
Identified Environmental Impact	Dust generation and emissions	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Short term (2)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Medium (3)	-
Probability of Impact Occurrence	Medium (3)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (39)	-

<p style="text-align: center;">Mitigation Measures to be implemented</p>	<p>Implement suitable dust management and prevention measures during the construction phase of the proposed development.</p> <p>Construction areas and -roads to be sufficiently wetted down during the construction phase in order to prevent significant fugitive dust emissions.</p> <p>Adequate operational procedures for machinery and equipment must be developed to strictly govern and restrict movement of machinery, in order to avoid unnecessary fugitive dust emissions and ensure environmentally responsible operational practices and activities.</p> <p>Disturbed areas within and immediately surrounding the proposed development construction footprint area must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.</p>	
<p style="text-align: center;">Cumulative Impact Rating after mitigation implementation</p>	<p>Low</p>	<p>-</p>
<p style="text-align: center;">Environmental Significance Score and Rating after mitigation implementation</p>	<p>Low (20)</p>	<p>-</p>

9.4.2. Operational Phase

Table 12: Environmental Risk and Significance Ratings

	Assessment area	No-go alternative
Identified Environmental Impact	Continued dust generation and emissions	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Medium term (3)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Medium (3)	-
Probability of Impact Occurrence	High (4)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Medium (56)	-

<p style="text-align: center;">Mitigation Measures to be implemented</p>	<p>Implement suitable dust management and prevention measures during the operational phase of the proposed development.</p> <p>Operational areas and -roads to be sufficiently wetted down during the construction phase in order to prevent significant continual fugitive dust emissions.</p> <p>Adequate operational procedures for machinery and equipment must be developed to strictly govern and restrict movement of machinery, in order to avoid unnecessary fugitive dust emissions and ensure environmentally responsible operational practices and activities.</p> <p>A Mine Closure and Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.</p>	
<p style="text-align: center;">Cumulative Impact Rating after mitigation implementation</p>	<p>Low</p>	<p>-</p>
<p style="text-align: center;">Environmental Significance Score and Rating after mitigation implementation</p>	<p>Low (33)</p>	<p>-</p>

	Assessment area	No-go alternative
Identified Environmental Impact	Continued noise disturbance to fauna and avifauna associated with the local surrounding undeveloped landscape	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Medium term (3)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Medium (3)	-
Probability of Impact Occurrence	Medium (3)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (42)	-
Mitigation Measures to be implemented	Adequate operational procedures for machinery and equipment must be developed to strictly govern and restrict movement of machinery, in order to avoid unnecessary noise emissions and ensure environmentally responsible operational practices and activities.	

Cumulative Impact Rating after mitigation implementation	Low	-
Environmental Significance Score and Rating after mitigation implementation	Low (22)	-
	Assessment area	No-go alternative
Identified Environmental Impact	Contamination of the underground aquifers/groundwater resources	
Magnitude of Negative or Positive Impact	Low (4)	-
Duration of Negative or Positive Impact	Medium term (3)	-
Extent of Positive or Negative Impact	Regional (3)	-
Irreplaceability of Natural Resources being impacted upon	High (4)	-
Reversibility of Impact	Low (4)	-
Probability of Impact Occurrence	Low (2)	-

Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (36)	-
Mitigation Measures to be implemented	<p>A Geo-hydrological assessment must be conducted in order to determine the direct impact of the proposed development on the underground aquifers/groundwater resources.</p> <p>A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation, in accordance with the National Water Act (Act 36 of 1998).</p> <p>Water saving initiatives must be implemented for the construction- and subsequent operational phases of the proposed development.</p> <p>Environmentally responsible water use practices and activities must be adopted for the construction- and subsequent operational phases of the proposed development.</p> <p>Provide training interventions for the construction- and operations employees on correct environmentally responsible water use practices and activities.</p>	
Cumulative Impact Rating after mitigation implementation	Low	-
Environmental Significance Score and Rating after mitigation implementation	Low (15)	-

10. Summary and Conclusion

Proposed Development Area Clearance

The assessment area constitutes a single footprint area of approximately 4.93 ha in size. The mechanical clearance associated with the proposed development, will in all probability completely transform the majority of the existing surface vegetation throughout the footprint area.

Vegetation Type and Conservation Status

According to SANBI (2006-2019), the entire assessment area falls within the Vaal-Vet Sandy Grassland vegetation type (Gh 10), which is characterised by a plains-dominated landscape, with some scattered, slightly irregular undulating plains and hills. The vegetation usually consists of low tussock grasslands with an abundant karroid element (SANBI, 2006-2019). Dominance of the grass species *Themeda triandra* is an important feature of the natural condition of this vegetation type, while localised lower cover of this species and an associated increase in cover of grass species such as *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is usually an indication of heavy grazing and/or erratic rainfall (SANBI, 2006-2019). This vegetation type is classified as Endangered (SANBI, 2006-2019).

The entire assessment area and local surrounding landscape is categorised as Other Natural Area (ONA), according to the Free State Provincial Spatial Biodiversity Plan (Collins, 2018), which sets out biodiversity priority areas in the province.

Aquatic Environment

According to the Environmental Screening Tool Report, the Aquatic Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

Water Catchment and Drainage

The assessment area falls within the Middle Vaal Water Management Area (WMA 09) and the associated C70K quaternary surface water catchment- and drainage area. It is furthermore situated in the C70K – 1977 Sub Quaternary Reach (SQR), within the Highveld Ecoregion (11). The assessment area and surrounding landscape generally slopes slightly, in a southerly direction.

Watercourse Baseline Information

There are no significant perennial or non-perennial watercourses or wetlands within the vicinity of the assessment area. According to the National Freshwater Ecosystem Priority Areas Database (NFEPA, 2011), the portion of the C70K – 1977 Sub Quaternary Reach (SQR) associated with the assessment area, does not fall within any Fish Support Area, -Sanctuary, -Corridor, -Rehabilitation Area or Freshwater Ecosystem Priority Area (FEPA). No populations of conservationally significant threatened fish species have been recorded throughout the assessment area or local downstream region or are expected to specifically utilise the assessment area as refuge or for breeding, foraging and/or persistence purposes.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Aquatic Biodiversity Theme sensitivity rating of the assessment area.

Terrestrial Environment

According to the Environmental Screening Tool Report, the Terrestrial Biodiversity Theme of the majority of the assessment area is rated as being of 'very high sensitivity' for the presence of the Endangered Vaal-Vet Sandy Grassland vegetation type (Gh 10).

The majority of the assessment area constitutes an existing historically excavated borrow pit, which is in a significantly disturbed and degraded ecological state. These existing anthropogenic impacts have virtually completely transformed all previously existing natural surface vegetation throughout the pit area and bare soils are extensively present. The remaining sparse vegetation which is present throughout the pit area, mainly consists of opportunistic pioneer grass- and weed species and to a lesser extent, legally declared alien invasive species.

The narrow linear western portion of the assessment area constitutes a slightly sloping low-growing terrestrial grassland habitat. The grassland habitat is however in a moderate to highly disturbed and degraded ecological state, most likely as a result of historical and continued long-term overgrazing by livestock on the farm.

No Red Data Listed-, nationally protected- or provincially protected plant species or any other plant species of conservational significance/value, were found to be present throughout the assessment area. As stated under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals

According to the Environmental Screening Tool Report, the Plant Species Biodiversity Theme of the assessment area is rated as being of 'medium sensitivity' for the potential presence of the two Nationally Vulnerable Red Listed plant Species 691 & 1261. These species were however not found to be present throughout the assessment area and are also not expected to be present throughout the surrounding moderate to highly disturbed and degraded terrestrial grassland habitat. Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with this rating, but rather concludes that the assessment area is rated as 'low sensitivity'.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, the assessment area is therefore not in any way representative/reminiscent of the relevant Vaal-Vet Sandy Grassland vegetation type (Gh 10), which virtually completely negates the conservational significance of the area.

Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with the 'very high' Terrestrial Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.

Fauna and Avifauna

According to the Environmental Screening Tool Report, the Animal Species Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

The assessment area does not fall within any Important Bird Areas (IBA) as per the latest IBA map obtained from the Birdlife SA website (<https://www.birdlife.org.za/what-we-do/important-bird-and-biodiversity-areas/media-and-resources/#1553597171790-6f83422a-a731>). No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the assessment area, during the site assessment. Only common local resident bird species were found to be present.

Although this is the case, the pit area houses a moderately sized anthropogenically/artificially created waterbody, which can potentially be utilised by limited common and habitat-specific aquatic bird- and amphibian species. The waterbody does however not possess any locally distinct or important aquatic- or semi-aquatic habitat, which reduces this likelihood. Various other significantly sized natural waterbodies are furthermore also present throughout the local and broader surrounding landscape, which provide ample alternative natural aquatic- and semi-aquatic avifaunal habitat.

Due to the presence of the existing historically excavated borrow pit along with the significant historical and continued long-term overgrazing, it is also not expected that the assessment area would specifically be utilised by any conservationally significant or important faunal or avifaunal species as refuge or for breeding, foraging and/or persistence purposes. The mobility of faunal/avifaunal species allows for individuals to simply leave an area where disturbance is taking place and relocate to surrounding similar, adequate areas.

It is therefore evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Animal Species Biodiversity Theme sensitivity rating of the assessment area.

Conclusion

The assessment area scored a very low Site Ecological Importance (SEI) value and is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats (see heading 8.6).

It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

It is furthermore also not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape

No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Continued dust generation and emissions was identified and addressed as the only significant potential long-term ecological impact, associated with the operational phase of the established borrow pit.

The potential long-term ecological impacts identified for the proposed development, could potentially merely add low cumulative impact to the existing negative impacts caused by the extensive historical and existing agricultural cropland cultivation transformation, throughout the local and broader surrounding landscape.

It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential cumulative ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will add any significant residual cumulative ecological impacts to the surrounding environment, if all recommended mitigation measures as per this ecological report are adequately implemented and managed, for both the construction- and subsequent operational phases of the proposed development.

It is the opinion of the specialist that the proposed development of the assessment area should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this ecological report must however be adequately implemented and managed for both the construction- and subsequent operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.

11. References

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12. Details of the Specialist

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Abbreviated Curriculum Vitae

Qualifications

- M.Env.Sci Ecological Remediation and Sustainable Utilisation/Vegetation Ecology
 - 2010 - North West University Potchefstroom
- B.Sc Botany and Zoology (Cum Laude)
 - 2008 - North West University Potchefstroom

Accredited courses completed

- Implementing Environmental Management Systems ISO 14001
 - 2011 - North West University Potchefstroom
- Environmental Law for Environmental Managers
 - 2011 - North West University Potchefstroom
- SASS 5 Aquatic Biomonitoring Training Course
 - 2017 – GroundTruth Consulting

Professional registrations

- South African Council for Natural Scientific Professions (**SACNASP**)
 - Professional Ecological Scientist Registration number 115601
- International Association for Impact Assessment (**IAIA**)
 - Registration number 5232
- South African Green Industries Council (**SAGIC**) Invasive Species training
 - Registration number 2405/2459
- South African Wetland Society (**SAWS**)
 - Membership number 220958

Employment and Experience Background

Upon completion of his studies, Rikus started his career in 2011 as an **Environmental Professional in Training (PIT) at Anglo American Thermal Coal: Environmental Services**. He received environmental training and practical implementation experience in all environmental facets of the mining industry with the focus on: Environmental rehabilitation, land management (biodiversity and invasive species eradication), waste & water-, air quality-, game reserve-, environmental management and legislation, as well as corporate reporting. He was also appointed as the Biodiversity management custodian at Anglo American Thermal Coal collieries.

He was subsequently employed by **Fraser Alexander Ash from October 2011 to the end of November 2015 as an Environmental Contracts Manager**, where he was responsible for the technical and operational management of all Fraser Alexander Ash' mining environmental rehabilitation work. He was responsible for all facets of project management, as well as implementation of rehabilitation and environmental strategies, by planning activities, organising physical, financial and human resources, delegating task responsibilities, leading people, controlling risks and providing technical support.

He conducted a significant amount of quantitative and qualitative ecological vegetation monitoring during his employment period with the company. Such monitoring mainly included environmentally rehabilitated mining areas in the open-cast coal-, gold-, platinum- and chrome mining industries situated in the Free State, Gauteng, Mpumalanga, North West and Limpopo Provinces. He was involved with analysis, processing and interpretation of environmental monitoring data and compilation of high quality technical/scientific environmental monitoring reports for clients.

He was subsequently further involved with providing adequate ecological management and maintenance recommendations for rehabilitated areas. He also provided technical/scientific environmental rehabilitation support to mining clients, with regards to sufficient soil preparation and amelioration, grassing processes, as well as grass species mixtures and ratios.

He was then employed by **Enviroworks Consulting from January 2016 to the end of May 2017 as a Senior Ecological Specialist** where he was responsible for virtually all Ecological, Aquatic and Wetland specialist assessments and reporting related to Environmental Impact Assessment (EIA) and Basic Assessment (BA) projects. He also completed numerous EIA and BA projects as the main project Environmental Assessment Practitioner (EAP).

Rikus then subsequently established the company EcoFocus Consulting (Pty) Ltd at the end of May 2017, which provides high quality professional environmental and ecological specialist services and solutions to the industrial development-, construction-, mining-, agricultural and other sectors.

He possesses significant qualifications, vast knowledge, skills and practical experience in the specialist field of ecological and environmental management. This, coupled with his disciplined, determined and goal-driven approach, as well as his high level of personal standards, ensure high quality, timely and outcomes-based outputs and service delivery relating to any project.

Ecological & Wetland Specialist Assessment & Report Completion for the last two years

2023

- Proposed 1 500 m² Setsoto Local Municipality Water Treatment Works Expansion and Sludge Dam Development, Clocolan, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 1 500 m² Setsoto Local Municipality Water Treatment Works Expansion and Sludge Dam Development, Clocolan, Free State Province.
- Aquatic Ecological Assessment for the proposed 9.6 km Camel Thorn Solar 132 kV Transmission Line Development, Prieska, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 9.6 km Camel Thorn Solar 132 kV Transmission Line Development, Prieska, Northern Cape Province.
- Proposed 24.2 ha Virginia-Kroonstad Six (6) Borrow Pit Developments, Free State Province.
- Proposed 10.75 ha Kroonstad-Steynsrus NEMA Section 24G Two (2) Borrow Pit Developments, Free State Province.
- Ecological Compliance Statement for the proposed 11.1 ha Jacksonville Residential Development, Kimberley, Northern Cape Province.
- Proposed 52.8 km Bethlehem-Fouriesburg Pipeline Development, Free State Province.
- Ecological Rehabilitation and Alien Invasive Species Management Plan for the Konsantas Sand dam-wall decommissioning and removal, Kestell, Free State Province.

- Proposed 6.32 ha Syngenta Stilgewaght Dam Development, Bethlehem, Free State Province.
- Aquatic Ecological Assessment for the proposed 14 km Khauta Solar Photovoltaic Cluster 132 kV Everest Transmission Line Development, Riebeeckstad, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 14 km Khauta Solar Photovoltaic Cluster 132 kV Everest Transmission Line Development, Riebeeckstad, Free State Province.
- Aquatic Ecological Assessment for the proposed 13 km Khauta Solar Photovoltaic Cluster 132 kV Leander Transmission Line Development, Riebeeckstad, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 13 km Khauta Solar Photovoltaic Cluster 132 kV Leander Transmission Line Development, Riebeeckstad, Free State Province.
- Proposed Tweefontein Gauging Weir Development, Bothaville, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed Tweefontein Gauging Weir Development, Bothaville, Free State Province.
- Grazing and Invasive Species Assessment for the Farm Petronella No. 579 outside Reitz, Free State Province.
- Proposed 16.1 ha Itau Milling Storage Area Development, Bloemfontein, Free State Province.
- Proposed 3.84 ha Itau Milling NEMA Section 24G Plot 40 Commercial Development project in Bloemfontein, Free State Province.
- Proposed 18.73 ha Nketoana Local Municipality Geluk Dam Development, Reitz, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 18.73 ha Nketoana Local Municipality Geluk Dam Development, Reitz, Free State Province.
- Desktop Ecological Compliance Statement for the proposed 8.69 ha Morgen Residential Development, Reitz, Free State Province.
- Proposed 5 707 ha Farm Mooimeisjesfontein No. 118 Prospecting Right, near Mahikeng, North West Province.
- Ecological Compliance Statement for the proposed 0.99 ha Rika Hannekom Hospitality Facility Development, Keimoes, Northern Cape Province.
- Ecological Exemption Letter for the Wilge Waste Water Treatment Works Upgrading, Harrismith, Free State Province.
- Proposed 18.2 ha Nketoana Local Municipality Waste Water Treatment Works Development, Lindley, Free State Province.

- Water Use License Application (WULA) Risk Assessment for the proposed 18.2 ha Nketoana Local Municipality Waste Water Treatment Works Development, Lindley, Free State Province.
- Ecological Compliance Statement for the proposed 3.87 ha Farm Blokhuis Composting Facility Development, Harrismith, Free State Province.
- Proposed 485 ha Idwala Energy Solar Power Generation Facility Development, Sasolburg, Free State Province.
- Ecological Compliance Statement for the proposed 4.22 ha Itau Milling Plot 11 Storage Area Development, Bloemfontein, Free State Province.
- Aquatic Ecological Assessment for the proposed 0.26 ha Postmasburg Residential Development, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 0.26 ha Postmasburg Residential Development, Northern Cape Province.
- Aquatic Ecological Assessment for the proposed 23.7 ha Hopetown Waste Water Treatment Works Upgrade, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 23.7 ha Hopetown Waste Water Treatment Works Upgrade, Northern Cape Province.
- Aquatic Ecological Assessment for the proposed 2.9 km Migdol Pipeline Development, North West Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 2.9 km Migdol Pipeline Development, North West Province.
- Proposed 7.39 ha N1 Gariiep Logistic Support Centre Development, Free State Province.
- Ecological Compliance Statement for the proposed 7.21 ha Viljoenskroon Solvent Extraction Plant Development, Free State Province.
- Ecological Compliance Statement for the proposed 4.64 ha Viljoenskroon Chicken Broiler House Development, Free State Province.
- Proposed 19.7 ha Khayamnandi Residential Development, Steynsburg, Eastern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 19.7 ha Khayamnandi Residential Development, Steynsburg, Eastern Cape Province.
- Ecological Compliance Statement for the proposed 1 ha Farm Delports Rust No. 30 Piggery Development, Welkom, Free State Province.
- Ecological Compliance Statement for the proposed 989 ha Kroonstad Mine Prospecting Right, Free State Province.

2022

- Aquatic Ecological Assessment for the proposed 178 ha A1 Groblershoop 50 MW PV Solar Plant Development, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 178 ha A1 Groblershoop 50 MW PV Solar Plant Development, Northern Cape Province.
- Proposed 14.3 ha North West Department of Education Ga-Maloka Primary School Expansion project in Ga-Maloka, North West Province.
- Aquatic Ecological Site Verification Report for the proposed 661 ha Khauta Solar PV Cluster Development, Riebeeckstad, Free State Province.
- Grazing and Invasive Species Assessment for the Farm Fourina No. 362 outside Fouriesburg, Free State Province.
- Desktop ecological assessment for the proposed 2.7 ha Muller Composting Abattoir and Composting Facility Development near Frankfort, Free State Province.
- Proposed 5.22 ha Equity Properties Midway Guesthouse Development in Bloemfontein, Free State Province.
- Proposed 1.5 ha Reeco Holdings (Pty) Ltd 15 Eco-villa Units Development near Ritchie, Northern Cape Province.
- Proposed 63.4 ha Kareeberg Local Municipality Carnarvon Residential Development, Northern Cape Province.
- Legal comments and responses for the Grazing and Invasive Species Assessment for the Farms Liebenbergsvlei No. 148 & Aasvogelkrans No. 96, outside Bethlehem, Free State Province.
- Legal comments and responses for the Grazing and Invasive Species Assessment for the Farm Erfenis No. 1014, outside Bethlehem, Free State Province.
- Proposed 16.8 ha Mafube Local Municipality Strasburg Mixed Land Use Development, Frankfort, Free State Province.
- Revision of the Basic Assessment process for a poultry broiler facility on the Farm Dwarsfontein 1 IQ, near Derby, North West Province.
- Aquatic Ecological Assessment for the proposed 101 ha 80 MW Khauta West Solar PV Facility Development, Riebeeckstad, Free State Province.
- Aquatic Ecological Assessment for the proposed 87 ha 50 MW Khauta e Nyane Solar PV Facility Development, Riebeeckstad, Free State Province.
- Aquatic Ecological Assessment for the proposed 168 ha 110 MW Khauta South Solar PV Facility Development, Riebeeckstad, Free State Province.

- Aquatic Ecological Assessment for the proposed 273 ha 165 MW Khauta North Solar PV Facility Development, Riebeeckstad, Free State Province.
- Proposed 224.4 MW Prieska Power Reserve Wind Power Facility Development outside Prieska, Northern Cape Province.
- Proposed 17.4 ha Dikgatlong Local Municipality Residential Development, Delportshoop, Northern Cape Province.
- Proposed 7.91 ha Dikgatlong Local Municipality Residential Development, Delportshoop, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 101 ha 80 MW Khauta West Solar PV Facility Development, Riebeeckstad, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 87 ha 50 MW Khauta e Nyane Solar PV Facility Development, Riebeeckstad, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 168 ha 110 MW Khauta South Solar PV Facility Development, Riebeeckstad, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 273 ha 165 MW Khauta North Solar PV Facility Development, Riebeeckstad, Free State Province.
- Aquatic Ecological Assessment for the proposed 3000 m² Olympic Flame Filling Station Development, Welkom, Free State Province.
- Proposed 45.6 ha Farm Reliance No. 347 Agricultural Development, Griekwastad, Northern Cape Province.
- Aquatic Ecological Assessment for the proposed 3.9 km Groblershoop 132 kV Transmission Line Development, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 3.9 km Groblershoop 132 kV Transmission Line Development, Northern Cape Province.
- Proposed 18.6 ha BFW Precast Concrete Towers Manufacturing Facility Development, Beaufort West, Western Cape Province.
- Proposed 4.5 ha Botshabelo Leisure Resort Development, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 4.5 ha Botshabelo Leisure Resort Development, Free State Province.
- Grazing and Invasive Species Assessment for the Farm Klafervley No. 133 outside Volksrust, Mpumalanga Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 18.6 ha BFW Precast Concrete Towers Manufacturing Facility Development, Beaufort West, Western Cape Province.

- Ecological Rehabilitation and Alien Invasive Species Management Plan for a proposed 4.5 ha Botshabelo Leisure Resort Development, Free State Province.
- Protected Plant Species Management Plan for a proposed 4.5 ha Botshabelo Leisure Resort Development, Free State Province.
- Appeal submission against the Environmental Authorisation for a poultry broiler facility on the Farm Dwarsfontein 1 IQ, near Derby, North West Province.
- Proposed 4.18 ha Itau Milling NEMA Section 24G Plot 39 Commercial Development project in Bloemfontein, Free State Province.

2021

- Proposed 126.77 ha Orania Residential development project in Orania, Northern Cape Province.
- Grazing and Invasive Species Follow-up Assessment for the Farm Tweefontein no 3344, outside Newcastle, KwaZulu-Natal Province.
- Proposed 245.5 ha Kgatelopele Local Municipality Residential development project in Danielskuil, Northern Cape Province.
- Relocation of provincially protected plant species individuals for the proposed 30 ha Portion 30 of the Farm Lilyvale no 2313 Residential development project in Bloemfontein, Free State Province.
- Proposed 0.5 ha Mduwelanga Projects Agricultural development project outside Paul Roux, Free State Province.
- Proposed Moledi Gorge Watercourse Weir NEMA Section 24G development outside Derby, North West Province.
- Revision of a proposed 135 ha Farm Zulani no 167 agricultural development project outside Douglas, Northern Cape Province.
- Grazing and Invasive Species Assessment for the Farm Kuilenburg no 241, outside Reitz, Free State Province.
- Revision of the Biodiversity Offset Feasibility Report for a proposed 385 ha Idstone Farming agricultural development projects outside Douglas, Northern Cape Province.
- Erosion and Invasive Species Assessment for the Farms Nebo A no 957, Tevrede no 1088, Sarona no 1089 & Uitkyk no 1119, outside Reitz, Free State Province.
- Proposed 267.2 ha Tswaing Local Municipality residential development project in Ottosdal, North West Province.

- Proposed 10.2 ha PepsiCo Inc residential development project in Marchand, Northern Cape Province.
- Proposed 182 ha Farm Selosesha no 900 mixed land use development project in Thaba Nchu, Free State Province.
- Water Use License Application (WULA) Risk Assessment for a proposed 182 ha Farm Selosesha no 900 mixed land use development project in Thaba Nchu, Free State Province.
- Proposed 3.5 ha Itau Milling NEMA Section 24G Solar Power Development project in Bloemfontein, Free State Province.
- Grazing and Invasive Species Assessment for the Farm Brakfontein no 244, outside Verkykerskop, Free State Province.
- Wetland/watercourse Assessment for the proposed 250 ha Subsolar Energy Serurubele Solar Development project near Bloemfontein, Free State Province.
- Water Use License Application (WULA) Risk Assessment for a proposed 250 ha Subsolar Energy Serurubele Solar Development project near Bloemfontein, Free State Province.
- Wetland/watercourse Assessment for the proposed 171 ha Subsolar Energy Sonneblom Solar Development project near Bloemfontein, Free State Province.
- Water Use License Application (WULA) Risk Assessment for a proposed 171 ha Subsolar Energy Sonneblom Solar Development project near Bloemfontein, Free State Province.
- Proposed 13.6 ha Haldon Estate development project in Bloemfontein, Free State Province.
- Wetland/watercourse Assessment for the proposed 200 ha Subsolar Energy Delta Solar Development project near Bloemhof, North West Province.
- Water Use License Application (WULA) Risk Assessment for a proposed 200 ha Subsolar Energy Delta Solar Development project near Bloemhof, North West Province.
- Water Use License Application (WULA) Specialist Opinion and Recommendation Letter for the proposed three Subsolar Energy Solar Development projects.
- Grazing and Invasive Species Follow-up Assessment for the Farm Waterval West no 653, outside Steynsrus, Free State Province.
- Proposed 25 ha Letsemeng Local Municipality landfill site development project in Luckhof, Free State Province.
- *Vachellia erioloba* Counting Report for the proposed 286 ha Subsolar Energy Gamma Solar Development project near Vryburg, North West Province.
- *Vachellia erioloba* Counting Report for the proposed 243 ha Subsolar Energy Khubu Solar Development project near Vryburg, North West Province.

- *Vachellia erioloba* Counting Report for the proposed 224 ha Subsolar Energy Protea Solar Development project near Vryburg, North West Province.
- *Vachellia erioloba* Counting Report for the proposed 262 ha Subsolar Energy Impala Solar Development project near Vryburg, North West Province.
- *Vachellia erioloba* Counting Report for the proposed 265 ha Subsolar Energy Sonbesie Solar Development project near Vryburg, North West Province.
- Ecological site suitability assessments for three potential 583 ha, 300 ha and 227 ha Alt-e Developments Herbert Phase 2 Solar Power Facility development projects near Douglas, Northern Cape Province.
- Proposed 113 ha Danrika Boerdery Edms BPK Vineyard Development project near Prieska, Northern Cape Province.
- Water Use License Application (WULA) Risk Assessment for a proposed 120 ha Northern Cape Department Agriculture Agricultural Development outside Hopetown, Northern Cape Province.
- Ecological Rehabilitation and Alien Invasive Species Management Plan for a proposed 120 ha Northern Cape Department Agriculture Agricultural Development outside Hopetown, Northern Cape Province.
- Protected Plant Species Management Plan for a proposed 120 ha Northern Cape Department Agriculture Agricultural Development outside Hopetown, Northern Cape Province.
- Ecological Stormwater and Erosion Management Plan for a proposed 120 ha Northern Cape Department Agriculture Agricultural Development outside Hopetown, Northern Cape Province.
- GIS Master Layout Plan for a proposed 120 ha Northern Cape Department Agriculture Agricultural Development outside Hopetown, Northern Cape Province.
- Grazing and Invasive Species Follow-up Assessment for the Farm Klipfontein No 71 outside Lindley, Free State Province.
- Proposed 384.3 ha Prieska Power Reserve Solar Power Facility Development outside Prieska, Northern Cape Province.
- Aquatic Ecological Assessment for the proposed Farm Bullhoek Chicken Layer Houses and Evaporation Ponds Expansion near Swartruggens, North West Province.
- Water Use License Application (WULA) Risk Assessment for the proposed Farm Bullhoek Chicken Layer Houses and Evaporation Ponds Expansion near Swartruggens, North West Province.

- Grazing and Invasive Species Assessment for the Farm Kleine Fontein No 1160 outside Bergville, KwaZulu-Natal Province.
- Proposed 1.37 km Mantsopa Local Municipality Water Pipeline Development in Ladybrand, Free State Province.
- Water Use License Application (WULA) Risk Assessment for the proposed 1.37 km Mantsopa Local Municipality Water Pipeline Development in Ladybrand, Free State Province.
- Grazing and Invasive Species Assessment for the Farm Elizabeth No 220 outside Bethlehem, Free State Province.
- Grazing and Invasive Species Follow-up Assessment for the Farm Retiefs Nek No 123 outside Bethlehem, Free State Province.
- Grazing and Invasive Species Follow-up Assessment for the Farm Brakfontein No 244, outside Verkykerskop, Free State Province.
- Proposed 107.8 ha Danrika Boerdery Edms BPK NEMA Section 24G Development project near Prieska, Northern Cape Province.

**Phase 1 Heritage Impact Assessment for extension of
an existing Borrow Pit on Remainder of farm
Witfontein 444 near Viljoenskroon, FS Province.**

Report prepared by
Palaeo Field Services
PO Box 38806, Langenhovenpark. 9301
28 August 2023

Summary

A Phase 1 Heritage Impact Assessment was carried out for extension of an existing Borrow Pit on Remainder of farm Witfontein 444 near Viljoenskroon, Free State Province. The affected area covers ~5 ha of low relief terrain and part of an existing borrow pit, located about 14 km south of the Vaal River, 4.3 km northwest of the R76 provincial road, and ~18 km north-northwest of the Viljoenskroon CBD. The site is underlain by arenaceous rocks of the Pretoria Group, Daspoort Formation (*Vd*, Transvaal Supergroup), considered to be of high palaeontological significance. The sedimentary rocks are capped by late Quaternary aeolian sand with little potential for Quaternary fossil preservation. There is no above ground evidence of *in situ* Stone Age archaeological material distributed as surface scatters on the landscape, prehistoric structures, graves or historically significant buildings older than 60 years within the boundaries of the study area. The proposed development will directly affect fine-grained quartzitic sandstones, which may potentially yield microbial mat features (stromatolites). Trace fossils may include wrinkle structures, sub rounded voids, small circular impressions and positive ridges on bedding surfaces. A survey of old cuttings in the existing borrow pit was hampered by a lack of well-preserved horizontal bedding surfaces. In terms of palaeontology it is recommended that development can proceed, provided that excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open. Based on surface observations, the site is regarded as of low archaeological significance and is assigned a rating of Generally Protected C. As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.

Contents

Summary	2
Introduction.....	3
Site Details	4
Background.....	4
Field Assessment	5
Impact Statement & Recommendation	5
References.....	6
Tables & Figures.....	7

Introduction

A Phase 1 Heritage Impact Assessment was carried out for extension of an existing Borrow Pit on Remainder of farm Witfontein 444 near Viljoenskroon, FS Province (**Fig. 1**). The assessment is required as a prerequisite for new development in terms of the National Environmental Management Act and is also called for in terms of the National Heritage Resources Act (NHRA) 25 of 1999. The National Heritage Resources Act (No. 25 of 1999) identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be required. In this case, the proposed development triggered Section 38(1) of the Act where proposed development includes *(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length and (c) any development or other activity which will change the character of the site exceeding 5000 m² in extent; or the rezoning of a site exceeding 10 000 m².*

Terms of Reference

The task involved the following:

- Identify and map possible heritage sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources;
- Recommend mitigation measures to minimize potential impacts associated with the proposed development.

Methodology

The heritage significance of the affected area was evaluated on the basis of existing field data, database information and published literature. This was followed by a field assessment by means of a pedestrian survey. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Maps and aerial photographs (incl. Google Earth) were consulted and integrated with data acquired during the on-site inspection. Site significance classification standards as prescribed by SAHRA (2005) were used to indicate overall significance and mitigation procedures where relevant (**Table 1**).

Site Details

The affected area covers ~5 ha of low relief terrain and part of an existing borrow pit, located about 14 km south of the Vaal River, 4.3 km northwest of the R76 provincial road, and ~18 km north-northwest of the Viljoenskroon CBD (**Fig 2 & 3**).

Maps: 1:50 000 topographical map 2726BB Viljoenskroon.

1:250 000 geological map 2726 Kroonstad

Site Coordinates (**Fig. 2**):

- A) 27° 3'17.70"S 26°53'1.41"E
- B) 27° 3'14.17"S 26°53'8.11"E
- C) 27° 3'20.15"S 26°53'12.12"E
- D) 27° 3'24.09"S 26°53'6.10"E

Background

Palaeontology

Underlying geology in the region is represented by ~2200 Ma old Transvaal Supergroup, Pretoria Group lavas (*Vh*), mudrocks (*Vs*) and quartzites (*Vd*), late Palaeozoic Karroo Supergroup remnants (Ecca Group shales, sandstone, *Pv*) and intrusive basalts of the Mesozoic Karoo Igneous Province (*Jd*) (**Fig. 4**). Ancient Vaal River terraces in the Northern Cape have previously yielded Plio-Pleistocene mammal fossils (e.g. River Gravels between Bloemhof and Kimberley), but there is currently no record of fossil-bearing alluvial deposits along the Vaal River between Leeudoringstad and Orkney.

Archaeology

The alluvial formations of the Vaal River are well known yielding for an abundance of Acheulian (Early Stone Age) hand axes, cleavers and core-axes, primarily made from quartzite. Stylistically diagnostic Type Z settlements are scattered over a relatively limited area to along the Vals River in the districts of Kroonstad and Bothaville, including a few sites on the Renoster River, east of Viljoenskroon (**Fig. 5**). Type Z dwellings consisted of a cylindrical hut with stone-walled courtyards at the front and rear, representing a bilobial layout. Maggs (1976) ascribes the occupation of the sites with bilobial dwellings to early Sotho-speaking Thlaping and Rolong groups. According to radio-carbon dating and oral history, Type Z sites were occupied from the 16th and 17th to early 19th century. European settlement occurred from 1836 (Voortrekkers) while establishment of the Boer republics and the discovery of diamonds and gold further contributed to the distinctive historical character of the region. There are plentiful rock art sites with engravings recorded in the Lower Vaal River Basin including the area around Bothaville on the farms Deelfontein, Diepfontein, Doornhoek and Geelfontein and paintings around Parys on the farms Buffelskloof and Parsons Rus. There is currently no record of rock art sites in the vicinity of Viljoenskroon. The town of Viljoenskroon was laid out on the farm Mahemskuil in 1921 and attained municipal status in 1925.

Field Assessment

The site is underlain by arenaceous rocks of the Pretoria Group, Daspoort Formation (Vd, Transvaal Supergroup), considered to be of high palaeontological significance (**Fig. 6**). The sedimentary rocks are capped by late Quaternary aeolian sand with little potential for Quaternary fossil preservation. There is no above ground evidence of *in situ* Stone Age archaeological material distributed as surface scatters on the landscape, prehistoric structures, graves or historically significant buildings older than 60 years within the boundaries of the study area.

Impact Statement & Recommendation

The proposed development will directly affect a late Quaternary aeolian overburden and fine-grained quartzitic sandstones considered to be of high palaeontological significance given the latter's potential for preservation of microbial mat features (stromatolites). Trace fossils may include wrinkle structures, sub rounded voids, small circular impressions and positive ridges on bedding surfaces. A survey of old cuttings

in the existing borrow pit was hampered by a lack of well-preserved horizontal bedding surfaces. In terms of palaeontology it is recommended that development can proceed, provided that excavations into intact sedimentary rock, should preferably be monitored by a professional palaeontologist on a regular basis during the operational phase when such excavations are open.

Based on surface observations, the site is regarded as of low archaeological significance and is assigned a rating of Generally Protected C (**Table 1**). As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are kept within the boundaries of the demarcated footprint.

References

- Cooke, H.B.S. 1949. Fossil mammals of the Vaal River Gravels. *Geological Survey. Memoir 35 (3)*, pp 1 – 109.
- Eriksson et al. 2006. *The Transvaal Supergroup and its precursors*. In: Johnson. M.R., Anhaeusser, C.R. & Thomas, R.J. (eds.) *The geology of South Africa*, pp. 237 - 260. Geological Society of South Africa, Johannesburg & the Council for Geoscience, Pretoria.
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- Sohnge, P.G. et al. 1937. *The geology and archaeology of the Vaal River Basin*. Memoir no. 35. Department of Mines, Geological Survey.
- Van Riet Lowe, C. 1941. *Prehistoric art in South Africa*. Archaeological Series No. 5. Dept. of the Interior. Pretoria.

DECLARATION OF INDEPENDENCE

Paleo Field Services acts as an independent specialist consultant and does not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference.



28 / 08 / 2023

Tables & Figures

Table 1. Field rating categories as prescribed by SAHRA.

Field Rating	Grade	Significance	Mitigation
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

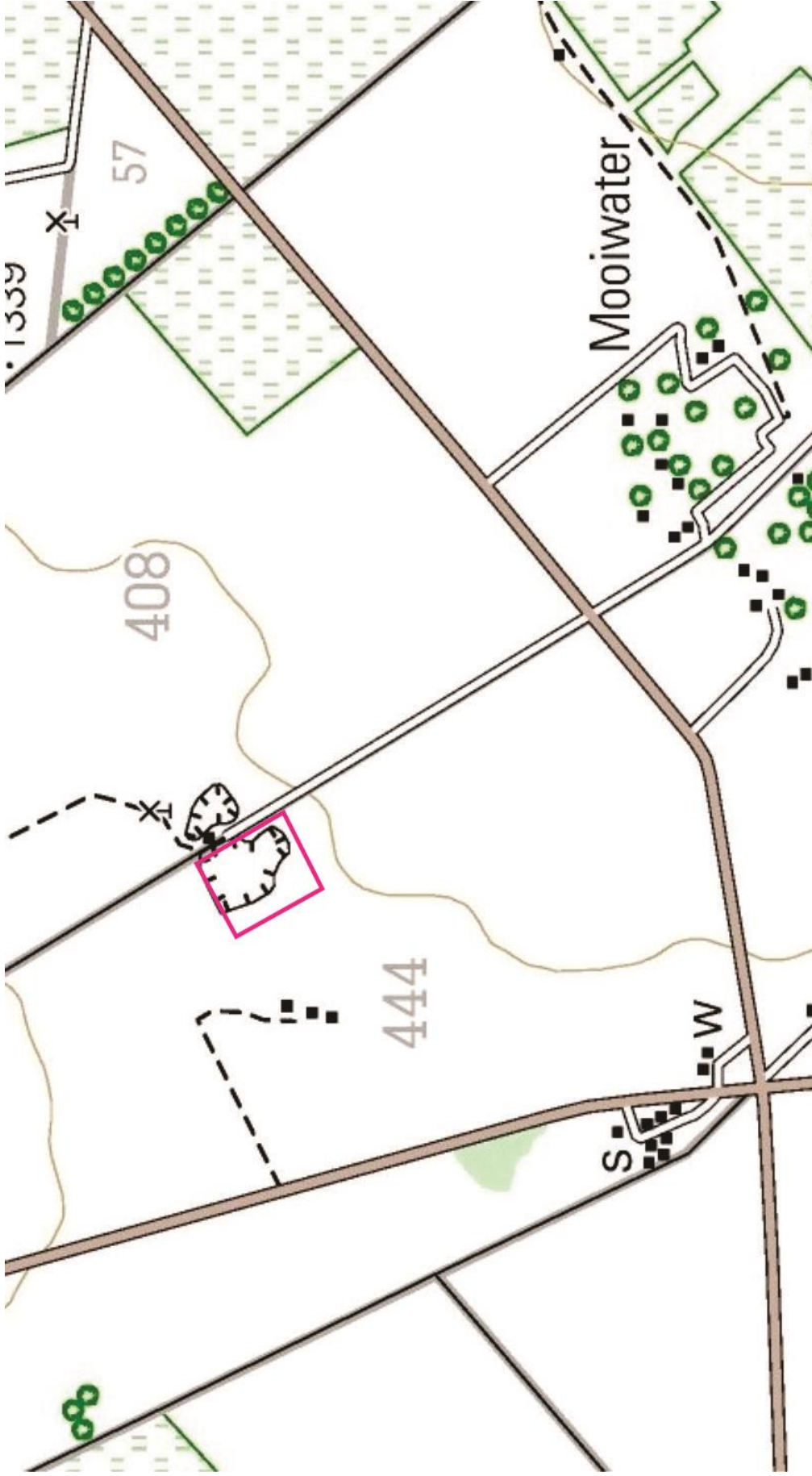


Figure 1. Position of proposed borrow pit development marked on portion of 1:50 000 topographic map 2726BB Viljoenskroon.



Figure 2. Aerial view of study area.

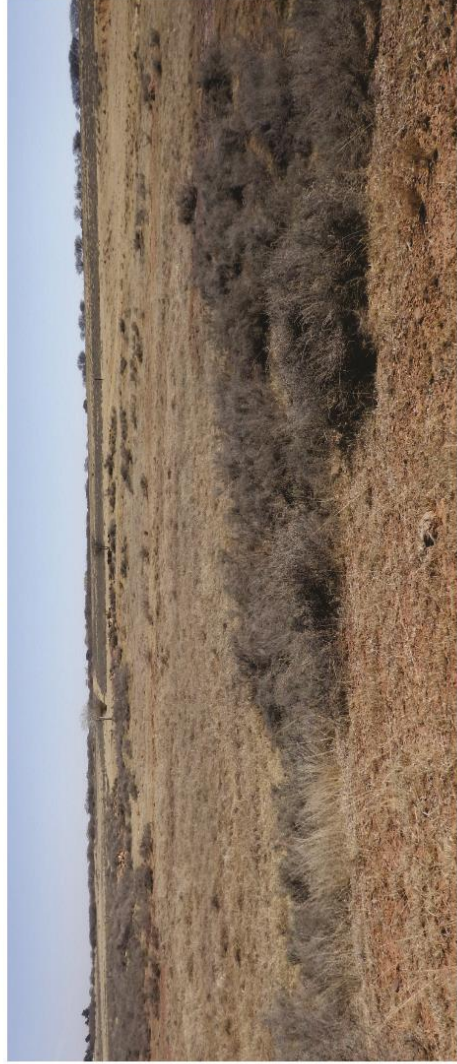


Figure 3. General view of site, looking west towards existing pit (above), and northwest towards new extension area (below).

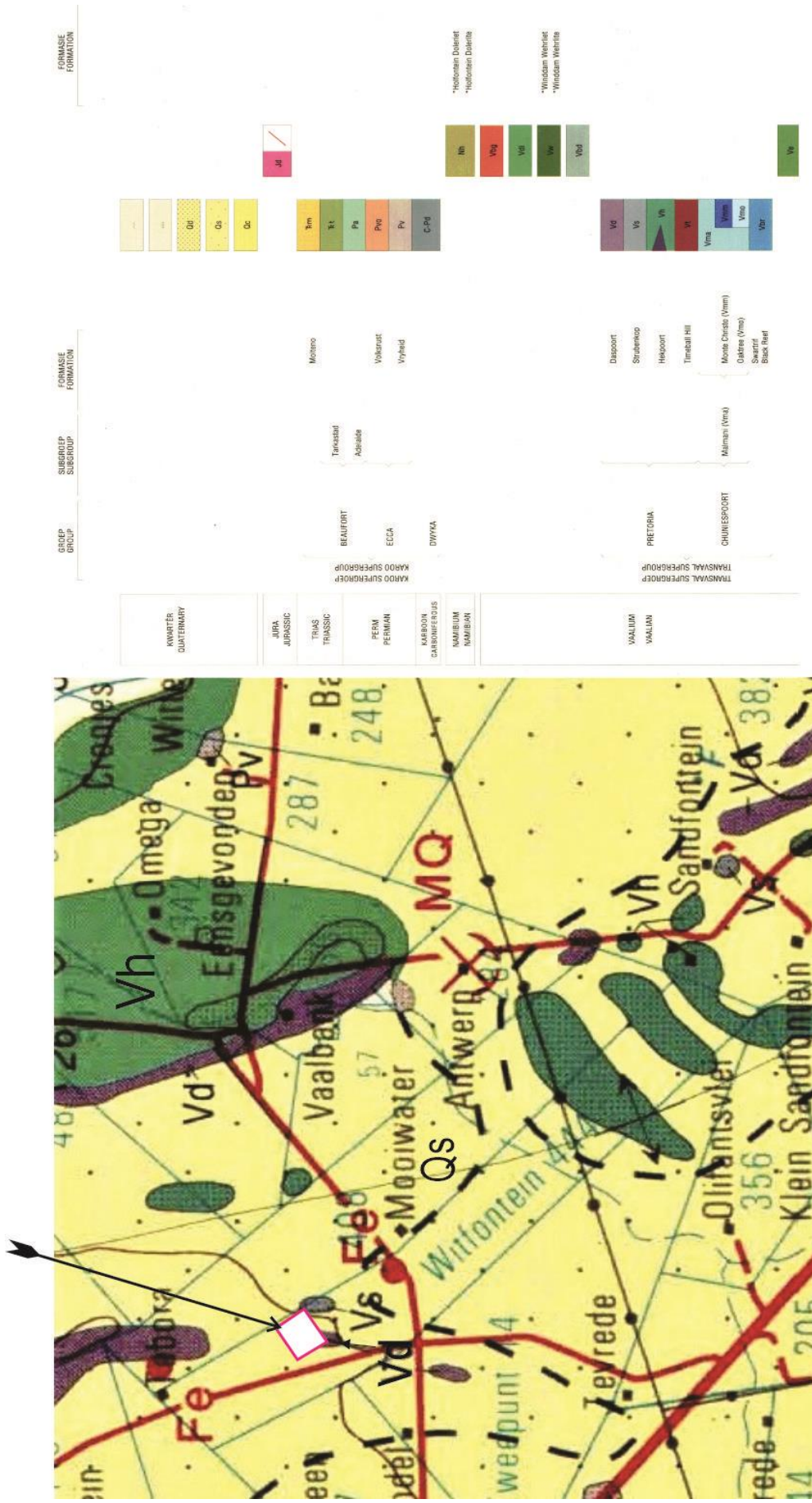


Figure 4. Position of proposed borrow pit development marked on portion of 1:250 000 geological map 2726 Kroonstad.

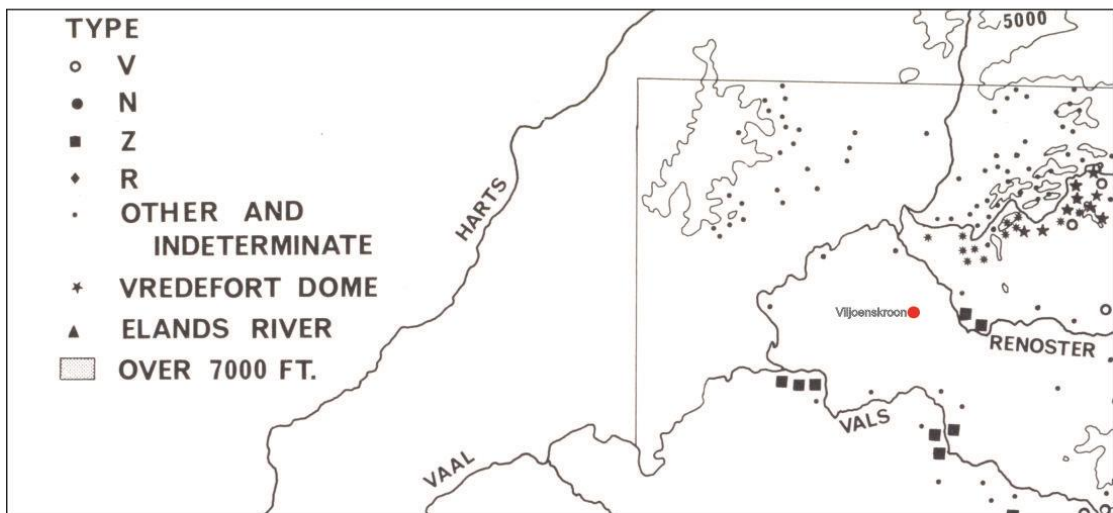
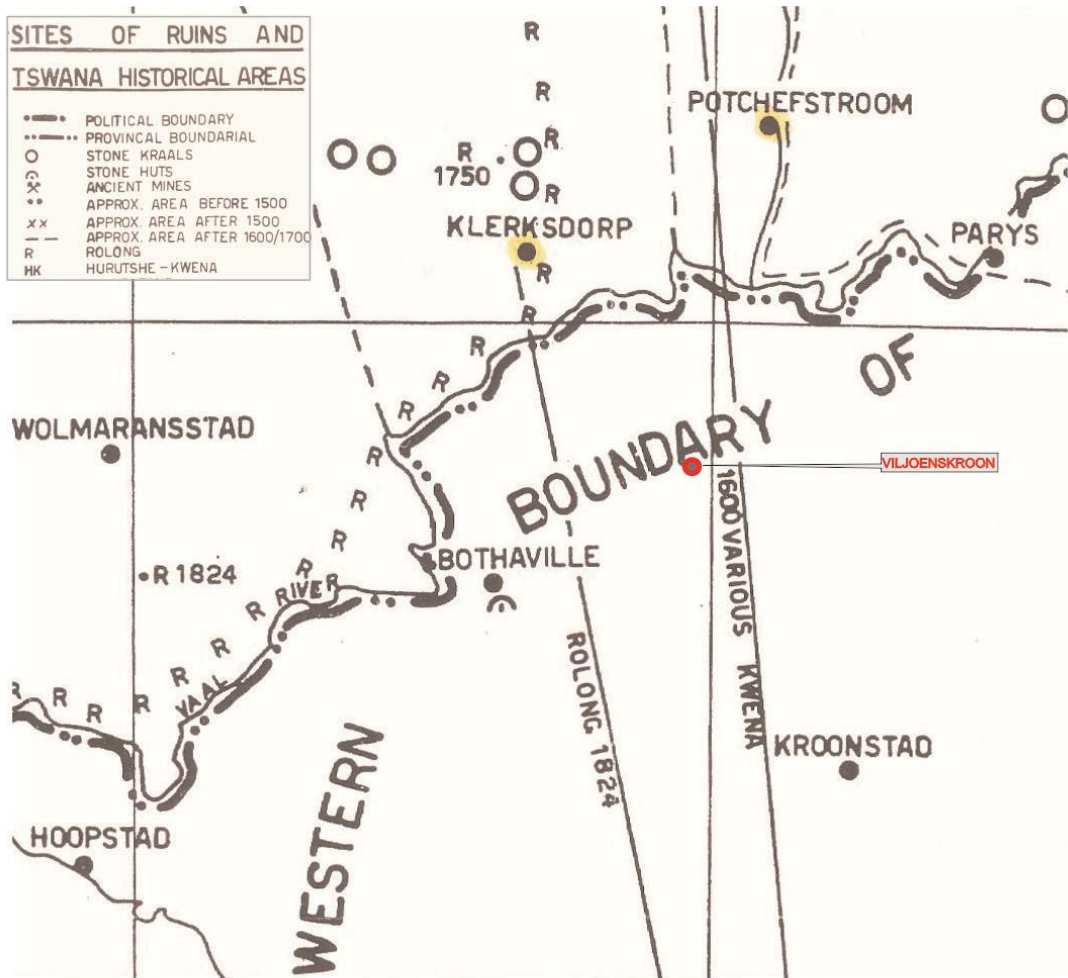


Figure 5. LIA sites in the Viljoenskroon region indicated on portion of maps provided by Breutz (1956) and Maggs (1976).

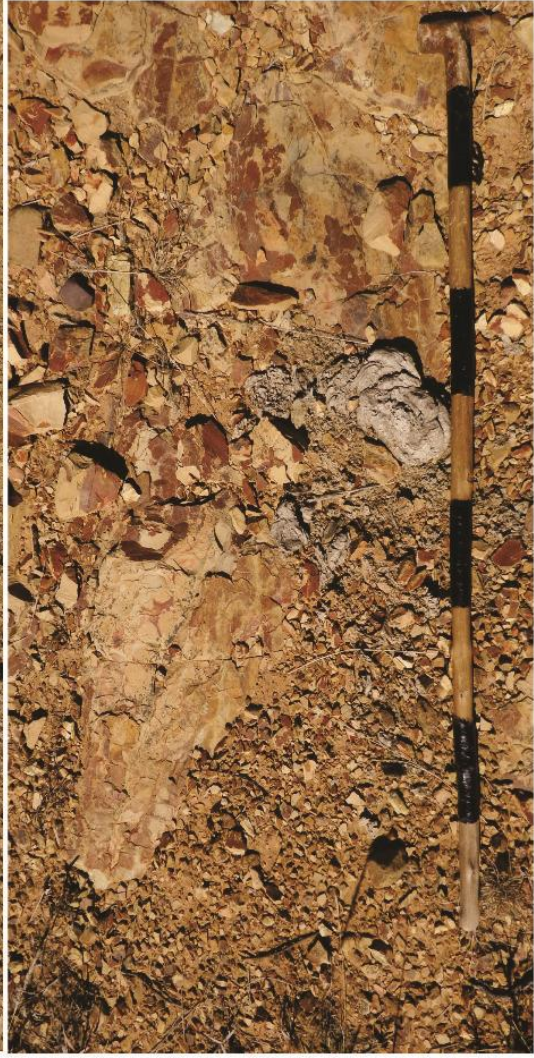


Figure 6. Planar-bedded, fine-grained and oxide-coloured quartzitic sandstone of the Daspoort Formation.

Appendix 8 – Financial Provision



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: FREE STATE DEPARTMENT OF COMMUNITY SAFETY,
ROADS AND TRANSPORT

FINANCIAL AND TECHNICAL COMPETENCE REPORT

SUBMITTED FOR A MINING PERMIT APPLICATION

AS REQUIRED IN TERMS OF ITEM B OF FORM F, ANNEXURE I OF THE REGULATIONS FOR THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 of 2002), AND IN ACCORDANCE WITH THE STANDARD DIRECTIVE FOR THE COMPILATION THEREOF AS PUBLISHED ON THE OFFICIAL WEBSITE OF THE DEPARTMENT OF MINERAL RESOURCES.

STANDARD DIRECTIVE

All applicants for mining permits are herewith, in terms of the provisions of Section 29 (a) of the Mineral and Petroleum Resources Development Act, directed to submit a report strictly in accordance with the following format, and as informed by the guideline posted on the Departments Official Website, together with an application for a mining permit.

2. ABILITY TO MANAGE AND REHABILITATE RELEVANT ENVIRONMENTAL IMPACTS

TABLE 2 Environmental cost estimate.

ACTIVITY Mark with X which activities are applicable		POTENTIAL IMPACT	MITIGATION MEASURE	STATE QUARTERLY COST OF MITIGATION MEASURES IN THE AVAILABLE SPACE BELOW, IN RANDS	STATE THE ESTIMATED REHABILITATION COST RELATED TO THE ACTIVITY IN THE AVAILABLE SPACE BELOW, IN RANDS
Excavating	X	Surface disturbance	Rehabilitation		As per the Quantum of Closure as calculated using the DMR guidelines the cost to close the Witfontein borrow pit site are anticipated to be R174 059.47 (Excl VAT) in total
		Dust	Dust control measures	Included in the closure and rehabilitation cost	
		Noise	Noise control measures	Included in the closure and rehabilitation cost	
		Contaminated Drainage	Storm water system	Included in the closure and rehabilitation cost	
Blasting		Fly Rock	Access control measures	0	
Stockpiles	X	Surface disturbance	Rehabilitation		As per the Quantum of Closure as calculated using the DMR guidelines the cost to close the Witfontein borrow pit site are anticipated to be R174 059.47(Excl VAT) in total
		Dust	Dust Control Measures	Included in the closure and rehabilitation cost	
		Contaminated Drainage	Storm water system	Included in the closure and rehabilitation cost	
Discard dumps or dams		Surface Disturbance	Rehabilitation		0
		Dust	Dust control Measures	0	
		Contaminated Drainage	Storm water system	0	
		Noise	Noise control measures	0	

Loading, hauling and transport					
		Dust	Dust control Measures	0	
Water supply dams and boreholes.		Surface disturbance	Rehabilitation		0
Accommodation, offices, ablution, stores, workshops etc.		Surface disturbance	Rehabilitation		0
Processing Plant		Noise	Noise control measures	0	
		Dust	Dust control Measures	0	
		Contaminated Drainage	Storm water system	0	
		Surface disturbance	Rehabilitation		0
TOTAL					R174 059.47 (Excl VAT) in total

3. FINANCIAL COMPETENCE

TABLE 3.1 : Financial implications of the project

CASH FLOW FORECAST									
(Complete the quarterly information and totals as specified by the "ITEM" column below)									
ITEM	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8	TOTAL
PRODUCTION The mass or volume of the product to be produced in each quarter, either in tons, m ³ , grams, carats, etc., whichever is applicable.	5000	5000	5000	5000	5000	5000	5000	5000	40000
ITEM	Quarter 1 R'000	Quarter 2 R'000	Quarter 3 R'000	Quarter 4 R'000	Quarter 5 R'000	Quarter 6 R'000	Quarter 7 R'000	Quarter 8 R'000	TOTAL R'000
PRICE The expected price that will be received for the abovementioned product	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.32
REVENUE The mass or volume of production multiplied by the price	200	200	200	200	200	200	200	200	1600
OPERATING COST Estimated quarterly operating cost (as shown in table 4.2 herein) of stores, materials, electricity, water, fuel and other (Excluding labour and environmental cost)	38	38	38	38	38	38	38	38	304
TECHNICAL COMPETENCE COST TO BE PROVIDED FOR Estimated quarterly cost shown in table 1 above, i.e. salaries, wages, labour, service providers, subcontractors, etc.	114	114	114	114	114	114	114	114	912
ENVIRONMENTAL COST Estimated quarterly cost shown in table 2 above and divide the total rehabilitation cost among the quarters. The total of the environmental cost must equal all the quarterly environmental costs and the total rehabilitation cost combined.	21.757	21.757	21.757	21.757	21.757	21.757	21.757	21.757	174.059
CAPITAL AND OTHER The cost (as shown in table 4.1 herein) of land, machinery, the plant, buildings and infrastructure and any other costs.	0	0	0	0	0	0	0	0	0
WORKING PROFIT / LOSS The revenue minus all the costs listed above	26	26	26	26	26	26	26	26	198

NOTE! If the total is a working loss, then it means that the applicant cannot provide for the technical ability or mine the mineral optimally in a period of two years.

TABLE 3.2– FINANCING THE PROJECT

CATEGORY	AMOUNT	SUPPORTING INFORMATION
State the amount required to fund the project	0	
State the amount the applicant has available to fund the project	This is a existing borrow pit owned by CSRT. All the personnel and equipment is already available within the upgrading of the road contract structures.	Attach documentary proof that the amount is available in the form of a bank statement,.
State the outstanding amount required to fund the project	The borrow pit operations will be funded the existing contract budgetary processes	

CATEGORY	DESCRIPTION	SUPPORTING INFORMATION
State how the outstanding amount will be financed, e.g. Loan, investor, etc.	As above, the applicant does not require any financial assistance to fund the project.	Attach documentary proof of any financing agreement, or other relevant evidence

NOTE ! If the applicant does not have sufficient financial resources readily available (or cannot provide) for the working losses, and for the operating, technical competence and working cost of the first quarter stated in the cash flow forecast above, it cannot be concluded that the applicant has or can provide for the necessary financial resources to carry out the mining activities and to mitigate and rehabilitate relevant environmental impacts.

4. SUPPORTING INFORMATION

TABLE 4.1- CAPITAL COST ESTIMATE: Complete the information required in the table below

COST CATEGORY	QUARTERLY RENTAL WHERE APPLICABLE	OUTRIGHT PURCHASE AMOUNT
---------------	-----------------------------------	--------------------------

	R'000	
Land	0	0
Buildings and infrastructure	0	0
Processing plant	0	0
Machinery	0	0
Other (specify)	N/A	N/A
TOTAL (to be reflected in the cash flow forecast in table 3.1 above)	0	0

TABLE 4.2- OPERATING COSTS: Complete the information below:-

COST CATEGORY		Quarterly cost R'000
Fuel		38
Electricity		0
Water		0
Stores and materials		0
Other (specify)		N/A
TOTAL QUARTERLY COST (must be reflected in the cash flow forecast in table 3.1 above)		38

TABLE 4.3– BACKGROUND TO OPERATING COSTS: Complete the information below:-

CATEGORY	REQUIREMENT	COMPLETE THIS COLUMN
MINERAL	State the mineral to be mined	The mineral to be mined consists of decomposed Dolorite which will be excavated using an excavator and then sold to customers at the Borrow Pit sites.
FUEL	State volume or tonnage of earth to be excavated per quarter	It is anticipated that approximately 5,000 m ³ of gravel will be excavated at the Borrow Pits each quarter during the 2 years of operation.
	State number of excavators to be used	One excavator will be used on site. Based on the excavated volumes it is anticipated that fuel will cost approximately R 15 000.00 per quarter to run the excavator.
	State number of loaders to be used	No loaders will be used on site.
	State number of trucks to be used	Three trucks will be used on site. Based on the excavated volumes it is anticipated that fuel will cost approximately R 23 000.00 per quarter to run the excavator
ELECTRICITY	State volume or tonnage of material to be processed in the plant	Not Applicable. No material will be processed on site and no crushing or screening plant will be erected at the Borrow Pit
	List plant or equipment that requires electricity	No plant or equipment on site will require electricity as the Borrow Pit will only be operational during daylight working hours and as such no lighting will be required at the Borrow Pit
WATER	State volume of water to be used	No water will be use except for human consumption at 5Lt/day/person.

	Where will the water be obtained?	Personnel will supply their own drinking water while on site.
OTHER	Describe other operating costs to be incurred, if applicable	No additional operating costs are anticipated.

5. IDENTIFICATION OF THE REPORT

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report and appendices comprise the details and documentary proof of the Financial and Technical ability required to be submitted with this application in terms of form F, annexure I of the MPRDA Regulations.

Full Names and Surname	Thomas Arnoldus Hugo
Identity Number	6207225033082

.....END.....

Appendix 9 – EMPr and Rehabilitation Plan

ENVIRONMENTAL MANAGEMENT AND REHABILITATION PLAN

DMR Ref. No: FS 30/5/1/1/2/02140 BP

BORROW PIT DEVELOPMENT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2 ROAD BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY



community safety, roads & transport

Department of
Community Safety, Roads & Transport
FREE STATE PROVINCE



ENVIROMATRIX

18 September 2023

PROJECT DETAILS

PROJECT TITLE:	BORROW PIT DEVELOPMENT ON FARM WITFONTEIN 444 AS PART OF THE SPECIAL MAINTENANCE ON P15/2 ROAD BETWEEN VILJOENSKROON AND THE R59 INTERSECTION TO ORKNEY
REFERENCE NO:	FS 30/5/1/1/2/02140 BP
PROJECT PROPONENT:	Department of Community Safety Roads and Transport P.O Box 119 Bloemfontein Tel: 051 409 8687 E-mail: fsroadplanning@gmail.com
ENVIRONMENTAL CONSULTANT:	ENVIROMATRIX P.O. Box 2580 Bethlehem, 9700 Phone: 082 070 0735 Fax: 086 619 2136
LEAD EAP:	Tom Hugo <i>Pri.Sci.Nat.</i> (Reg. No. 400124/96) <i>EAPASA Registered EAP</i> (2019/2013) Email: tom@emtrix.co.za
ASSESSMENT TEAM:	Tom Hugo Janus Botha
REPORT COMPILED BY:	Janus Botha
DOCUMENT STATUS:	Draft
DATE:	18 September 2023
DMR REF NUMBER:	FS 30/5/1/1/2/02140 BP

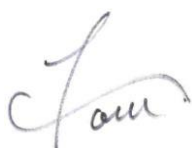


ENVIRONMENTAL ASSESSMENT PRACTITIONER DETAILS

EnviroMatrix (Pty) Ltd. (EnviroMatrix) has been appointed as the Independent Environmental Consultants by the Department of Community Safety, Roads and Transport (CSRT). EnviroMatrix has been in existence since 2013 and is operating from their office in Bethlehem, Free State.

CONTACT DETAILS:	ENVIROMATRIX
Postal address:	P.O. Box 2580 Bethlehem, 9700
Physical Address:	Plot 34 Eden Bethlehem, 9700
LEAD EAP:	Tom Hugo Phone: 082 070 0735 Fax: 086 619 2136 Email: tom@emtrix.co.za
EAP Registration/Association:	EAPASA – Reg.EAP – 2019/2013 SACNASP – <i>Pri.Sci.Nat</i> 400124/95 Environmental Science IAIAsa – Member No. 3781

Mr Hugo has more than 10 years' experience in the environmental management field in Southern Africa. Experience include: i) The identification and assessment of negative environmental impacts and benefits through the review and processing of data; ii) The identification of practical and achievable mitigation and management measures and the development of appropriate management plans; iii) The compilation of environmental reports in accordance with relevant environmental legislative requirements; iv) The formulation of environmental policies, strategies and guidelines; v) Implementation and monitoring of environmental management systems and plans according to governmental records and decisions.



TA Hugo MEM
Reg.EAP (2019/2013)
Pri.Sci.Nat (No: 400124/96)

TABLE OF CONTENTS

1	INTRODUCTION	6
2	OVERALL PURPOSE OF THE EMPPr	7
3	LEGAL REQUIREMENTS	8
3.1	General.....	8
3.2	Statutory and other applicable legislation.....	8
4	ADMINISTRATION OF ENVIRONMENTAL OBLIGATION.....	10
4.1	Department of Community Safety Roads and Transport	10
4.2	The Engineer	10
4.3	The Contractor	10
4.4	The Designated Environmental Officer.....	11
4.5	Environmental Control Officer (ECO).....	12
5	ENVIRONMENTAL AWARENESS TRAINING	12
6	ENVIRONMENTAL MANAGEMENT.....	13
6.1	Documentation	13
6.2	Fencing and Demarcation of Areas.....	13
6.3	Topsoil.....	13
6.4	Access to the Site	14
6.4.1	Establishing access roads on the site	14
6.4.2	Maintenance of access roads.....	14
6.5	Office/Camp Sites	15
6.5.1	Establishing office / camp sites.....	15
6.5.2	Toilet facilities, wastewater and refuse disposal.....	15
6.5.3	Rehabilitation of the office/camp site	16
6.6	VEHICLE MAINTENANCE YARD AND SECURED STORAGE AREAS.....	16
6.6.1	Establishing the vehicle maintenance yard and secured storage areas.	16
6.6.2	Maintenance of vehicles and equipment	16
6.6.3	Waste disposal	16
6.6.4	Rehabilitation of vehicle maintenance yard and secured storages areas.	17
6.7	OPERATING PROCEDURES IN THE BORROW PIT.....	17
6.7.1	Excavation	17
6.7.2	Processing areas and waste piles (dumps)	17

7	PROJECT SPECIFIC CONDITIONS.....	18
8	DMR FORMAT TABLES	23
9	REHABILITATION PLAN.....	27
9.1	The Importance and Objectives of Rehabilitation	27
9.2	Rehabilitation Guiding Principles.....	27
9.3	Removal of Structures and Infrastructure	28
9.4	Topsoil Management and Rehabilitation.....	28
9.5	Final Rehabilitation Requirements.....	29
9.6	Revegetation	30
10	MONITORING AND REPORTING	31
10.1	INSPECTIONS, MONITORING AND AUDITING	31
10.2	COMPLIANCE REPORTING / SUBMISSION OF INFORMATION	33
11	COMPLIANCE AND REPORTING	33

LIST OF FIGURES

Figure 1: Project Locality.....	6
---------------------------------	---

LIST OF TABLES

Table 1: Property Description	6
Table 2: EMP Requirements.....	7
Table 3: Project Specific Conditions.....	19
Table 4: DMR Format Tables.....	23
Table 5: Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon.	32

APPENDICES

Appendix A – Locality and Layout Maps

1 INTRODUCTION

The Free State Department of Community Safety, Roads and Transport has undertaken to rehabilitate the provincial roads throughout its area of their jurisdiction. This project started in 2013. The objective is to ameliorate the condition of the roads while creating job opportunities for the people of communities and empowering local contractors. The road between Viljoenskroon and the R59 intersection to Orkney (15/2) was identified by CSRT as a key route that requires special maintenance, as the road is in a dire condition, and a safety risk for all road users. The road maintenance activities planned are base patching, surface patching, edge break repairs, creak seal, cape seal surfacing followed by fog spray.

The Viljoenskroon – R59 intersection to Orkney Road special maintenance project and the borrow pit development on farm Witfontein 444 is located between the towns of Viljoenskroon and Orkney in the Moqhaka Local Municipality, in the Free State Province.



Figure 1: Project Locality

The proposed borrow pit for development for the special maintenance of the P15/2 road is the following:

Table 1: Property Description

Farm name	Farm Portion	Farm Number	Coordinates of Borrow Pit	
Witfontein	0	444	27° 3'18.83"S	26°53'7.71"E

2 OVERALL PURPOSE OF THE EMPr

In accordance with National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) section 24N an Environmental Management Programme (EMPr) must be included in the in the Environmental Authorisation application and is part of the Authorisation issued and is therefore binding to the project. The objective of this Environmental Management and Rehabilitation Plan that forms part of the EMPr is to provide the Department of Community Safety Roads and Transport with practical guidance for environmentally and socially acceptable construction and operations of the borrow pit.

Guidelines and actions are listed for implementation to achieve these environmental and socially acceptable goals. The EMPr and this Environmental Management and Rehabilitation Plan contains relevant mitigation measures that are designed to minimise or prevent harmful impacts during the construction, operation, and eventual closure of the proposed borrow pit developments.

The Complete EMPr document should be seen as a dynamic plan that should be adapted and changed when necessary. If the planned results are not achieved due to misapplication of measures applied or the inadequacy of applied measures, the situation should be assessed and analysed with the objective of amending the mitigation measures to achieve the desired results.

The EMPr identifies the following:

- Obligations and responsibilities
- Construction activities that will impact on the environment.
- Mitigation and Management specifications with which the contractor shall comply to protect the environment from the identified impacts.
- Training and environmental awareness
- Actions that shall be taken in the event of non-compliance.
- The EMP also adheres to the requirements of Appendix 4 of the Environmental Impact Assessment Regulations (2014) as indicated in the following table.

Table 2: EMP Requirements

Appendix 4	Description	EMP
1 (a)	Details of EAP	Pages iii
1 (b)	Detailed description of the aspects of the activity	Chapter 1
1 (c)	Map of proposed activity with environmental sensitivities	Appendix A
1 (d)	Description of the impact management outcomes that need to be avoided, managed and mitigated	Chapter 7 and 8
1 (f)	Description of proposed impact management actions and how they will be achieved	Chapter 7 and 8
1 (g)	Method of monitoring the implementation of the management actions	Chapters 5, 8 and 11
1 (h)	Frequency of monitoring the implementation of the management actions	Chapters 5, 8 and 11
1 (i)	Indication of persons who will be responsible for the implementation of management actions	Chapters 5, 8 and 11
1 (j)	Time periods within which the management actions must be implemented	Chapter 1
1(k)	Mechanism for monitoring compliance	Chapter 11
1 (l)	Program for reporting compliance	Chapter 5, 8 and 11
1 (m)	Environmental awareness plan	Chapter 6
1(n)	Requirements by Competent Authority	

3 LEGAL REQUIREMENTS

3.1 General

Construction shall be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the contractor as to his duties in the fulfilment of the project objectives, with reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMP are legally binding in terms of this contract. If any rights and obligations contained in this EMP contradict those specified in the standard or project specifications, then the latter shall prevail.

3.2 Statutory and other applicable legislation

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

Major environmental legislation, as amended from time to time, includes but is not limited to the following:

(i) The Constitution (1996)

The Constitution states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected through reasonable legislative and other measures to prevent pollution and ecological degradation; promote conservation and ensure ecologically sustainable development and use of natural resources.

(ii) Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)

This act provides for control over the utilisation of the natural agricultural resources of South Africa to promote the conservation of soil, water sources and vegetation, as well as combating weeds and invader plants.

(iii) Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)

This act makes provision for equitable access to, and sustainable development of, minerals and petroleum resources.

(iv) National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)

This act supports the Bill of Rights within the Constitution and highlights principles of sustainable development including preservation of ecosystems and biological diversity and avoidance, minimisation and remediation of pollution and environmental degradation. It also sets the stage for the EIA Regulations.

(v) National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)

This act provides reasonable measures for the prevention of pollution and ecological degradation; and provides for specific air quality measures; for national norms and standards regulating air quality monitoring, management, and control by all spheres of government.

(vi) National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

This act makes provisions to accomplish the objectives of the United Nations' Convention on Biological Diversity. CSRT may be required to apply for permits to conduct certain listed activities which, together with the listed threatened or protected species, may be identified by the Minister.

Section 73 (3) of this act empowers a competent authority to direct a person to take steps to remedy any harm to biodiversity resulting from the actions of that person or because of occurrence of listed invasive species occurring on land on which that person is the owner. Thus, CSRT may be directed to remedy harm caused by listed invasive species.

(vii) National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

This act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, natural landscapes, and seascapes.

(viii) National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

This act aims to regulate waste management practices through provision of national norms and standards, specific waste measures, licensing and control of waste activities, remediation of contaminated land as well as providing for compliance and law enforcement.

(ix) National Forests Act, 1998 (Act No. 84 of 1998)

This act makes provision for promoting the sustainable management and development of forests, and for the protection of certain forests and trees for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

(x) National Heritage Resources Act, 1999 (Act No. 25 of 1999)

This act provides for an integrated and interactive system for identification, assessment, and management of South Africa's heritage resources, and empowers civil society to nurture and conserve their heritage resources.

(xi) National Water Act, 1998 (Act No. 36 of 1998)

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management of emergency situations.

(xii) Other relevant legislation (where applicable and not limited to)

- Occupational Health and Safety Act, 2003 (Act No. 85 of 2003)
- Free State Nature Conservation Act, 2009, (Act No. 9 of 2009)
- Hazardous Substances Act, 1973, (Act No. 15 of 1973)
- Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
- Explosives Act, 2003 (Act No. 15 of 2003)
- Road Traffic Act, 1996, (Act No. 93 of 1996)

4 ADMINISTRATION OF ENVIRONMENTAL OBLIGATION

Copies of this EMPr shall be kept at the site office and must be distributed to all senior contract personnel who shall familiarise themselves with its contents.

Implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role as outlined herein, to ensure sound environmental management during the construction phase of a project.

4.1 Department of Community Safety Roads and Transport

CSRT and anyone acting on CSRT's behalf is accountable for the potential environmental impacts of any activities that are undertaken and is responsible for managing these impacts. CSRT shall also ensure that this EMPr forms an integral part of any contract documents entered with all consulting engineers and all contractors.

4.2 The Engineer

The engineer acts as CSRT's on-site implementing agent and carries the responsibility to ensure that the contractor undertakes its construction activities in such a way that CSRT's environmental responsibilities are not compromised. It is the Engineer's responsibility to ensure that the project is executed in compliance with this EMPr, relevant legislation and any authorisation documents from a competent authority. This includes the responsibility to ensure that all the necessary environmental authorisations and permits have been obtained before the commencement of any activity.

The engineer will request for approval of a nominated Designated Environmental Officer (DEO), approve, reject, or call for more information on the nomination. The engineer will be responsible for issuing instructions to the DEO where environmental considerations call for action to be taken.

If in the opinion of the engineer the DEO is not fulfilling his/her duties in terms of this EMP, the engineer may, after discussion and agreement with CSRT, exercise his powers under FIDIC general condition of contract and instruct replacement of the DEO in writing and with stated reasons.

The Engineer shall assist the Contractor and DEO in finding environmentally responsible solutions to problems with input from the ECO where necessary. The Engineer shall also assist the ECO in the compliance audit and monitoring of the project activities.

4.3 The Contractor

The contractor is responsible for project delivery in accordance with the prescribed specifications, among which this EMPr shall be included. The contractor should ensure that professional staff is provided to give effect to the environmental management commitments contained in this EMPr and any authorisation documents from a competent authority.

The contractor shall receive and implement any instruction issued by the engineer relating to compliance with the EMPr including the removal of personnel or equipment.

Compliance with the provisions contained herein or any condition imposed by the environmental approvals shall become the responsibility of the contractor through an approved Designated

Environmental Officer (DEO). The contractor shall nominate a person from among his site personnel to fulfil this function and submit to the engineer for his approval the *curriculum vitae* of the proposed DEO. This request for approval shall be given, in writing, at least fourteen days before the commencement of any construction activity clearly setting out reasons for the nomination, and with sufficient detail to enable the engineer to decide.

The contractor shall undertake “good housekeeping” practices during construction.

4.4 The Designated Environmental Officer

Once a nominated representative of the contractor has been approved, he/she shall become the DEO and shall be the responsible person for ensuring that the provisions of this EMPr are complied with during the life of the contract. The DEO shall submit regular written reports to the engineer, but not less frequently than once a month. Before the contractor begins each construction activity the DEO shall give to the engineer a written statement setting out the following:

1. The type of construction activity.
2. Locality where the activity will take place.
3. Identification of the environmental aspects and impacts that might result from the activity.
4. Methodology for impact prevention for each activity or aspect.
5. Methodology for impact containment for each activity or aspect.
6. Emergency/disaster incident and reaction procedures.
7. Treatment and continued maintenance of impacted environment.

The contractor/DEO may provide such information in advance of any or all construction activities provided that new submissions shall be given to the engineer whenever there is a change or variation to the original.

The DEO may undertake other construction duties. However, the DEO’s environmental duties shall hold primacy over other contractual duties and the engineer has the authority to instruct the contractor to reduce the DEO’s other duties or to replace the DEO if, in the engineer’s opinion, he/she is not fulfilling his/her duties in terms of the requirements of this EMP. Such instruction will be in writing clearly setting out the reasons why a replacement is required.

In addition to the compliance duties relating to EMPr the DEO shall also provide full cooperation whenever the contractor is subjected to regular environmental audits. The duties of the DEO will include (not limited to):

1. Daily site inspections and reporting
2. Supervision of work where environmental management is a key aspect (e.g., in sensitive areas, areas or activities with high environmental risk etc.)
3. The education of all personnel, tenants, contractors, and visitors with regards to the environmental requirements for the project.
4. Monitor and conduct internal EMPr compliance inspections on a regular basis and report to the Engineer and Contractor
5. Keeping of incidents and accidents records, photographic records, register of compliance and non-compliance and register of community comments, complaints, or issues.

4.5 Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is an independent environmental specialist appointed by the Engineer to monitor the contractor's compliance objectively and regularly with the conditions of the authorisations issued for the project and the approved EMPr (that is this EMP augmented with specifics of the project). These are external audits, and the regularity is determined by the environmental authorisations.

5 ENVIRONMENTAL AWARENESS TRAINING

The following Environmental Awareness Plan will be implemented by CSRT in order to inform the Contractor and their employees of the environmental risk that may result from their work. The plan must be conducted as part of the induction process for all personell that will perform work in terms of the proposed activities - typically conducted by the ECO. Proof of all training provided must be kept by CSRT and ECO.

- The Environmental Awareness Plan is referred to as the "SHE match" training programme. The training programme focuses on the following aspects:
- Explaining clearly what the environment is and what the environment consist of namely: air, water, soil, fauna, flora and people.
- Once participants have grasped the description of what the environment entails, the training focuses on the potential impacts that the construction and operational activities may have on each one of these environmental components. This is done by making use of the aspect register, where each one of the environmental aspects and associated impacts has been identified.
- To ensure that the training is effective, visual aids are used. Photos are taken of actual and potential impacts occurring on site and in some cases role-play is used to illustrate a potential impact.
- The participants are then exposed to a presentation that reflects the various environmental components.
 1. Explanation of the importance of complying with the EMP;
 2. Discussion of the potential environmental impacts of construction activities;
 3. Explanation of the management structure of individuals responsible for matters pertaining to the EMP;
 4. Explanation of the manner in which environmental risks and impacts must be dealt with in order to avoid pollution and the degradation of the environment;
 5. Employees' roles and responsibilities, including emergency preparedness;
 6. Explanation of the mitigation measures that must be implemented when carrying out their activities;
 7. Explanation of the specifics of the EMP; and
 8. Explanation of the Environmental DO's and DON'T's
- By doing this the participants can understand the action as well as the potential consequence (environmental impact) of their action.
- This general awareness training must be done before construction commences and also when new employees start work. The training should be done every two years during the Operational Phase. The presentation is posted in the communal area where the impacts are visualised and the photos rotated on a regular basis, for example, once a month.

Proof of all environmental training provided with attendance registers must be kept by CSRT and ECO. All employees (compulsory) shall have been given an induction presentation on environmental awareness before any activity commences.

6 ENVIRONMENTAL MANAGEMENT

6.1 Documentation

The following documentation must be always available at the office of CSRT:

- A copy of the Environmental Impact Assessment Report.
- A copy of the Environmental Authorisation and/or Mining Right/Permit.
- A copy of this Environmental Management Programme (EMPr) as well as this Environmental Management and Rehabilitation Plan.
- A copy of the layout plan indicating the mining area, structures, borrow pit site area with stockpile areas and any other demarcated areas such as the environmental and historical buffer zones or no-go areas.
- Photographic record to show before, during and post evidence of the project.
- A copy of all environmental performance reports, site inspections, investigation reports, incident registers, directives, complaints etc.

6.2 Fencing and Demarcation of Areas

- The greater borrow pit site – including stockpile areas – must be fenced off to ensure access control to the site and to clearly demarcate the operational area restrictions.
- The mining area must be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
- Permanent beacons as indicated on the layout plan or as prescribed must be firmly erected and maintained in their correct position throughout the life of the operation.
- Mining/excavation and resultant operations shall only take place within this demarcated area.
- The Environmental Control Officer may prohibit the conducting of mining operations in vegetated areas or other biological or historical sensitive areas. These areas must be clearly demarcated with beacons or fenced off.
- In the case of areas that are excluded from mining, no operations shall be conducted within 5 m of these areas. These areas must be clearly demarcated with beacons or fenced off.

6.3 Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The Department will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is the natural soil covering, including all the vegetation and organic matter.

- Topsoil shall be removed from all areas where physical disturbance of the surface will occur i.e., access roads, excavation area etc.
- The topsoil removed, shall be stored in a bund wall on the high ground side of the borrow pit outside the 1:50 flood level of any stream within or near the fenced boundaries of the area of operations.

- The height of the deposited topsoil should not exceed 1m and the slope angle should not exceed 15° to ensure slope stability. Turves will be placed on top of the topsoil wherever possible to prevent dehydration.
- Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of access roads.
- The topsoil stored in the bund wall shall be adequately protected from being blown away or being eroded by wind or rainwater.

6.4 Access to the Site

6.4.1 Establishing access roads on the site

- The access road to the borrow pit area of operations and the campsite/site office must be established in consultation with the landowner / tenant and existing roads shall be used as far as practicable.
- Should a portion of the access road be newly constructed the following must be adhered to:
 - The route shall be selected that a minimum number of bushes or trees are felled, and existing fence lines shall be followed as far as possible.
 - Water courses and steep gradients shall be avoided as far as is practicable.
 - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.
- The erection of gates in fence lines shall be clarified in consultation with the landowner / tenant and maintained throughout the operational period.
- Closed status of gates in new and existing positions shall be always maintained.
- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.
- **The design, construction, and location of access to provincial roads must be in accordance with the requirements laid down by the controlling authority.**

6.4.2 Maintenance of access roads

- In the case of dual or multiple uses of access roads by other users, arrangements for multiple responsibilities must be made with the other users. If not, the maintenance of access roads will be the responsibility of owner / lawful occupier of the borrow pit.
- Newly constructed access roads shall be adequately maintained to minimise dust, erosion, or undue surface damage.

6.4.2.1 Dust control on the access and haul roads

- The liberation of dust into the surrounding environment shall be effectively controlled using, inter alia, water spraying and/or other dust-allaying agents.
- The speed of haul trucks and other vehicles must be strictly controlled (i.e., maximum of 40 km/hr) to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

6.4.2.2 Rehabilitation of access roads

- Whenever borrow pit operations is suspended, cancelled, or abandoned, any access road or portions thereof, constructed by the owner / lawful occupier of the borrow pit and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the ECO and landowner.
- 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 borrow pit operations.
- Roads shall be ripped or ploughed, and if necessary, suitably fertilised (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 ECO may require that the soil be analysed and any deleterious effects on the soil arising from the borrow pit operation, be corrected and the area be seeded with a seed mix (indigenous plants) to the ECO's specification.

6.5 Office/Camp Sites

6.5.1 Establishing office / camp sites

- Office and camp sites shall be established, as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark of any stream within or near the boundaries of the borrow pit.
- The area chosen for these purposes shall be the minimum reasonably required and which will involve the least disturbance to vegetation. Topsoil shall be handled as described above.
- No camp or office site shall be located closer than 100 metres from a stream, river, spring, dam or pan.
- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood, unless agreed to by the ECO and landowner/tenant.
- Fires will only be allowed in facilities or equipment specially constructed for this purpose. If required by applicable legislation, a firebreak shall be cleared around the perimeter of the camp and office sites.
- Lighting and noise disturbance or any other form of disturbance that may influence the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum.

6.5.2 Toilet facilities, wastewater, and refuse disposal.

- As a minimum requirement, the owner / lawful occupier of the borrow pit shall, at least, provide chemical portable toilets for employees and proper hygiene measures shall be established. Other approved toilet facilities such as a septic drain shall preferably be used and sited on the camp site in such a way that they do not cause water or other pollution.
- The use of existing facilities must take place in consultation with the landowner/tenant.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance should be adhered to.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 200 metres, from any stream, river, pan, dam, or borehole.
- Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills should be cleaned up immediately to the satisfaction of the ECO by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the camp site.
- Biodegradable refuse generated from the office/camp site, processing areas vehicle yard, storage area or any other area shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility.

6.5.3 Rehabilitation of the office/camp site

- On completion of operations, all buildings, structures, or objects on the camp/office site must be removed except if formal agreed upon in writing by the owner / lawful occupier of the borrow pit and the owner / occupier of the land.
- Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora. If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the borrow pit operations be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- Photographs of the camp and office sites, before and during the borrow pit operations and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

6.6 VEHICLE MAINTENANCE YARD AND SECURED STORAGE AREAS

6.6.1 Establishing the vehicle maintenance yard and secured storage areas.

- The vehicle maintenance yard and secured storage area will be established as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark of any stream within or near the borrow pit site. The yard must be within the boundaries of the borrow pit site (i.e., within the fenced in area)
- The area chosen for these purposes shall be the minimum reasonably required and involve the least disturbance to tree and plant life.
- The storage area shall be securely fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored therein. Drip pans, a thin concrete slab or a facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution.
- The location of both the vehicle maintenance yard and the storage areas are to be indicated on the layout plan.
- No vehicle may be extensively repaired in any place other than in the maintenance yard.

6.6.2 Maintenance of vehicles and equipment

- The maintenance of vehicles and equipment used for any purpose during the borrow pit operation will take place only in the maintenance yard area.
- Equipment used in the borrow pit must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the borrow pit must not constitute a pollution hazard in respect of the above substances. The ECO shall order such equipment to be repaired or withdrawn from use if he or she considers the equipment or machinery to be polluting and irreparable.

6.6.3 Waste disposal

- Suitable covered receptacles shall be always available and conveniently placed for the disposal of waste.
- All used oils, grease or hydraulic fluids shall be placed therein, and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.
- All spills should be cleaned up immediately to the satisfaction of the ECO by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.

6.6.4 Rehabilitation of vehicle maintenance yard and secured storages areas.

- On completion of borrow pit operations, the vehicle maintenance yard and secured storages areas shall be cleared of any contaminated soil. And disposed of at a recognised facility.
- All buildings, structures or objects on the vehicle maintenance yard and secured storage areas must be removed except if formal agreed upon in writing by the owner / lawful occupier of the borrow pit and the owner / occupier of the land.
- The surface shall then 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. The area shall then be fertilised if necessary (based on a soil analysis).
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora. If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.

6.7 OPERATING PROCEDURES IN THE BORROW PIT

6.7.1 Excavation

6.7.1.1 Establishing the excavation areas

Whenever any excavation is undertaken for the purpose of locating and/or extracting ore bodies of all types of minerals the following operating procedures shall be adhered to:

- Topsoil shall, in all cases, be handled as described above.
- Excavations shall take place only within the approved demarcated borrow pit site.
- Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the gravel has been excavated.
- Trenches shall be backfilled immediately if no ore or precious stone-bearing gravel can be located.

6.7.1.2 Rehabilitation of excavation areas

The following operating procedures shall be adhered to:

- Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with any additional filling material.
- Any waste will not be permitted to be deposited in the excavations.
- Once excavations have been refilled with overburden, rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area.
- The area shall be fertilised if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the mining/ prospecting operation, be corrected and the area be seeded with a vegetation seed mix to his or her specification.

6.7.2 Processing areas and waste piles (dumps)

6.7.2.1 Establishing processing areas and waste piles

- Processing areas and waste piles shall not be established within 100 metres of the edge of any river channel or other water bodies.
- Processing areas should be established, as far as practicable, near the edge of excavations to allow the waste, gravel and coarse material to be processed therein.

- The areas chosen for this purpose shall be the minimum reasonably required and involve the least disturbance to vegetation.
- Prior to development of these areas, the topsoil shall be removed and stored as described above.
- The location and dimensions of the areas are to be indicated on the layout plan and once established, the processing of gravel shall be confined to these areas and no stockpiling or processing will be permitted on areas not correctly prepared.

6.7.2.2 Rehabilitation of processing areas

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- On completion of the borrow pit operations, the surface of the processing areas especially if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 300mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- Prior to replacing the topsoil, the material that was removed from the processing area will be replaced in the same order as it originally occurred.
- The area shall then be fertilised if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.

7 PROJECT SPECIFIC CONDITIONS

This EMP should also be read in conjunction with the Environmental Method Statement and the Environmental Rehabilitation Plan (Chapter 8).

Potential environmental impacts that may arise due to project activities have been identified in the table below together with the management/mitigation measures, monitoring/compliance reporting requirements and responsible party.

The bulk of the impacts during the construction and operational phase will have direct and immediate effect (i.e., dust-, noise- and water pollution) with some indirect impacts identified. The site and project specific impacts and mitigation measures are included in this section of the EMPr (Table 3) and are just as relevant to the project as any of the other specifications, if not more.

The tables as specified in the Department of Mineral Resources (DMR) EMPr format is include in Tables 4 and 5 in Chapter 8 of this report.

The map indicating the environmental sensitivity areas within a 500m buffer zone is indicated in Appendix A of this EMPr.

Table 3: Project Specific Conditions

IMPACT	MITIGATION / MANAGEMENT ACTIONS	IMPLEMENTATION	MONITORING
Boundaries	<ul style="list-style-type: none"> • Borrow pit areas and access roads to be clearly demarcated and fenced. • All construction vehicles should adhere to clearly defined and demarcated roads. • No workers are allowed to encroach on private property outside of the demarcated areas. • All gates to private property should be kept always closed 	Contractor	DEO / ECO to monitor through visual site visits (weekly/monthly) the integrity of the fenced area.
Identification of Construction Workers	<ul style="list-style-type: none"> • Contractor to ensure that all personnel / workers on the borrow pit sites are easily identifiable as legitimate workers on site. This can be done through clearly marked overalls or any such similar measure. • No workers are allowed to encroach on private property outside of the demarcated borrow pit areas 	Contractor	DEO / ECO to monitor through visual site visits
Impact of changes to water quality from sewage, sediments or hydrocarbons (i.e. diesel, oils, fuels etc.)	<ul style="list-style-type: none"> • All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent entry of hydrocarbons into topsoil and groundwater. • All spills, should they occur, should be immediately cleaned up and treated accordingly. • Chemicals used for vehicle maintenance and construction must be stored safely on site but outside the 32m buffer and surrounded by bunds. Chemical storage containers must be regularly inspected so that any leaks are detected early. • Littering and contamination of water sources during construction must be prevented by effective site management. • Emergency plans must be in place in case of spillages especially in the watercourse. • No stockpiling should take place within a watercourse. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. • Stockpiles must be located away from river channels. • Erosion and sedimentation into channels must be minimised through the effective stabilisation (gabions and Reno mattresses) and the re-vegetation of any disturbed riverbanks. • The construction camp and necessary ablution facilities meant for construction workers must be beyond the 32m buffer described previously. 	Contractor	<p>DEO / ECO to monitor through visual site visits the implementation of the requirements by the Contractor.</p> <p>Monitoring on a daily to weekly basis during construction</p> <p>Monitoring surveys of the site and footprint: Monthly for the defects notification period.</p>

IMPACT	MITIGATION / MANAGEMENT ACTIONS	IMPLEMENTATION	MONITORING
<p>Spread of alien invasive species. From the disturbance of the soil, that could possibly result in the colonisation of the degraded habitats by alien species.</p>	<ul style="list-style-type: none"> • There should be a preconstruction walk-through of the borrow pit area in order to locate individuals of protected species which should be removed and relocated. Plant species of conservation concern (e.g., provincially protected species <i>Helichrysum sp.</i>) must also be located and translocated to a suitable and similar habitat where these plants can grow without any disturbance. • Permits must be obtained from DESTEA to remove the protected species individuals. • Alien invasive species must be controlled throughout the entire site during the construction process. • Any no-go areas (such as wetlands) should be demarcated, and workers should be informed that no activities are to occur in these areas. • Clearing of alien species must be organized, planned, and approved. • All manually cleared alien plants must be disposed of carefully and must not be dumped in any areas of indigenous vegetation, even temporarily. • Proliferation of alien and invasive species is expected within any disturbed areas particularly as there are some alien and invasive species within the study area at present. These species should be eradicated and controlled to prevent further spread beyond the study area. • It is suggested that an alien plant removal program be initialised within the study area to help reinstate more natural hydrological and ecological functions to within the project site. • Alien plant seed dispersal within the top layers of the soil within footprint areas, that will have an impact on future rehabilitation, must be controlled. • Cleared areas that will not be surfaced for an extended period (over 2 weeks) should be stabilized with packed brush (from indigenous plants cleared from the site), or with jute pegged over the area. • Care should be taken with the choice and use of herbicide to ensure that no additional impact and loss of indigenous plant species occurs due to the herbicide used. • Footprint areas should be kept as small as possible when removing alien plant species. • No vehicles should be allowed to drive through designated sensitive drainage lines and riparian areas during the eradication of alien and weed species. 	<p>Contractor</p>	<p>DEO / ECO to monitor through visual site visits the implementation of the requirements by the Contractor.</p> <p>Monitoring on a daily to weekly basis during construction</p> <p>Monitoring surveys of the site and footprint: Monthly for the defects notification period.</p>

IMPACT	MITIGATION / MANAGEMENT ACTIONS	IMPLEMENTATION	MONITORING
	<ul style="list-style-type: none"> • Any soil stockpiles that have become invaded should be cleared through manual control methods (weeding). • Areas that will be vegetated though rehabilitation must be done so through the rehabilitation plan. No organic matter from outside the site should be used to encourage re-growth of vegetation. • Surveys of the site for alien invasive species must be conducted throughout the life of the project. These include new invasions by recorded species as well as new invader species on site. • To prevent increased invasion in areas cleared for construction but not needed for operation, rehabilitation of the natural vegetation should be done. This should follow the prescribed Rehabilitation Plan. • Areas where vegetation is required to be kept low, should be managed using weed eaters above the soil line to maintain the indigenous vegetation and reduce invasion potential. 		
Loss of vegetation, from construction and vehicle movement	<ul style="list-style-type: none"> • All construction vehicles should adhere to a low-speed limit (<30km/h) to avoid collisions with susceptible species such as snakes and tortoises and ground squirrels. • All construction footprint areas should remain as small as possible and should as far as possible not encroach into surrounding areas. It must be ensured that where possible the riparian and drainage line systems, and their associated buffer zones are off-limits to construction vehicles and personnel. • The boundaries of footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • Ensure that as far as possible all infrastructure is placed outside of drainage lines and riparian areas and their respective buffer zones. Where this is not possible, construction footprints must be kept as small as possible, and impacts must be minimized as far as possible. • If trenches/pits need to be dug, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench. 	Contractor	<p>DEO / ECO to monitor through visual site visits the implementation of the requirements by the Contractor.</p> <p>Monitoring on a daily to weekly basis during construction</p> <p>Monitoring surveys of the site and footprint: Monthly for the defects notification period.</p>
Impact on historical resources	<ul style="list-style-type: none"> • Any excavations that unearth any grave or aspects of historical significance (including fossils) will require the operation to immediately cease. 	Contractor	DEO / ECO to monitor through visual site visits

IMPACT	MITIGATION / MANAGEMENT ACTIONS	IMPLEMENTATION	MONITORING
	<ul style="list-style-type: none"> In the case of fossils, it will require monitoring by a professional palaeontologist to map and remove fossil remains that may be impacted during the operational phase of the project. The palaeontologist must apply for a valid permit from SAHRA for the collection / removal of fossils. 		<p>the implementation of the requirements by the Contractor.</p> <p>Monitoring on a daily to weekly basis during construction</p>

PROTOCOL FOR THE IDENTIFICATION, PROTECTION AND RECOVERY OF HERITAGE RESOURCES DURING CONSTRUCTION AND OPERATION

It is possible that sub-surface heritage resources could be encountered during the construction phase of this project. The environmental control officer and all other persons responsible for site management and excavation should be aware that indicators of sub-surface sites could include:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human.
- Ceramic fragments, including potsherds.
- Stone concentrations that appear to be formally arranged (may indicate the presence of an underlying burial, or represent building/structural remains); and
- Fossilised remains of fauna and flora, including trees.

If such indicator(s) of heritage resources are identified, the following actions should be taken immediately:

- All construction within a radius of at least 20m of the indicator should cease. This distance should be increased at the discretion of supervisory staff if heavy machinery or explosives could cause further disturbance to the suspected heritage resource.
- This area must be marked using clearly visible means, such as barrier tape, and all personnel should be informed that it is a no-go area.
- A guard should be appointed to enforce this no-go area if there is any possibility that it could be violated, whether intentionally or inadvertently, by construction staff or members of the public.
- No measures should be taken to cover up the suspected heritage resource with soil, or to collect any remains such as bone or stone.
 - If a heritage practitioner has been appointed to monitor the project, s/he should be contacted, and a site inspection arranged as soon as possible.
 - If no heritage practitioner has been appointed to monitor the project, SAHRA or FSPHRA should be contacted.

- 3) The South African Police Services should be notified by a SAHRA/FSPHRA staff member or an independent heritage practitioner if human remains are identified. No SAPS official may disturb or exhume such remains, whether of recent origin or not.
- 4) All parties concerned should respect the potentially sensitive and confidential nature of the heritage resources, particularly human remains, and refrain from making public statements until a mutually agreed time.

Any extension of the project beyond its current footprint involving vegetation and/or earth clearance should be subject to prior assessment by a qualified heritage practitioner, considering all information gathered during the initial assessment.

8 DMR FORMAT TABLES

Impacts to be mitigated in their respective phases.

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

Table 4: DMR Format Tables

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Site & Access Road establishment - demarcation and fencing	Construction Phase	< 3 km borrow pit	<ul style="list-style-type: none"> • Dust cause by excavating the fence trench shall be kept to a minimum by backfilling and re-establishment of vegetation as soon as the fence is in place. • Only designated areas are to be cleared of vegetation. Topsoil and plants are to be stored and re-established as soon as the fence is in place. • Demarcation of identified ecological, cultural, or historical areas with specific significance as no-go areas. • Fencing, demarcation and training of all workers to respect private property, no hunting or access to such private land allowed. Job seekers to remain in demarcated areas. 	EMPr & Rehabilitation Plan Dust emission standards	During construction period. Approximately 1-6 months
Site & Access Road establishment - site clearance	Construction Phase	<5 Ha borrow pit	<ul style="list-style-type: none"> • The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation. Only the designated excavation area and access road are to be cleared of vegetation. • Preservation and stockpiling of topsoil from areas where physical disturbance of the surface will occur. 	EMPr & Rehabilitation Plan	During construction period. Approximately 1 – 6 months

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> Establish self-drainage storm water systems in and around the site for water (i.e., Rainwater). In the case of wind erosion, the area can be stabilised with water sprays. 		
Site office establishment and operation	Construction Phase and Operational Phase	<5 Ha site office	<ul style="list-style-type: none"> Reference in the site establishment plan shall be given to the treatment of sewage and effluent generated at the site offices. Safe and effective sewage treatment will be by the best suitable sewage handling method based on site geology etc. The contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes. Smoking only allowed in designated areas with sand baskets for cigarette butts. Solid waste shall be stored in an appointed area in covered, tip-proof metal drums or similar container for collection and disposal. No littering by construction workers shall be allowed 	EMPr & Rehabilitation Plan	During construction and operation period. Approximately 3 years
Excavation	Operational Phase	< 5 Ha for borrow pit	<ul style="list-style-type: none"> Dust caused by excavation activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation. Establish drainage systems in and around the site. In the case of wind erosion, the area can be stabilised with water sprays. Develop where possible self-drainage storm water systems for the pit to ensure that ponding will not take place. The Contractor has a responsibility to use water responsibly and shall take into consideration that it is a scarce commodity that shall be optimised. Known grave or other known historical sites will be designated as “no-go” areas with a 50m radius are from the mining activity. If a grave or midden is uncovered during excavation all work in the immediate vicinity of the graves/middens shall be stopped and the engineer 	EMPr & Rehabilitation Plan Dust emission standards	During operation period. Approximately 3 years

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>informed of the discovery. The SAHRA and SAPS should be contacted.</p> <ul style="list-style-type: none"> • CSRT and Contractor to take adequate precautions and training to ensure that fires are not started as a result of Works on site, smoking or open fires. Smoking and open fires are forbidden on site. Should a fire occur, the local farmers must be informed immediately, and the necessary firefighting measures implemented to contain and extinguish the fire as soon as noticed. • Littering is strictly forbidden, and waste refuge bins must be provided and emptied on a regular basis. Waste to be removed to a licensed waste facility. • Protect dangerous excavations that may pose a hazard to humans and animals. Demarcate these areas with fencing as required and post the appropriate danger signs. 		
Excavation - vehicle and equipment usage	Operational Phase		<ul style="list-style-type: none"> • Dust caused by vehicle, equipment and hauling activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation. • The Contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance should only be carried out during normal working hours with due notification should activities proceed beyond working hours. • Soil, streams, and groundwater shall be protected from direct or indirect spillage of pollutants (i.e., use of drip trays). In the event of a spillage, the Contractor shall be liable to arrange for professional service providers to clear the affected area. • Vehicles to keep to designated areas only. Driving speed to be always kept to less than 30 km/hr. Equipment to be used as prescribed only. 	EMPr & Rehabilitation Plan Dust emission standards	During operation period. Approximately 3 years
Excavation - material stockpiles	Operational Phase	< 5 Ha for site	<ul style="list-style-type: none"> • Dust caused by excavation activities shall be controlled by means such as water spray vehicles and applied at sufficient frequency so as not to cause nuisance to 	EMPr & Rehabilitation Plan	During operation period. Approximately 2 years

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>adjacent habitation or affect farming activities or natural vegetation.</p> <ul style="list-style-type: none"> Establish storm water drainage systems in and around the site. In the case of wind erosion, the area can be stabilised with water sprays. 	Dust emission standards	
Closure	Closure and Rehabilitation Phase	< 5 Ha for borrow pit site	<ul style="list-style-type: none"> The Contractor has a responsibility to clean up the site when the excavation of material stops. This includes the removal of any structures, equipment, refuge bins, waste material and any invasive alien species that have invaded the disturbed areas. Using waste rock material to backfill the excavated pit area and shaping the sides to a gradual gradient to facilitate plant growth and human and animal exiting the pit. Develop where possible storm water self-drainage systems for the pit to ensure that ponding will not take place. Raking of disturbed areas to enhance seed germination. Re-vegetation of the disturbed area with indigenous plants to rehabilitate the area. 	EMPr & Rehabilitation Plan	After the cessation of mining. Approximately 3months to 1 year

9 REHABILITATION PLAN

9.1 The Importance and Objectives of Rehabilitation

The Rehabilitation Phase refers to the period of the project after the completion of the actual excavation works, the onset signalled by site clean-up and the final withdrawal of the equipment from site. Rehabilitation is therefore an essential part of the operation and closure processes of the borrow pit. Rehabilitation should be planned from the outset and, as far as practicable, undertaken during the operational life of the excavation activity.

Rehabilitation is thus an integral part of the project's Environmental Management and is a tool to be utilised during the operation and closure of the borrow pit. It also forms part of the bigger Environmental Management Programme (EMPr) and this section should therefore be read in conjunction with the EMPr. CSRT must ensure that this is incorporated in their planning and execution of the project from the onset. Overall objective of rehabilitation is:

- Returning the disturbed areas to an acceptable state as close to its baseline environmental state as possible.
- Minimise the visual impact of rehabilitated areas by carefully shaping the area with the surrounding landscape and by using indigenous vegetation from the area for rehabilitation.
- Ensure all areas are stable, and there is no risk of erosion.
- Ensure that all areas are free draining and non-polluting.
- Ensure that the area is safe for the intended end land use.
- Ensure that the plant communities which establish within the rehabilitated areas comprise of indigenous vegetation only.
- Prevent alien plant invasion on the site and allow for the establishment of indigenous plant communities; and
- Re-establish vegetation cover with suitable indigenous plant species so that remaining biodiversity features and prior land-use options are not compromised.

9.2 Rehabilitation Guiding Principles

Best practice guidelines need to be followed in the repair and rehabilitate the temporary construction impacts of a project. The general principles guiding this process include:

- Understanding the interaction and relationship of these Rehabilitation requirements in terms of the project (this includes remuneration agreements, meeting protocols, construction/operation schedule etc.).
- Ensuring that all plant harvesting pre-construction, the retaining of the plant material in on-site nurseries and the re-vegetation of the disturbed areas is to be undertaken by a suitably qualified person, making use of the appropriate equipment.
- Ensuring the removal and disposal of alien vegetation is undertaken on an ongoing basis to prevent its infestation of the site and surrounding areas.
- Making sure that rapid, progressive rehabilitation is done as the project proceeds, wherever possible, to reduce the duration of visual impact and to reduce the risk of loss, damage, and desiccation to stockpiled top mulch and turfs.
- Careful reinstatement of undulating / rough landforms over the construction corridor by using re-spread till, rock and deep mulch prior to the final shaping thereof with top mulch. Including

forming watercourses to natural irregular alignment to match the existing character of the landscape.

- Where surrounding landscape has numerous boulders on the surface, consideration will be given to retaining the irregular grouping of rock in a random distribution; and
- Utilising the existing topsoil stockpiles compiled before construction as the principal material for re-establishing the landscape.

9.3 Removal of Structures and Infrastructure

After the excavations in a borrow pit area is completed and/or a site is decommissioned the resulting structures should be removed. Some guidelines in this regard are as follows:

- Clear and completely remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services, fixtures, and any other temporary Works.
- Materials that will not be used again must be sold if possible or rehabilitated to blend in with the surrounding landscape.
- Ensure that all access roads utilised during construction/operation (which are not earmarked for closure and rehabilitation) are returned to a usable state and / or a state no worse than prior to the borrow pit operation.
- Clear the site of all inert waste and rubble, including surplus rock. These can where appropriate be used as backfill material.;
- Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.
- Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner.
- Remove from site all pollution containment structures. Dispose of materials that will not be used again as hazardous waste; and
- Remove from site all temporary sanitary infrastructure and wastewater disposal systems. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner.

9.4 Topsoil Management and Rehabilitation

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The Contractor will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is the natural soil covering, including all the vegetation and organic matter.

The Contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be top-soiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns.

- The principle of Progressive Reinstatement must be followed wherever possible. This includes the reinstatement of disturbed areas on an ongoing basis, immediately after the specified construction activities for that area are concluded.
- Execute top soiling activity prior to the rainy season or any expected wet weather conditions.
- Execute topsoil placement concurrently with construction where possible, or as soon as construction in an area has ceased.

- Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the construction site, including temporary access routes and roads. Replace topsoil to the original depth (i.e., as much as was removed prior to construction). These areas will be quantified by the ECO.
- Place topsoil in the same area from where it was stripped. If there is insufficient topsoil available from a particular soil zone to produce the minimum specified depth, topsoil of similar quality may be brought from other areas of similar quality. The ECO will advise.
- The suitability of substitute material will be determined by means of a soil analysis addressing soil fraction, fertility, pH, and drainage, and approved by the ECO.
- Do not use topsoil suspected to be contaminated with the seed of alien vegetation (i.e., black wattle). Alternatively, the soil is to be sprayed with specified herbicides (ECO to specify).
- Shape and mound topsoil to 200m from the top of manholes and valve chambers which protrude above ground and over pipelines to facilitate subsequent consolidation of the backfill.
- Ensure that storm water run-off is not channelled alongside the gentle mounding, but that it is taken diagonally across it.
- Shape remaining stockpiled topsoil not utilised elsewhere in an acceptable manner to blend in with the local surrounding area.
- After topsoil placement is complete, spread available stripped vegetation randomly by hand over the top-soiled area; and
- If no topsoil is available on site prior to construction, and thus no topsoil is available for rehabilitation, undertake the following ameliorative action:
 - Sample the soil to a depth of 200mm in all areas allocated for grass planting and send the sample for soils analysis to determine the type of fertiliser and rate thereof to be applied.
 - The necessary soil amendments as indicated by soil tests must be added to and worked into the soil; and
 - After the application of fertilisers such as superphosphate, a waiting period of six to eight weeks is required prior to the execution of planting and or grassing.

9.5 Final Rehabilitation Requirements

Rehabilitation of affected areas should be undertaken as early as possible when the relevant activities are done to reduce further environmental damage. All re-vegetation should be undertaken using indigenous vegetation. The standard of rehabilitation should be to the satisfaction of the Engineer and the relevant authorities. The Department of Minerals Resources will only issue closure certificates for borrow pits and quarries when they are satisfied with the rehabilitation undertaken. It should also be noted that in some cases there is a requirement for a final environmental audit covering the extent of the project. Some guidelines in this regard are:

- Photographs of the camp and office sites, before and during the construction and after rehabilitation, shall be taken at selected fixed points and kept on record but the ECO.
- On completion of operations, all buildings, structures, or objects on the camp/office site shall be demolished and removed.
- Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- On completion of operations, the areas shall be cleared of any contaminated soil, which must be dumped as per the waste management plan.

- All infrastructure, equipment, plant, temporary housing and roads and other items used during the construction period will be removed from the site.
- Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the area, and disposed of at a registered waste disposal facility. It will not be permitted to be buried or burned on the site.
- Disturbed areas should be left in a safe and stable manner. Preventative measures may be necessary to construct adequate drainage structures including ditches and other structures to facilitate the movement of surface water.
- Backfill all prospecting boreholes, excavations, and test pits with in-situ material.
- Make safe all borrow pits, quarries, and dangerous excavations by backfilling, grading, and blasting as required.
- In general, no slopes steeper than 1(V):3(H) is permitted, unless otherwise specified by the ECO. Steeper slopes require protection. The rationale is that the new slopes must mimic the natural slopes and topography.
- Where possible, programme the backfill of excavations so that subsoil is deposited first, followed by the topsoil. Compact in layers for best results.
- Backfill French drains, sludge dams and evaporation dams and compact, covering with a final layer of topsoil to a height of 100mm above the surrounding ground surface.
- Deficiency of backfill may not be made up by excavating haphazardly within the Work Site. Additional fill may only be imported from approved borrow areas as indicated by the ECO.
- Monitor backfilled areas for subsidence (as the backfill settles) and fill depressions using available material.
- Dismantle and flatten temporary drifts and river crossings, reinstating all drainage lines to approximate their original profile.
- Shape all disturbed areas to blend in with the surrounding landscape.
- Ensure that no excavated material or stockpiles are left on site and that all material remaining after backfilling is smoothed over to blend in with the surrounding landscape.
- The disturbed surfaces shall be ripped or ploughed and the topsoil previously stored shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary (based on a soil analysis).
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora; and
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the soil might need to be analysed and any deleterious effects on the soil arising from the construction operation be corrected and the area be seeded with a seed mix to the DEO's specification.

9.6 Revegetation

Rehabilitation shall be undertaken using only indigenous tree, shrub, and grass species. Special attention shall be given to any search and rescue operation identified during the environmental assessment process, and any removal to an on-site nursery for continuous nurturing and protection and later replanting. Some guidelines are:

- All planting/re-vegetation work is to be undertaken by a suitably qualified person, making use of the appropriate equipment.

- Careful placement of turfs with roots well buried and creating a matrix of cover over the site if there is a shortage of suitable turf material.
- Where necessary, protect newly planted trees against wind, frost, and wild animals by means of fencing, sacking or frost nets.
- Transplant trees and shrubs so that their stems or trunks are at the same depth as in their original position. Orientate trees and shrubs in the same direction as in their original position.
- Transplant aloes and bulbs in similar soil conditions and to the same depth as in their original position.
- Planting should preferably be done during the rainy season.
- The plant must be planted into the specified hole size with the approved soil, compost and fertiliser mix used to refill the plant hole and must cover all the roots and be well firmed down to a level equal to that of the surrounding in-situ material.
- After planting, each plant must be well watered, adding more soil upon settlement if necessary.
- Thoroughly water plants as required until the plants can survive independently (i.e., depending on the rainfall).
- The soil should be loose and uniformly wet to a depth specified by the DEO / ECO, before any seeding commences.
- The seeded area must be raked over after seed application and well-watered.
- Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.
- Delay the re-introduction of stock to all rehabilitation areas until an acceptable level of re-vegetation has been reached. Fencing may be used, or the area may be covered by branches.
- Revegetation must match the vegetation type which previously existed, unless otherwise indicated in the Contract; and
- Bare areas that show no specified vegetation growth after three months of the Rehabilitation Work are to be spread with additional topsoil, ripped to a depth of 100mm and re-planted, re-sodded, re-hand sown or re-hydroseeded.

10 MONITORING AND REPORTING

10.1 INSPECTIONS, MONITORING AND AUDITING

- Regular monitoring of all the environmental management measures and components shall be carried out by CSRT (quarterly basis) and the ECO (monthly basis) to ensure that the provisions of the EMPr as well as this Environmental Management and Rehabilitation Plan are adhered to.
- Ongoing and regular reporting of the progress of implementation of this programme will be done. CSRT (quarterly basis) and the ECO (monthly basis) shall report to the management and competent authority as relevant (i.e., Environmental Performance Report)
- Various points of compliance will be identified with regard to the various impacts that the operations will have on the environment.
- Inspections and monitoring shall be carried out on both the implementation of the programme and the impact on plant and animal life.
- Visual inspections on erosion and physical pollution shall be carried out on a regular basis.

Table 5: Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon.

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
Demarcation and fencing of site	Integrity of fence / demarcated areas	Check the integrity of the fences and if any encroachment on "no-go" or other areas outside the designated mining area and demarcated areas occur	The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance. Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance.	DEO - weekly monitoring ECO - monthly auditing Monthly Environmental Audit Report by ECO
Access road and site office	<ul style="list-style-type: none"> General site condition, Dust smoking areas fires (cooking / heating) Litter 	<p>Check the site condition and for litter, dust, storm water management as well as for the use of the use and maintenance of the designated smoking areas.</p> <p>Check that no open fires are used for heating or cooking due to the fire risk</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance.</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>
Excavation, and material stockpiles	<ul style="list-style-type: none"> Dust Noise storm water, erosion and sedimentation litter and other waste alien vegetation 	<p>Check dust formation and requirements for dust suppression water spray on-site.</p> <p>Check storm water self-drainage system for effectiveness and blockages,</p> <p>Check site for any litter or other waste on site</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>
Vehicle and equipment usage	<ul style="list-style-type: none"> spills dust 	<p>Check site for any occurrences of spills (i.e., oil, fuel etc.)</p> <p>Check dust formation and requirements for dust suppression water spray on-site and in-route</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>DEO - weekly monitoring</p> <p>ECO - monthly auditing</p> <p>Monthly Environmental Audit Report by ECO</p>

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
Rehabilitation and closure	<ul style="list-style-type: none"> • general site condition • storm water drainage • vegetation including occurrence of alien vegetation 	<p>Check the general site condition for spills, equipment or structures that needs to be cleared.</p> <p>Check storm water self-drainage system for effectiveness and blockages.</p> <p>Check site for any alien vegetation to be removed.</p>	<p>The Contractor appointed Designated Environmental Officer (DEO) is responsible for the internal monitoring and auditing of the borrow pit site's environmental performance.</p> <p>Environmental Control Officer (ECO) as appointed by CSRT to undertake external independent auditing of the sites and their environmental performance</p>	<p>For the first year after rehabilitation and closure has started:</p> <ul style="list-style-type: none"> • DEO - monthly till closure • ECO - on final operation closure, during rehabilitation (monthly) and annually thereafter for a year. • Monthly Audit reports, Closure Report and final Annual Environmental Performance Report by ECO

10.2 COMPLIANCE REPORTING / SUBMISSION OF INFORMATION

- Layout plans will be updated on a regular basis and updated copies will be submitted to the controlling authority.
- Ongoing and regular reporting of the progress of implementation of this programme will be done. CSRT (quarterly basis) and the ECO (annual basis) shall report to the management and competent authority as relevant (i.e., Environmental Performance Report)
- Any emergency or unforeseen impact will be reported as soon as possible to the ECO.
- An assessment of environmental impacts that were not properly addressed or were unknown when the programme was compiled shall be carried out and added as a corrective action.
- After the rehabilitation an application for closure certificate will be made according to section 43(4) of the Mineral and Petroleum Resources Development Act 28 of 2002 with associated regulations.

11 COMPLIANCE AND REPORTING

The Contractor shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and an oral report given at the monthly site meetings. Any non-compliance with the procedures in this EMP, environmental authorisations and approved EMPr constitute a breach of the Conditions of Contract.

APPENDIX A

LOCALITY AND LAYOUT MAPS

BORROW PIT DEVELOPMENT OF FARM WITFONTEIN 444

Locality Map

Legend

 Witfontein BP



Google Earth

Image © 2023 Maxar Technologies

Image © 2023 Airbus

Image © 2023 CHES / Airbus

WITFONTEIN BORROW PIT

Sensitivity Map

Legend

-  Borrow Pit
-  Fenced Area
-  Stockpile Area

