



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH A MINING PERMIT.

Garob Borrow Pit

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).

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FILE REFERENCE NUMBER SAMRAD:	NC30/5/1/3/2/10541 MP

17 August 2016
Report #: 2709/MP/S/R2

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 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.

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Note that both the Fauna and Flora report and the Archaeological impact assessment included herewith as Annexure A and B and extracts from such reports as included in the text in paragraphs 14.1.5 and 14.1.6 were not contained in the draft scoping report as distributed and will be included in the Draft EIR-EMP report for comment by I&APs but have been included herein for DMRs background on these matters as their findings are relevant to the matter of achieving earliest possible finality in the choice of the site given that this site must timeously provide materials to the windfarm construction

Annexure A: GAROB WINDFARM: FAUNA AND FLORA SPECIALIST REPORT FOR IMPACT ASSESSMENT: SIMON TODD CONSULTING FOR SAVANNAH ENVIRONMENTAL (PTY) LTD FOR JUWI RENEWABLE ENERGIES (PTY) LTD SEPTEMBER 2012

Annexure B: ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED GAROB BORROW PIT, NORTHERN CAPE PROVINCE. HCAC - Heritage Consultants (July 2016)

LIST OF APPENDICES:

Appendix 1& 2: Qualification and CV of EAP

Appendix 3: Socio-Economic (Notifications and responses to date)

Appendix 4: Site (Mine) Layout Plan

1 OBJECTIVE OF THE SCOPING PROCESS

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

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

2 Contact Person and correspondence address

2.1 Details of the EAP who prepared the report

Name of the Practitioner: Stephen van der Westhuizen and Siphumelelo Mbali
Site Plan Consulting
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2.2 The qualifications of the EAP

(With evidence attached as **Appendix 1**).

2.3 Summary of the EAP's past experience.

(EAP's curriculum vitae as **Appendix 2**)

3 Description of the property.

Farm Name:	Farm Nels Poortjie 103 Portion 5 Remainder
Application area (Ha)	4.91ha
Magisterial district:	Prieska
Distance / direction from nearest town	Prieska is located about ±50 km north east of the application area
Surveyor General Code	C06000000000010300005

4 Locality map

(Show nearest town, scale not smaller than 1:250000 attached as **below**). (Also Refer Figure 2 Overleaf)

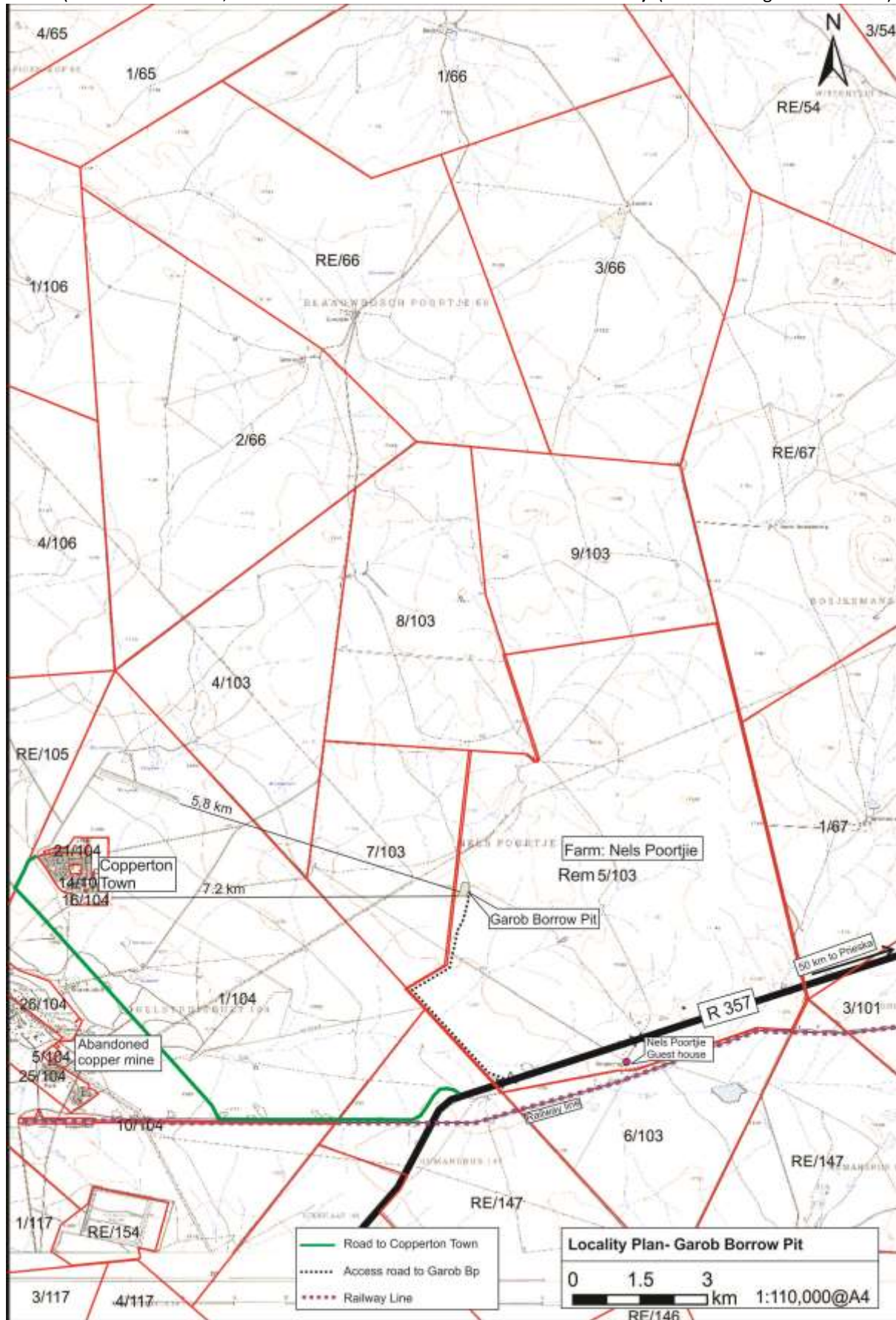


Figure 1: Locality Plan

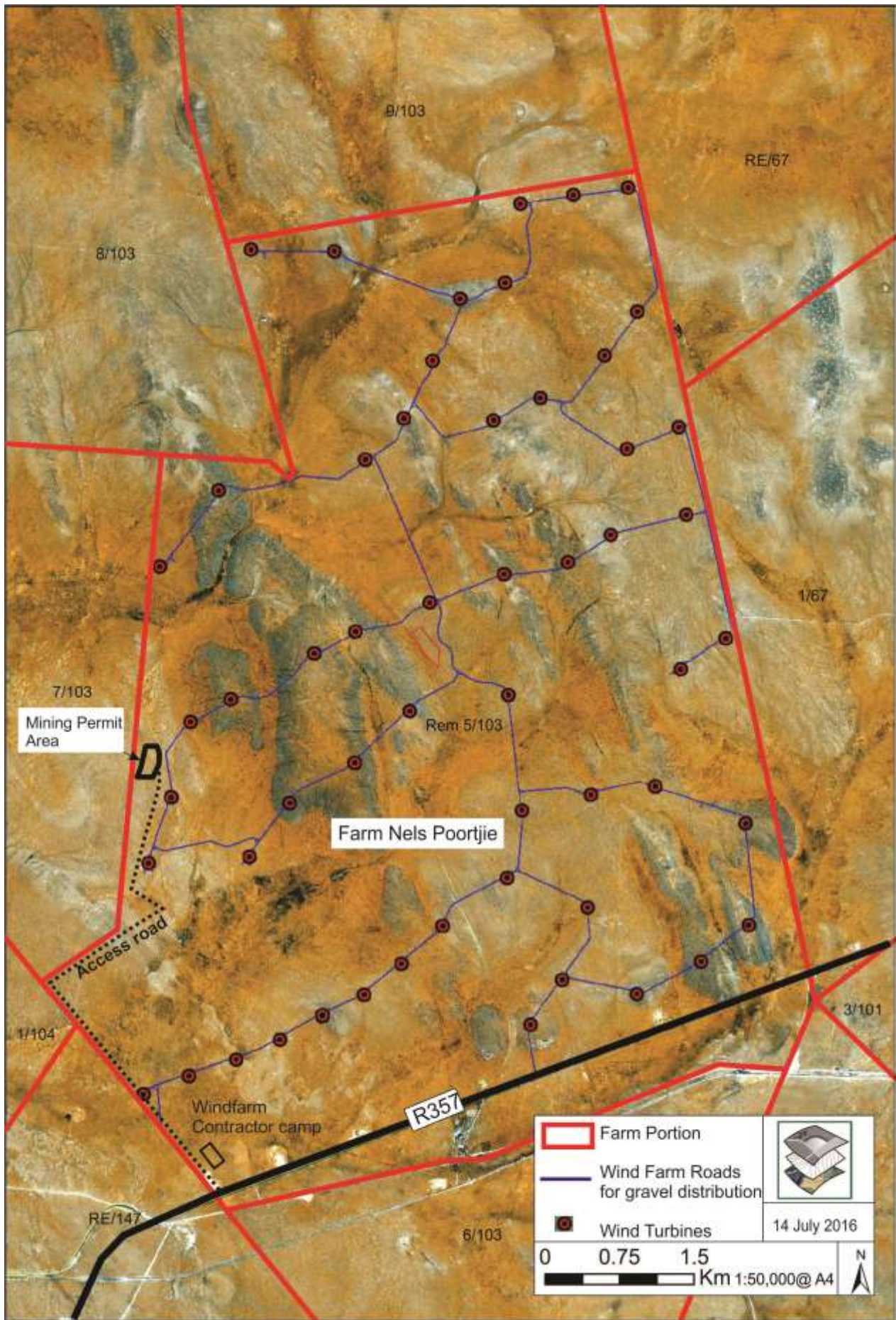


Figure 2: Position of the Mining Permit area within the Wind Farm Project

5 Description of the scope of the proposed overall activity.

5.1 Background:

In order to provide suitable materials for the construction/maintenance of windfarm roads and turbine platforms to serve the Garob wind energy project currently underway south west of Prieska, Site Plan Consulting acting on behalf of Power Construction has identified this site as Calcrete Borrow pit for utilisation.

Given the project extent, with some 45 wind turbines to be built (Figure 2) to meet the volume of materials required, the Calcrete borrow pit will provide at least 100 000 m³ material for gravel road and platform construction (Concrete aggregate for tower bases will be trucked from a commercial source near Douglas) .

Power Construction has appointed Site Plan Consulting CC to conduct the Applications on their behalf, which has entailed the lodging of this Application with the Department Mineral Resources (DMR) Northern Cape (which phase has been completed) and further entailed the Scoping Phase of the assessment, involving identification and notification of Interested and Affected Parties (I&APs) in a public participation process, and which will, later in the process, involve the Environmental Impact Assessment (EIA/EIR), identification of attenuation measures to limit impacts, and prescribing the environmental management in an Environmental Management Programme (EMPr).

Regional Geology

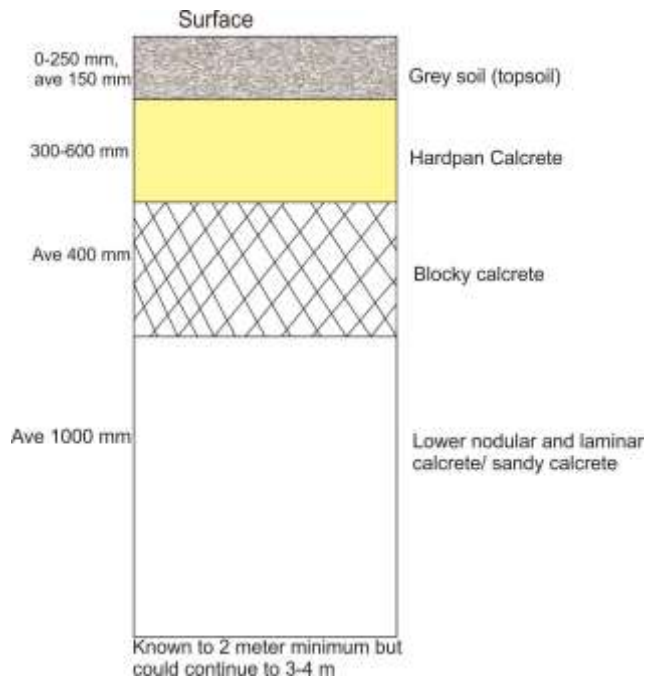
As per attached Figure 3 overleaf: Regional Geology for Prieska, (extract from Geological Survey sheet 2922 Prieska; enlarged from 1:250 000 to 1:50 000), the mining Permit area is in recent surface Calcrete deposits which overlie the Quartzite basement rocks of the Uitdraai and Spioenkop Formations with the Uitdraai formation outcropping immediately west of the site and forming the striking ridge 1km east of the site.

Detailed geology

Surface geological mapping together with Google Earthtm image interpretation shows a large area of hardpan Calcrete to occur along and east of the fence line as seen as the white shaded areas in the figure 2 image on opposite page. Detail site mapping showed that within such Calcrete a strong north-south striking outcrop of basement quartzite occurs and delineates the western boundary of the chosen calcrete borrow pit.

As observed in the many Calcrete borrow pits along the R357 road and railway line, such Calcrete occurs up to 6 m in depth with onsite and adjacent geotechnical assessment for found-ability and dig-ability revealing the following profile characteristics of the Calcrete underlying the site and occurring to the north, south, and east.

Calcrete profile



The hardpan Calcrete together with the underlying blocky Calcrete, when crushed by a single stage crusher will yield the higher grade materials for blending with either the lower nodular and laminar calcrete or with weathered materials from the turbine platforms or road cuts.

As such, the Calcrete deposit chosen for the borrow pit site will meet the required material qualities and volumes for the Garob windfarm construction project.

Photo 1: Overlooking the site showing Calcrete outcrop in the foreground



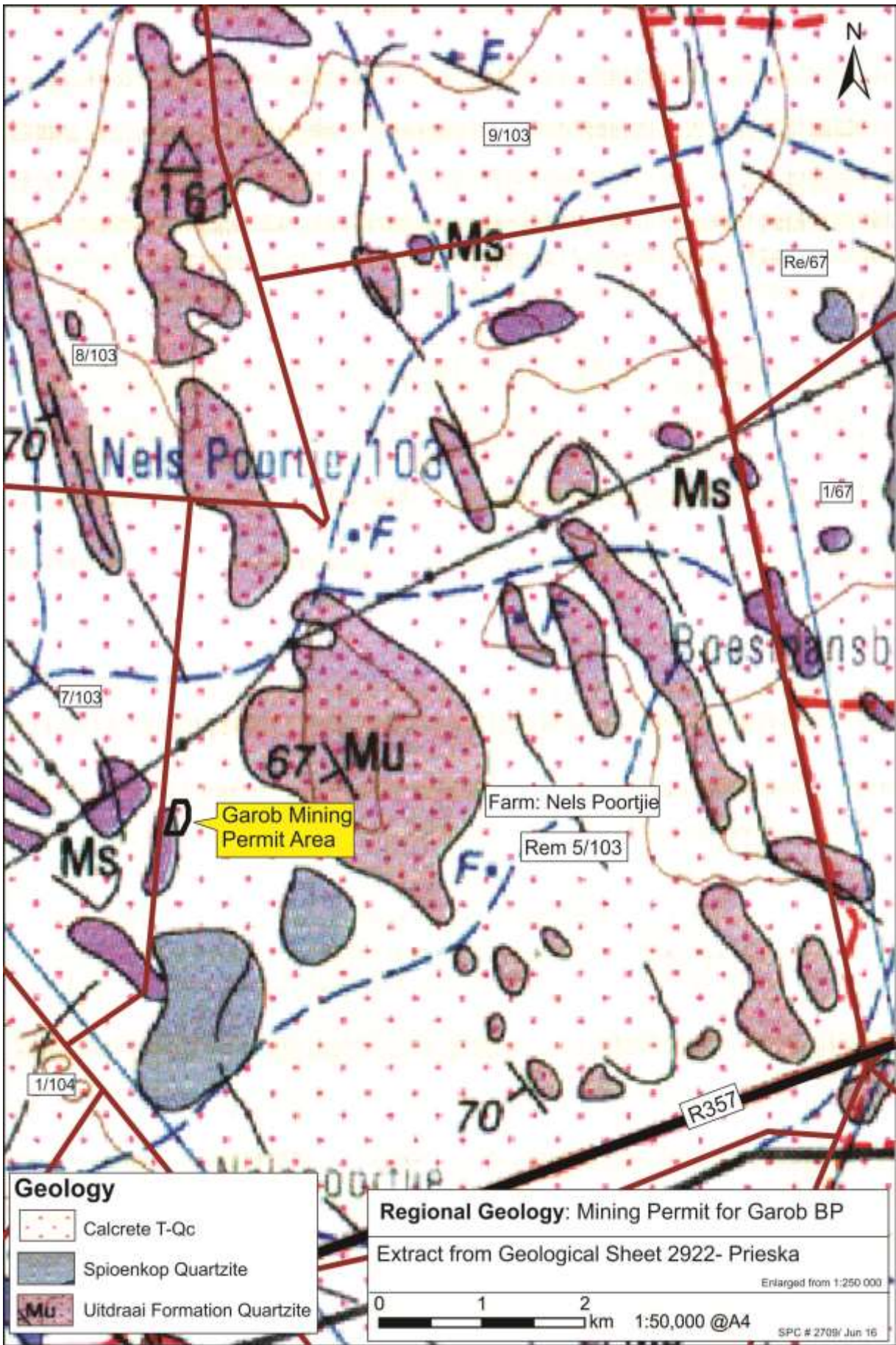


Figure 3: Regional Geology

5.2 The Mine Planning and considerations

a) Site Informants

Geology/ material suitability

As discussed above, all aspects of the site planning and location are largely informed by the geology of the site which can yield suitable quality and volume of Calcrete for the Garob windfarm construction requirements of its roads and turbine platforms. The western Boundary of the site is fixed by the outcrop of basement rocks while the extent of the site is determined by the 5 ha maximum allowable mining permit area combined with the established 2 meter depth availability giving a reserve definition of 100 000 tight m³ gross.

Surrounding infrastructure

- I. Power line: observance of a 500 meter buffer between the site and the Eskom Power line to its north in the event that blasting may be required
- II. Access to site from R357: as seen in figure 1, the site will be accessed for establishment purposes via an existing farm road from an existing gate with suitable bell-mouth setback from the R357
- III. Proximity to windfarm roads as shown in Figure 2 to serve as delivery routes during construction noting that no material will be delivered via the R357

b) The mine plan (Layout)

The following figure 4 overleaf sets out the envisioned operation for this Scoping Report with any revisions to be included EIR-EMP report phase:

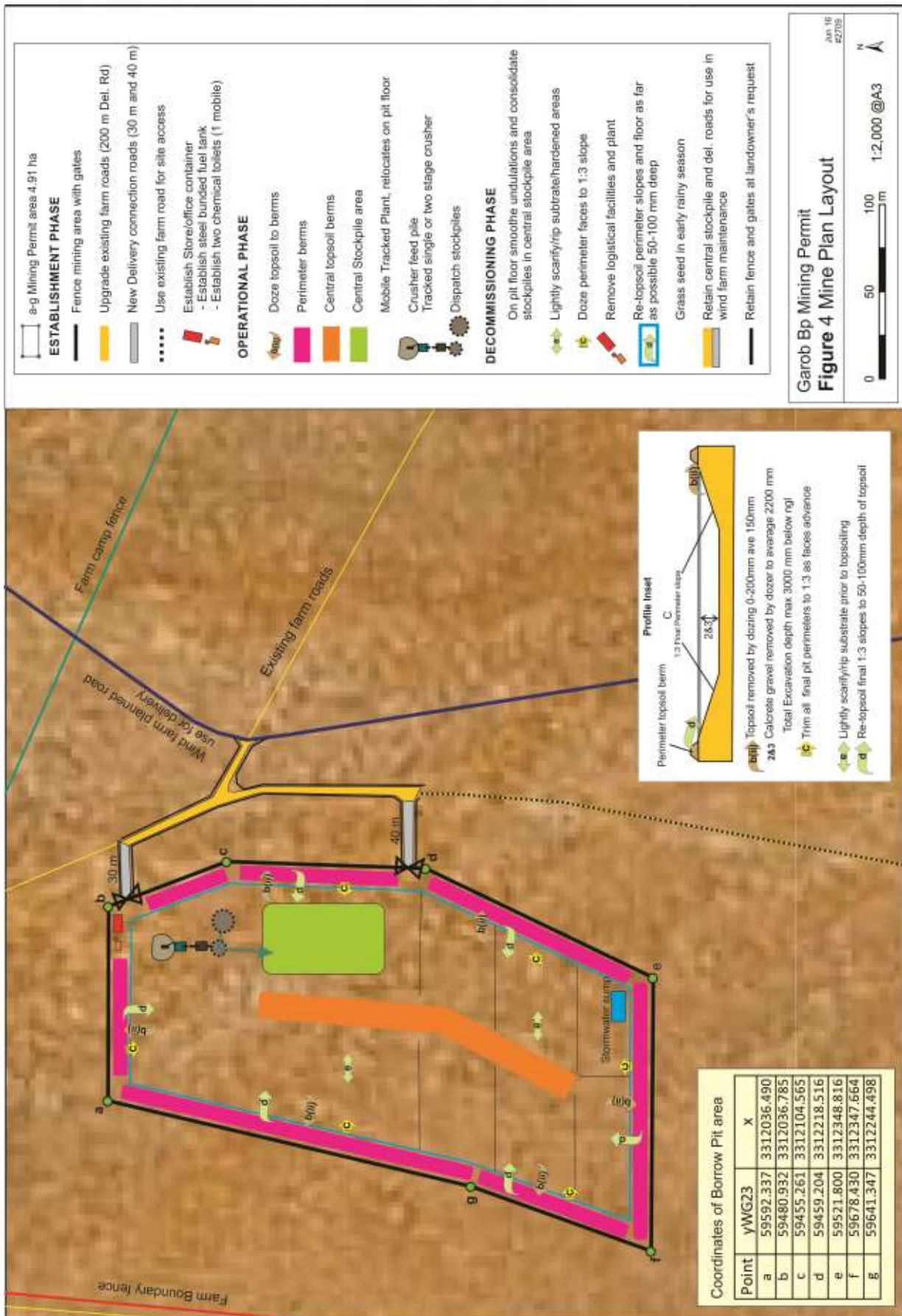


Figure 4: Proposed Site (mine) layout plan

Reserves

I. Resource

While as seen in Figure 2, the white Calcrete which occurs within the mapped T-Qc in figure 3 outcrops extensively on the farm, the need to access hardpan Calcrete focused attention for the borrow pit on the chosen site where hardpan calcrete is found to outcrop extensively.

While such resource no doubt exceeds 1 million m³, the site is chosen in light of the other site informants documented hereafter

II. Reserve

The reserve defined for mining is the upper 2 to 3 meters calcrete material with an average mining depth of 2 meters recoverable Calcrete below the site within which

- Topsoil will be dozed on average to 150 mm depth to perimeter and central berms for re-use in rehabilitation.
- No material is classified as overburden as the full Calcrete profile will be blended as product

The reserve is thereby defined as follows:

The table hereafter reflects the reserves to be produced:

Mining Permit area	4.91 ha (49100 m²)
80% utilization of surface	40 000 m²
2 m recoverable depth	2 m
Tight m³ reserve	80000 m³ tight
Bulked m³ reserve x 1.2	96 000 m³ loose

5.3 Mining Method and Processing

Based on the mining of the geological profile shown in paragraph 5.1 and further discussed in the calculation of the reserve above, mining and processing method read together with Figure 4 the Mine Plan is as follows:

- I. Remove topsoil from various depths of 0-200 mm (average 150 mm) by dozer or grader to perimeter and central topsoil berms progressively to expose Calcrete
- II. Dozer rip hardpan horizon where hardness requires ripping prior to dozing
- III. Doze ripped hardpan or softer hardpan together with upper blocky calcrete to total depth of ± 1 meter to crusher feed pile
- IV. Excavator loads lower 1 meter nodular/laminar calcrete directly to delivery trucks or alternatively this material is also dozed to crusher feed pile for blending with harder upper horizon material by the crusher
- V. Excavator standing on crusher feed pile loads dozed material into crusher hopper
- VI. Tracked mobile crusher crushes and blends the material to crusher dispatch stockpile or direct to haul trucks for tipping on central stockpile

The above group of mining tasks is executed per progressive area within the total mining area with the mobile crusher periodically relocating following the generation of each of the various crusher feed piles which are generated by the dozing activity

Equipment and storage on site

Mining will require that a 30 ton excavator is permanently in use on the site for excavating and loading. Additionally the following equipment will be used on site as and when required:

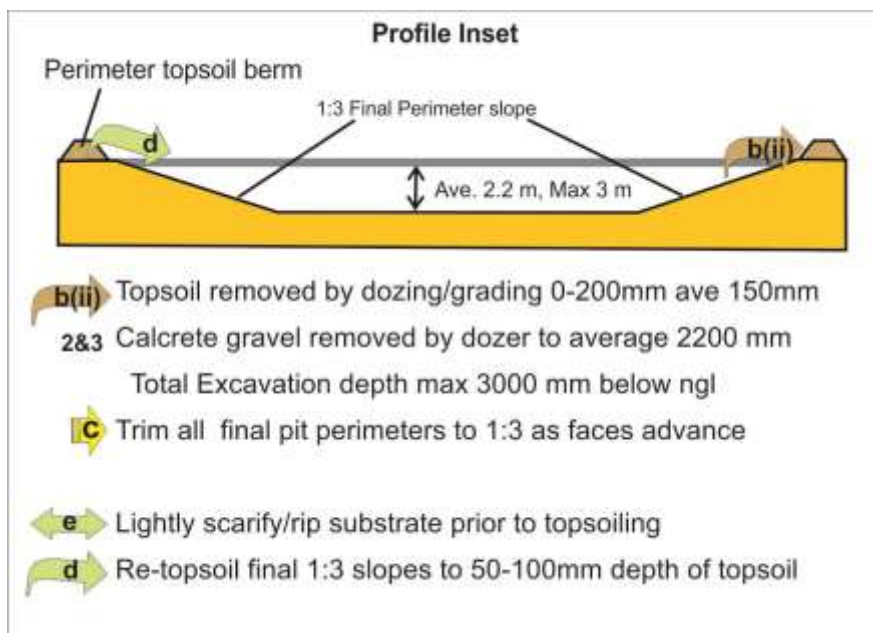
- Front-end loader
- Dozer
- Tracked mobile crushing and screening plant
- Drill rig
- 1 Haul truck to haul material to central stockpile area

When not in use on site such plant will be kept in the windfarm contractor camp locality shown in figure 2

Delivery trucks will be provided by the windfarm construction contractor

As the varied materials quality requirements for the windfarm contract as it progresses will change from time to time, the phasing of the mining area is not predetermined but will follow the trends of the in situ material as it changes throughout the mining program. The central stockpiling area provides for material to be kept in a buffer stockpile during windfarm construction but also after mine closure when the stockpile will serve the windfarm road and platform maintenance contract for 15 years by the holder and any remaining material after that period will be for use by the landowner on farm road maintenance

Photo 2: The operational methodology is illustrated by the following photograph showing a dozer pile with excavator loading mobile crusher.



Mining is to be conducted as an open cast mining operation as follow:

NAME OF ACTIVITY	
Application for Mining Permit	
1. Establishment Phase	
1.1.	Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 4). Conduct environmental induction training. Clearly designate no-go areas
1.2.	Use existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)
1.3.	Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery
1.4.	Remove topsoil by grader from demarcated area to topsoil berms for later re-use (ref Fig 4).
1.5.	As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains
1.6.	Establish steel-banded diesel tank of <20,000 liters.
1.7.	Establish logistical facilities of single container as office and store and two chemical toilets
1.8.	Note: No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles
1.9.	Establish mobile tracked crushing and screening plant.
1.10.	Grass-seed the topsoil berms.
1.11.	Conduct establishment phase monitoring.
2. Operational Phase	
2.1.	Dozer rips hardpan surface
2.2.	Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.
2.3.	Doze ripped hardpan and 0.6 m upper calcrete to crusher feed pile
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.
2.5.	Crushing and screening to dispatch stockpiles or direct to dump trucks to central stockpile.
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.
2.7.	Provide sump in floor to permit floor drainage
2.8.	Conduct dust suppression on haul roads and plant.
2.9.	Refuelling and hydrocarbon management.
2.10.	Chemical toilets managed by contractor
2.11.	Conduct operational phase monitoring.
2.12.	Operational phase maintenance.
2.13.	Construct and maintain side drain and mitre drains on short delivery road.
2.14.	Continuous ad hoc eradication of any alien vegetation
3. Decommissioning Phase	
3.1.	Doze pit perimeter faces to 1:3 slope
3.2.	Doze undulating areas in floor to smooth.
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)
3.4.	Rip/Scarify hardened./compacted surfaces
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover
3.6.	Remove containers, (diesel tank) and chemical toilets
3.7.	Grass seed re-topsoiled areas.
3.8.	Conduct hydrocarbon decontamination.
3.9.	Retain perimeter fence as sheep camp use by landowner.
3.10.	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms
3.11.	Conduct final performance assessment for closure.
3.12.	Lodge Closure Application
3.13.	Allow quarry floor to drain to rain water sump during rainfall episodes
4. Aftercare Period	
4.1.	Remove alien vegetation, if present
4.2.	Monitor revegetation success, with follow-up seeding if required
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)

6 Listed and specified activities

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 and attach as **Appendix 4**.

Refer also Figure 4.

NAME OF ACTIVITY	Aerial extent of Activity (Ha or m ²)	LISTED ACTIVITY (Mark with an X where applicable or affected)	APPLICABLE LISTING NOTICE (<i>GNR 983, GNR 984 or GNR 985</i>)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Application for Mining Permit	4.91ha	X	GNR983: Activity # 21	
1. Pre-Establishment/ Establishment Phase				
1.1. Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 4).	4.91 ha			
1.2. Use existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)	All quarry production distribution roads will utilize the wind farm approved roads. One such road passes East of the site. No material will be distributed through the access road gate to R357			
1.3. Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery				
1.4. Remove topsoil by grader from demarcated area to topsoil berms for later re-use (ref Fig 4).	4.91ha	X	GNR 985: Activity # 12 GNR 983. Activity # 27	
1.5. As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains				
1.6. Establish steel-banded diesel tank of <20,000 liters.	40m ² only if required			
1.7. Establish logistical facilities of single container as office and store and two chemical toilets	80m ²			
1.8. No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles				
1.9. Establish mobile tracked crushing and screening plant.		X	GNR 984: Activity #21	
1.10. Grass-seed the topsoil berms.	0.72 ha (900m x 8m)			
1.11. Conduct establishment phase monitoring.	4.91ha Mining Permit Area and new roads			
2. Operational Phase				
2.1. Dozer rips hardpan surface	Max 3 ha			
2.2. Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.	Ad hoc basis Max. 0.5 ha			
2.3. Doze ripped hardpan and 0.6 m				

	upper calcrete to crusher feed pile				
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.				
2.5.	Crushing and screening to dispatch stockpiles or direct to dump trucks to central stockpile.	Mobile, crushing and screening plant	X	GNR 984: Activity #21	
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.				
2.7.	Provide sump in floor to permit floor drainage	160 m ²			
2.8.	Conduct dust suppression on haul roads and plant.	500 m of road way			
2.9.	Refuelling and hydrocarbon management.	40 m ²			
2.10.	Chemical toilets managed by contractor				
2.11.	Conduct operational phase monitoring.	4.91ha Mining Permit Area and new/upgraded delivery road			
2.12.	Operational phase maintenance.	4.91ha Mining Permit Area and new/upgraded delivery road			
2.13.	Construct and maintain side drain and mitre drains on short delivery road.	New/upgraded delivery roads			
2.14.	Continuous ad hoc eradication of any alien vegetation	4.91ha and immediate surrounds			
3.	Decommissioning Phase				
3.1.	Doze pit perimeter faces to 1:3 slope	0.63 ha			
3.2.	Doze undulating areas in floor to smooth.	Ad hoc areas			
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)				
3.4.	Rip/Scarify hardened./compacted surfaces	3.5 ha			
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover	Max. 4.91ha Mining Permit Area			
3.6.	Remove containers, diesel tank and chemical toilets				
3.7.	Grass seed re-topsoiled areas.	4.91ha Mining Permit Area			
3.8.	Conduct hydrocarbon decontamination.	4.91ha Mining Permit Area			
3.9.	Retain perimeter fence as sheep camp use by landowner.	4.91ha Mining Permit Area			
3.10.	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms	+~340m			
3.11.	Conduct final performance assessment for closure.	4.91ha Mining Permit Area and new/upgraded delivery roads			
3.12.	Lodge Closure Application	4.91ha Mining Permit Area	X	GNR983: Activity # 22. Only applicable at time of closure	
3.13.	Allow quarry floor to drain to rain water sump during rainfall episodes	1.37ha max			
4.	Aftercare Period				

4.1.	Remove alien vegetation, if present	4.91 ha and immediate surrounds			
4.2.	Monitor revegetation success, with follow-up seeding if required	4.91ha			
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)	4.91 ha			

7 Description of the activities to be undertaken

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

Refer Para 5 and 6 above.

8 Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
(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	(i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	(E.g. In terms of the National Water Act: - Water Use License has/has not been applied for).
National Environmental Management Act	Entire document including public participation	Environmental Authorization from DMR as competent authority
Mineral and Petroleum Resources Development Act	Template for Scoping Report	DMR application and process
Northern Cape and Namakwa District Maps of Critical Biodiversity Areas	Need and Desirability (Para 9)	End Use informant
EIA Guideline and Information Document Series' "Guideline on Need and Desirability	Need and Desirability (Para 9)	Guideline for information utilized in this document
EIA Guideline 5 Assessing alternatives and impacts	Cumulative Impact Assessment (Para 9.2.1)	Guideline for information utilized in this document
NEMWA	Not applicable to activities	No application for Waste Licence
Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, And South African National Biodiversity Institute. 2013.	Need and Desirability (Para 9)	Tool to facilitate the sustainable development of South Africa's mineral resources in a way that enables regulators, industry and practitioners to minimise the impact of mining on the country's biodiversity And ecosystem services.
Final IDP of the Siyathemba Municipality 2015-2016.	Part 6.6.10	A full Application for Land Use Authorisation will be further conducted prior to commencement of activities.

9 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 EIA Guideline and Information Document Series' "Guideline on Need and Desirability" dated August 2010 has been used to consider this aspect.

Important: The actual mining takes place in the short term and as a result the need and desirability **should not only** focus on the actual mining phase of this site's lifespan but also concentrate on the long term / permanent post mining land use proposal.

The guideline referred to above provides a list of 15 questions which are aimed at addressing the issue of need and desirability. The questions have been copied below with the consideration of each question as it relates to this application immediately following each question.

Need refers to timing of a project whilst desirability is defined to consider the placing of the activity. The first port of call in considering need and desirability is a determination of how the proposed project fits in with the Municipal Integrated Development Plan (IDP).

9.1 Need ('timing'):

Question 1: *Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority? (I.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP).* The project will provide materials to a windfarm construction project within the renewable energy generation programme.

9.1.1 Conservation status of the site

Refer the following figures 5 and 6:

The site of the proposed mine does not fall within any CBA, as shown by the Northern Cape Critical Biodiversity Map (figure 5). The site is however largely in a natural state and as such a botanical assessment is to be conducted by specialist botanist.

It must be noted that large areas of similar habitat predominate the region, and given the short term lifespan of the mining, together with rehabilitation, the site will be returned to largely similar habitat, nonetheless altered geologically and topographically.

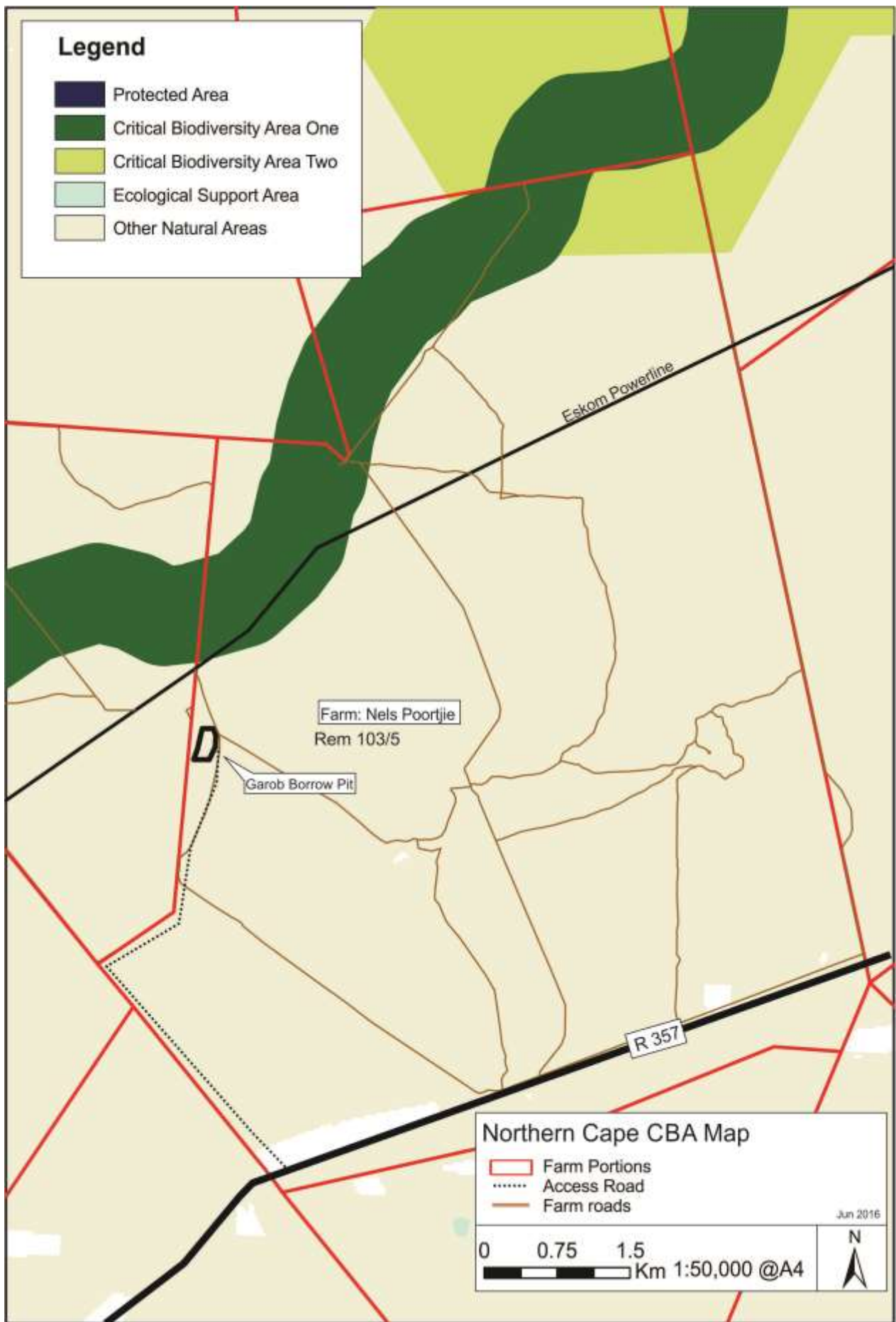


Figure 5: CBA Classification of the site, as per Northern Cape CBA mapping

The following classification as taken from the Mining Biodiversity guideline documentation as prepared by all state departments (Developed by the Departments of Environmental Affairs and Mineral Resources; with inputs from :Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines South African, Mining and Biodiversity Forum, South African National Biodiversity Institute, Grasslands Programme - with funding from the United Nations Development, Programme Global Environment Facility, WWF South Africa, Endangered Wildlife Trust, Centre for Sustainability in Mining and Industry, CapeNature, Mpumalanga Parks and Tourism Agency, De Beers, AngloGold Ashanti, Anglo American, Richards Bay Minerals, Centre for Environmental Rights, Centre for Applied Legal Studies, deVilliers Brownlie Associates, Department of Water Affairs, Live4Design, National Union of Mineworkers, Solidarity, UASA) classifies the Mining Permit site to be outside of any important biodiversity area.

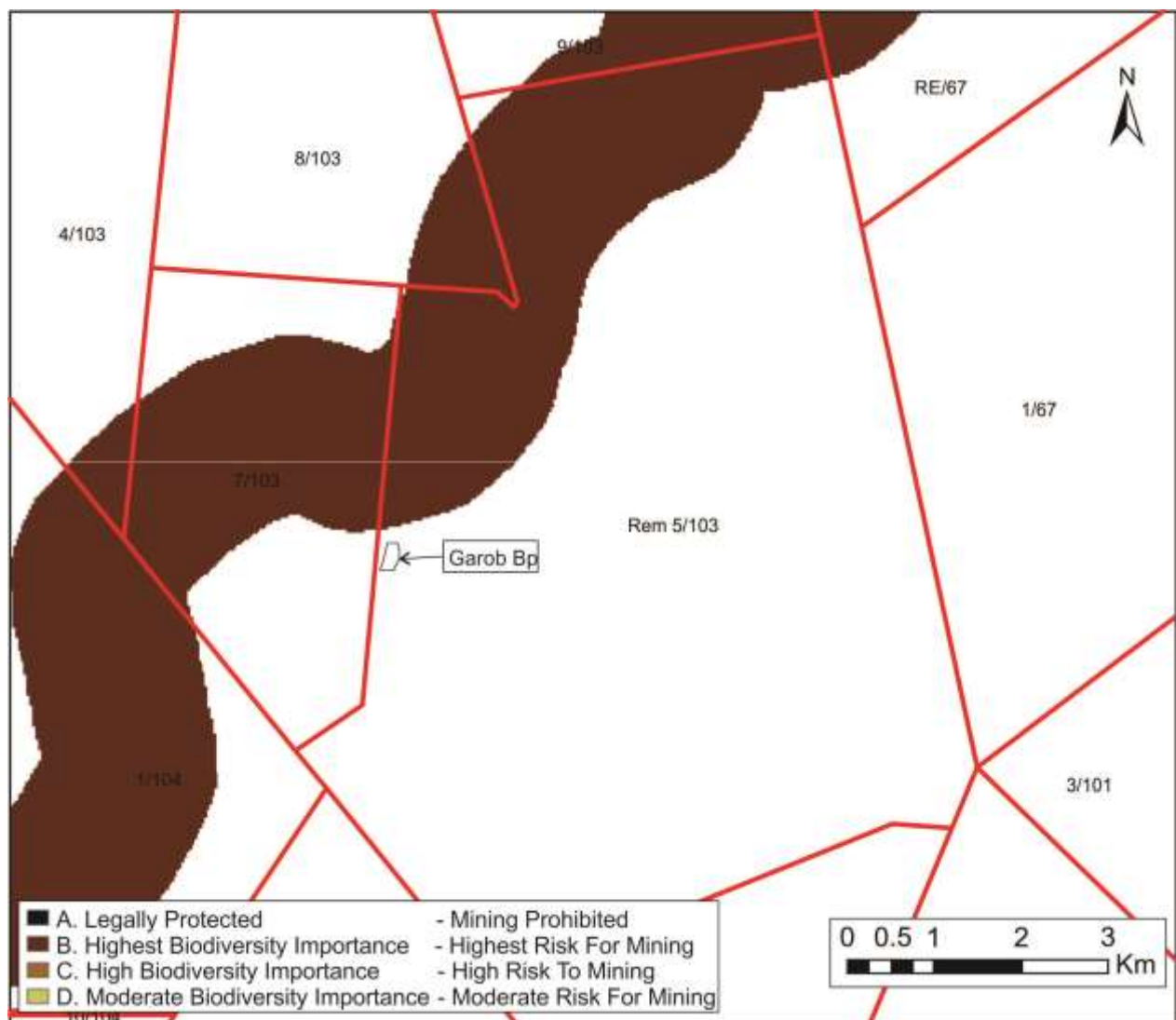


Figure 6: Mining and Biodiversity Guideline

<p>B. Highest Biodiversity Importance – Highest risk for mining</p>	<ul style="list-style-type: none"> Critically endangered and endangered ecosystems 	<p>Highest risk for mining</p>	<p>Environmental screening, environmental impact assessment (EIA) and their associated Specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the</p>
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	<ul style="list-style-type: none"> • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites 		<p>mitigation hierarchy to inform regulatory decision-making for mining, water use licences, and Environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being.</p> <p>An EIA should include the strategic assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity.</p> <p>This assessment should fully take into account the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts, and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.</p>
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“EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (E.g. threatened species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy.

Authorisations may be set limits and specify biodiversity offsets that would be written into licence agreements and/or authorizations”

9.1.2 Site within the context of the surrounds

Question 2: *Should development concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?*

Yes. The main reason for the Application for this Mining permit is the need for extensive windfarm roads and wind turbines platforms (over 45 turbines) that are to be built on the Nels Poortjie Farm 103 portion 5. This site is strategically located so as to limit costs incurred with long distance hauling of materials from further afield, together with the associated damage to the transport infrastructure and road safety risk escalation posed by such long distance transport.

The transport cost, road damage, and road safety risk impacts are ultimately borne by the community of this region. Materials sources for construction are a fundamental requirement for maintenance and upgrade projects, and given the huge investment in this region currently for the Construction of the various Wind Energy Facilities and the economic benefit brought about by such, the Development of a proximate source of suitable materials for the projects is of fundamental importance.

Question 3: *Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate)*

This questions deals with “justifiable economic development” and it should lead to the conclusion of whether the project serves the community in the broader sense. There are 2 points to consider in this respect:

1. From a financial point of view: The mining of this site will lead to much cheaper construction materials to the project occurring within this region.
2. The site is far- removed from any community as to render the impact from mining (i.e. biophysical) on a community negligible in all respects, and even impacts of visuals and traffic will be minimal as the material will be used within the farm.

Question 4: *Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?*

All necessary services will be provided by the Wind Farm Construction project infrastructure and services, should they be required in addition to the temporary requirements included in the Mining Planning outlined herein.

Question 5: *Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?*

There is no need for placement of services or infrastructure by the municipality in terms of this application or post mining proposals.

Question 6: *Is this project part of a national programme to address an issue of national concern or importance?*

No. (But indirectly it forms part of the Renewable Energy Generation Programme at National Level)

9.2 Desirability ('placing'):

Question 7: *Is the development the best practicable environmental option for this land/site?*

According to NEMA the "best practicable environmental option" means the option that provides the most benefit and causes the least damage to the environment *as a whole*, at a cost acceptable to society, in the long term as well as in the short term. In determining the best practicable environmental option, adequate consideration must also be given to opportunity costs.

Figure 5 and 6 show that the site is not in a biological sensitive site. The site is strategically located at the property that will have 45 wind turbine built on it. As such we believe that it is acceptable to proceed with the Mining envisioned given:

- a. The benefit gained from provision of construction materials sourced on-site allows for large economic gains in terms of cost-savings.

- b. The large scale of similar vegetation (which will be confirmed by specialist botanist)
- c. That a full search and rescue of vegetation will be conducted in liaison with botanist
- d. That full rehabilitation of the area will be conducted.
- e. That the excavations will be a shallow depth at most 3.5 meters and rehabilitation will use the topsoil with re-seeding. Thus, vegetation and animal life ecosystems recovery will be sufficient, and within which context we expect very rapid recovery of the area.

Question 8: *Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities.*

No. Mining (temporary contract quarrying) under this Mining Permit would only allow 2 to maximum 5 years of activity, and while altering the environment of the site, does not exclude future reintegration into wilderness, grazing or even conservation use.

Question 9: *Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?*

No. Mining under this Mining Permit would only allow 2-5 years of activity, and while altering the environment of the site, does not exclude future reintegration into wilderness, grazing or conservation use.

Question 10: *Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context).*

Yes. The site is place bound and fortunately central to the construction project which it will serve and is additionally informed primarily by the geological structure to be mined, Calcrete, being the most suitable material for the roadway construction it will serve.

Question 11: *How will the activities or the land use associated with the activities applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?*

In terms of Heritage, the site has been assessed by heritage specialist with such report concluding that heritage poses no restrictions on construction use of the site (refer Annexure B)

In terms of the natural environment, the specialist botanist who assessed the property as input to the windfarm EIA has been tasked with commenting on the mining permit area but in this report we rely on his positive findings in his windfarm report as contained in Annexure A hereto regarding both Fauna and Flora. Refer paragraph 14.1.5 natural vegetation and 14.1.6 animal life for extracts from the report

Question 12: *How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc.)?*

It is of importance to note that the site operations will be conducted strictly in accordance with the Mine Health and Safety Act (Act 29 of 1996)

This site is remote; it is 4.5 km away from the landowner house, ± 8km away from the farm 67 Portion 1's farmstead, 4 km away from the public road R357 and 7.2 to 9 km away from Copperton town. Thus, there are going to be minimal impacts on surrounding areas in terms of blast vibration and fly rock, visual impact and noise.

While the site is located in the alignment of the gravel runway of the Copperton Airstrip, at the distance of 5.8 kilometres from the nearest end of the runway no risk is identified pertaining to Aircraft approaching the runway at this distance.

Question 13: *Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?*

No. This issue is dealt with in question 3 above.

Question 14: *Will the proposed land use result in unacceptable cumulative impacts?*

No. Refer para 9.2.1 below.

9.2.1 Cumulative Impact Assessment

The assessment of cumulative impacts on a site specific basis is often a complex operation. The aim of this impact analysis is ultimately to determine at which point the combined impacts from several operations (similar or dissimilar) in the area will affect the environment or part thereof to such a negative degree that the project should not be allowed to proceed.

Always remember that mining is a **place-bound operation** (as opposed to say housing or shopping development which is less dependent on geology or other place-bound factors).

The following is an amended procedure sourced from http://www.eiatoolkit.ewt.org.za/documents/DEAT/guidelines/AT_EIA_Guideline5_Assessing_alternatives_and_impacts.doc

Types of cumulative impacts

Additive impact: Impacts of the same nature from different operations (e.g. excessive groundwater abstraction from several operations in the same area result in a severe drawdown effect)

Interactive impact: where a cumulative impact is the result of a combination of different impacts to cause a new kind of impact. This kind of impact can be:

- **Countervailing** – the net adverse effect is less than the sum of the individual impacts (e.g. pumping clear water into a polluted water resource).
- **Synergistic** – when the impacts work together to develop a sum of different impacts results in an impact which is greater than the individual impacts.

Methodology used in assessing cumulative impact/s

Determine extent of cumulative impacts:

- Identify potentially significant cumulative impacts associated with the proposed activity
- Establish the geographic scope of the assessment
- Establish the timeframe of the analysis
- Identify other activities affecting the environmental resources of the area

Describe the affected environment:

- Characterise the resources identified above in terms of their response to change and ability to withstand stress
- Define a baseline condition that provides a measuring point for the environmental resources that will be acted upon

Assess the cumulative impacts:

- Determine the magnitude or significance of cumulative impacts

Recommend mitigation measures.

So, using the aforementioned procedure as headings, herewith an assessment of the cumulative impacts arising from this operation:

At this stage of pre-Scoping we present the following perspectives on these matters.

Determining the extent of the cumulative impacts:

Identification of potentially significant impacts:

Proposed operations of this type could conceivably result in the following cumulative impacts:

Vegetation: Based on our assessment to date of the published literature, and having perused the specialist Flora assessment of the windfarm (refer para 14.1.5) it is expected impact on vegetation will be moderate, but Low with mitigation particularly since figure 5 of the Northern Cape shows that the site is not located within a critical biodiversity area. This will be additive to the impact of the Wind Farm construction which this mining will serve, but we note that such wind farm construction will be operating fully within the guidelines set by its Environmental Authorisation

Noise: This will be additive to the impact of the Wind Farm construction which this mining will serve, but we note that such wind farm construction will be operated fully within the guidelines set by its Environmental Authorisation.

While blast noise will be widespread, it will be subject of mitigation measures as later described, and is of very limited duration and will occur only very sporadically (maximum of once per month during operational activity).

Dust:

i) General: Dust is unlikely to present any impact on any farmstead or immediately surrounding land use given the distances involved. This will be additive to the impact of the Wind Farm construction which this mining will serve, but we note that such wind farm construction will be operated fully within the guidelines set by its Environmental Authorisation

ii) Impact on the public Road R357: The R357 will be used exclusively as an access to the site. Thus, dust generation by the quarry will not have any significant impact on road users. The windfarm project, another potential dust generator to raise the cumulative impact, will operate under its own prescribed Environmental Authorisation.

Socio-economic impacts: This will accrue a cumulative benefit, in terms of cost savings involved with the construction of the Wind Farm Projects, and allowance for employment on site of a larger staff complement by the contractor(Applicant hereto).

Agriculture: Given the locality of the site agricultural impact is Low. This will be additive to the impact of the Wind Farm construction which this mining will serve, but we note that such wind farm construction will be operated fully within the guidelines set by its Environmental Authorisation.

Geographic Scope of assessment:

Impact aspect	Geographic scope
Vegetation	NA
Dust	Local area – no impact on any community
Noise	Local area - no impact on any community
Socio-economic	Minor benefit to employment pool
Agriculture	Minor loss of agricultural grazing land

Timeframe of analysis

The proposed project will take place over a period of approximately 2 years (extendable to a maximum of 5 years). The timeframe of the analysis would typically depend on the nature of the impact being assessed:

- 1) Life-of-mine impacts to be assessed are noise, dust and socio-economic impact.
- 2) In respect of surface mining there is always a residual permanent impact in the form of alteration in topography. In this case, the footprint area of the excavations can be suitably rehabilitated to allow return to grazing/wilderness use.

Other activities impacting on environmental resources in the area

All aspects will be additive to the impact of the Wind Farm construction which this mining will serve, but we note that such wind farm construction will be operating fully within the guidelines set by its Environmental Authorisation.

Magnitude and significance of cumulative impacts

Vegetation: Low

Noise: Low.

Air Quality: Low

Socio-economic: No significant impact (minor benefit)

10 Period for which the environmental authorisation is required

A mining Permit is sought to allow for mining for a period of 2 years, with the MPRDA allowing for three consecutive annual renewal periods if required. As such, Environmental Authorization is sought for 5 years, to allow for potential lengthened lifespan or delayed onset of activities.

11 Description of the process followed to reach the proposed preferred site.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

Environmental considerations including visual exposure of the it to farm visitor routes, known environmental sensitivity mapping of the windfarm EIA and the regional geology of the area informed the process of seeking the preferred borrow pit site.

The holder undertook an investigation into potential materials sources in the broader area, with primary focus being appropriate sources for supplying materials to the Garob wind farm project, specifically then focusing on the farm Nels Poortjie 103 portion 5 to avoid distant transport of materials required for the windfarm.

The chosen site best met the location requirements, indicated low levels of impact and existing access for establishment not requiring a new access road.

12 Details of all 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 the following. Remember that the public participation process may reveal additional alternatives:

12.1 Property on which or location where it is proposed to undertake the activity;

Figure 2 image shows the regional distribution of the white calcrete occurring on farm Nels Poortjie and surrounding farms together with the windfarm and turbines to be constructed while the existing access road is shown in figure 1

On conclusion of the consideration of the distribution of Calcrete and the nature of the calcrete deposits and other considerations as above the proposed site was chosen as shown in figure 1 and 2 to be locationally suitable and also not impose initially considered negative environmental risks as is located on a watershed with no visual exposure to public

Consequently the location on farm Nels Poortjie 103/5 remainder, the farm of the

windfarm was chosen.

The holder undertook an investigation into potential materials sources in the broader area, with primary focus being appropriate sources for supplying materials to the Garob wind farm project, specifically then focusing on the farm Nels Poortjie 103 portion 5 remainder to avoid distant transport of materials required for the windfarm.

The chosen site best met the location requirements, indicated low levels of impact and existing access for establishment not requiring a new access road

12.2 Type of activity to be undertaken;

Construction aggregate mining is the activity to be undertaken. In this regard there are no alternative considerations in respect to such operating procedures.

12.3 Design or layout of the activity;

The layout of the excavation was based on a full surface geological assessment of the area and on-site assessment of:

- Current condition of the site,
- Ecological status and sensitivity of the site
- Surface geological analysis of the site
- Visual considerations of the site in relation to the wider region

12.4 Technology to be used in the activity;

Standard mining practice of such small scale mining operations as established in the industry is followed, with the use of the following machinery:

- Recover and loading of soft Calcrete with **excavator**
- **Percussion drill-rig** use in drilling of blast holes in hardpan Calcrete when encountered
- **Best available blast design** will be applied at the site to minimize fly rock and dust generation by blasting.
- **Excavator** loading of crushed Calcrete to delivery trucks
- **Potential for a Tracked Mobile Crusher on site**, for conducting of primary processing by means of screening and crushing to required materials specifications.
- Delivery by means of **Trucks** to construction sites

12.5 Operational aspects of the activity;

Refer Figure 4 and Paragraphs 5.2 and 6.

12.6 Option of not implementing the activity.

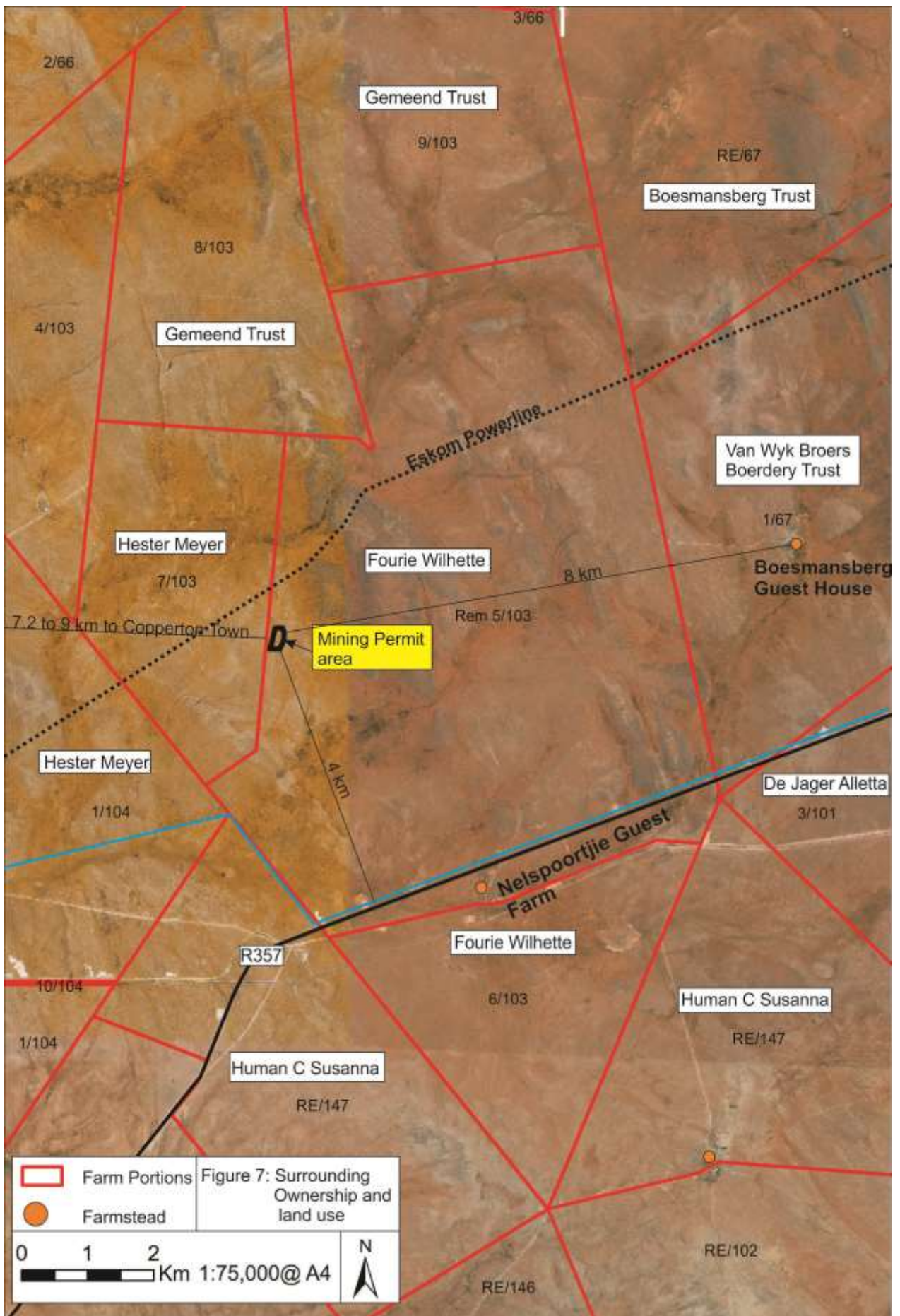
Primarily, the aspect of no-go project goes against the principle of optimization of resource as espoused in the MPRDA, and in this case the negative impact considerations do not justify a no-go project option.

Additionally, in terms of materials requirements to serve the wind energy facility construction project, the site is centrally located to the windfarm project taking place within the property see figure 2. Furthermore, there are no available commercial aggregate sources in the vicinity which would lead to exorbitant costs due to importation of materials from other sources (Kimberly), as well as increased traffic of the already dangerous national routes by heavy duty trucks and additional wear on transport infrastructure (only high- spec. concrete aggregate for turbine foundation construction will be trucked from a commercial source in the Douglas area).

13 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.

Refer Figure 7 Overleaf to be read with Table 13 thereafter.



The Public Participation Process includes the following (refer Table 13 overleaf and Appendix 3 for detail):

- On site consultation with the land owner, and Notification of immediately adjacent land owners (refer figure 7 Surrounding land use for Farm localities) by means of emailing and registered mail notification letters and copies of Draft Scoping Reports, as well as telephonic follow up.
- Erection of A2-size posters along the Application fence with R357 refer phot 3 below
- Posting of bilingual (English/Afrikaans) newspaper advertisements in the “Noordwester” local newspaper.
- Placing of Response forms and copies of the Draft Scoping Report at the Nelspoortjie Guest Farm reception (referred to in the newspaper advertisements)
- Posting by Registered mail of Notification letters and copies of the Draft Scoping Report to Commenting Authorities/Departments.

Refer Table 13 overleaf; list of correspondents, issues raised and method of notification.

We note that as the comment period by I&APs remains open until 30 August 2016, all comment received will be accepted and responded to as input to the EIA phase

Photo 3: A2 size posters attached to the R357 farm entrance gates

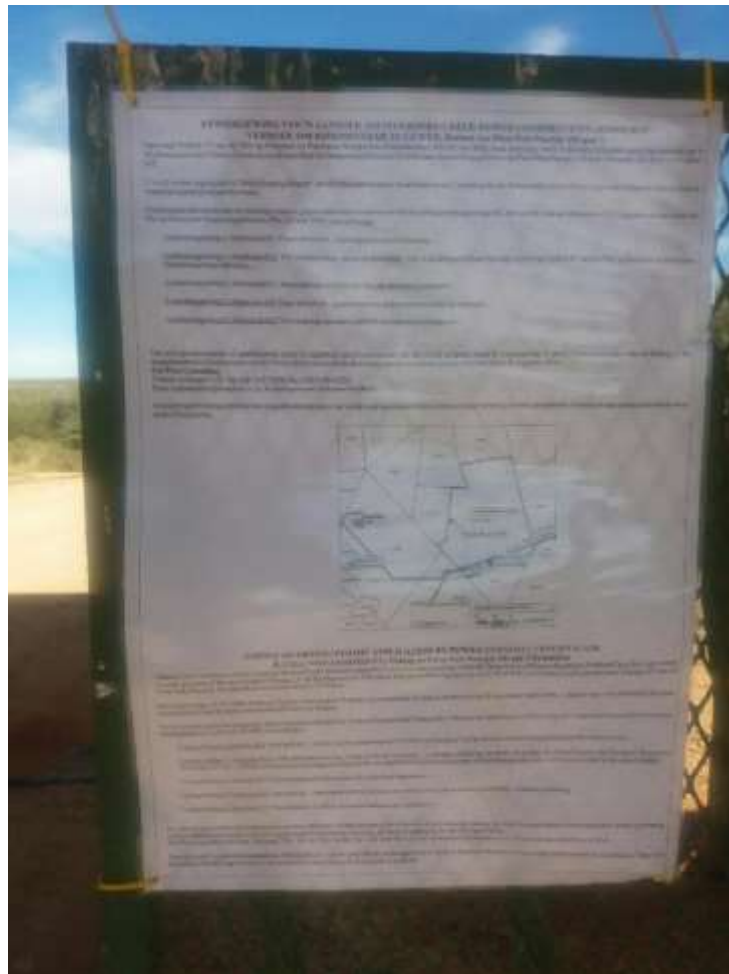


Table 13: Preliminarily Identified Interested and Affected Parties – Garob Quarry Mining Permit

Land Owner and surrounding land Owners

Farm/Property	Representative/Owner	Postal Address details	Phone/ Email contact Details	Contacted when (Date)
103 Portion 5 Rem and Portion 6	Fourie Wilhette	Po Box 382 Prieska 8940	082 853 1372	27 July 2016/RM
67 Portion 1	Van Wyk Broers Trust (Gerhard Van Wyk)	Po Box 217 Prieska 8940	082 652 5754	27 July 2016/RM
67 Remaining Extent	Boesmansberg Trust (Gerhard Van Wyk)	Po Box 217 Prieska 8940	082 652 5754	27 July 2016/RM
103 Portion 8 and 9	Gemeend Trust (Frans Van Wyk)	Po Box 544 Prieska 8940	083 250 8617	27 July 2016/RM
147 Remaining Extent	Human C Susanna	Po Box 309 Prieska 8940	078 639 2216	27 July 2016/RM
103 Portion 7	Hester Meyer	Po Box 102 Prieska 8940	082 338 9215	01 August 2016/RM
104 Portion 1	Hester Meyer	Po Box 102 Prieska 8940	082 338 9215	01 August 2016/RM
101 Portion 3	Sandra and Alleeta De Jager		072 482 7131	No response

Other I&APs

Department	Representative	Address details	Phone/ Email contact Details	Contacted when (Date)
Department Environment and Nature Conservation	Ms Ndzumo	Department Environment and Nature Conservation: 90 Long Street, SASKO Building, Kimberley, 8301	onyndzumo@gmail.com	27 July 2016/email
Siyathemba Local Municipality	Jakob Basson	Po Box 16, Prieska, 8940, Victoria Street	jakob@siyathemba.gov.za/ 053 353 5300	27 July 2016/email
Department Water and Sanitation	Mr A Abrahams/ Mr M Cebekhulu	Department of Water and Sanitation: Private Bag 6101, Kimberly, 8300	cebekhulum@dwa.gov.za	27 July 2016/email
Agriculture, land reform and rural development (NC)	Mr. Viljoen Mothibi Secretary C Fortune	Department of Agriculture, Land reform and rural development: Private Bag X5018, Kimberly, 8300	fortunec@ncpg.gov.za	27 July 2016/email
Regional land claims commission: Free State and Northern Cape	Nqabisa Mkalipi	NA	053 807 5700/ nqabisa.mkalipi@drdlr.gov.za	email
Department Transport, Roads and Public Works (NC)	Mr K Nogwili Secretary Ms N Corns	Department of Transport, Roads and Public Works: PO Box 3132, Kimberley, 8300	ncorns@ncpg.gov.za	27 July 2016/email

Enel Green Power	Mantwa Mbathebula	102 Rivonia Road, Sandton; Johannesburg 2196	Mantwa.mathebula@enel.com	01 August 2016/email
Red Cap	Lance Blaine		lance@red-cap.co.za	01 August 2016/email
Veld Renewables	Jason Cope		jcope@veldenewables.co.za	01 August 2016/email

14 The Environmental attributes associated with the sites: Baseline Environment

14.1 Type of environment affected by the proposed activity.

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

The following notes the existing environment together with potential impacts where highly relevant

14.1.1 Topography (Refer Figure 8: Regional Topography and Figure 4 for site contours)

The site on relatively flat ground as can be seen in photo 1, with topography rising from 1100 in the west of mining permit site to 1150 east of the site.

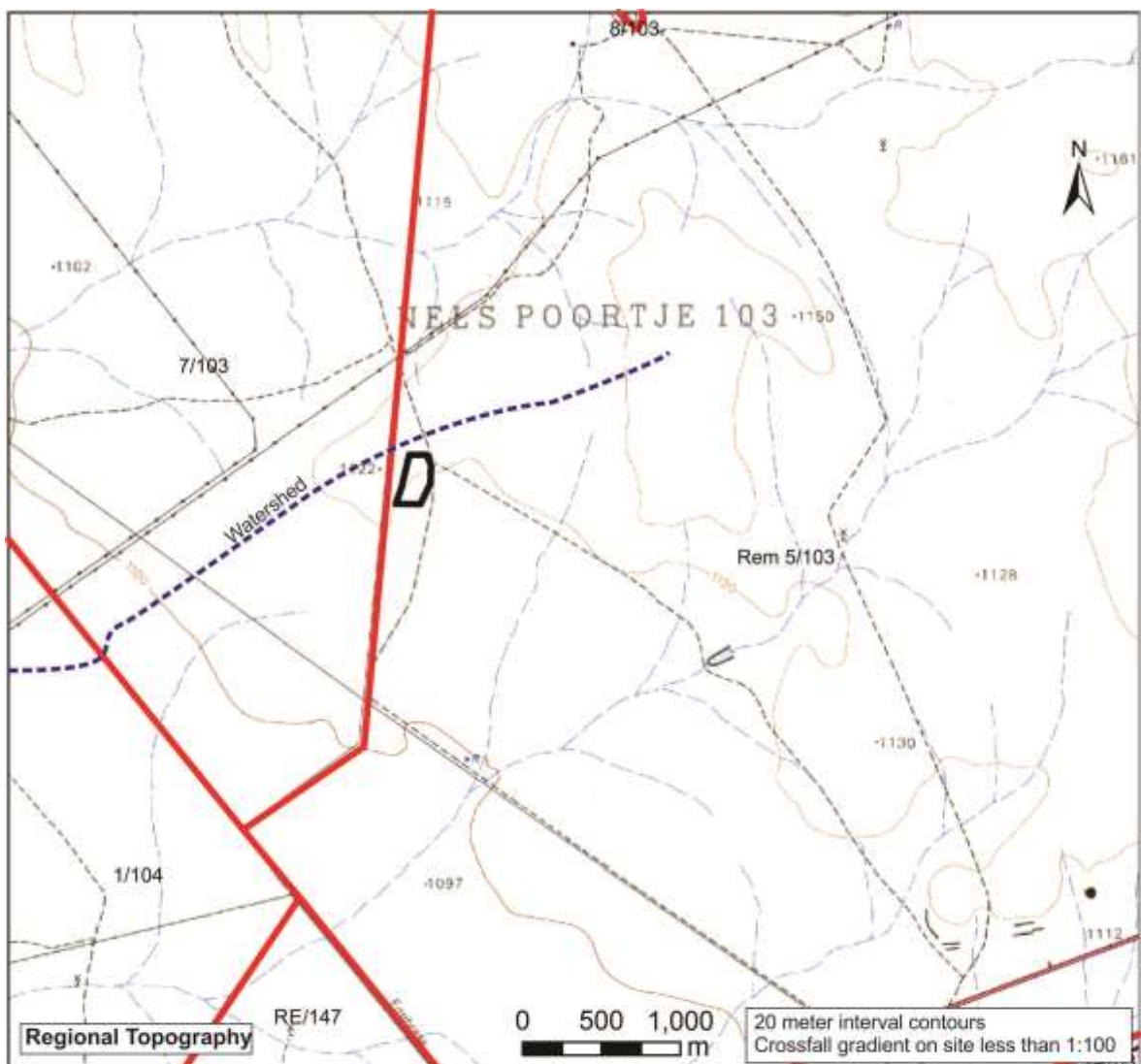


Figure 8: Regional Topography

14.1.2 Visual Impact

The site is located in a remote area, thus limiting any significant visual impact on the site.

14.1.3 Soil

The site is characterised by thin layer of upper weathered soils, underlain by primarily the Calcrete material sought as construction material for windfarm turbine platforms and roads. The area has an extensive Calcrete reserve with Uitdraai Formation Quartzite bedrock visible east of the site and immediately west of the site near the property boundary.

14.1.4 Land Capability

As, during 2015 drought, when the farm received only 11 mm for the year all livestock (sheep) hard to be withdrawn from the farming area, it is clear that the land only has a very low grazing potential and the rainfall and absence of topsoil makes the chosen borrow pit area total unsuitable for any arable production consideration. Following use of the site, it will be returned to low potential grazing land/wilderness (game).

14.1.5 Natural Vegetation

a) Veld type, distribution and conservation status according to Mucina and Rutherford.

Veld type: NKb 3 Bushmanland Arid Grassland

Name of vegetation type	Bushmanland Arid Grassland
Code as used in the Book - contains space	NKb3
Conservation Target (percent of area) from NSBA	21%
Protected (percent of area) from NSBA	0.40%
Remaining (percent of area) from NSBA	99.40%
Description of conservation status from NSBA	Least threatened
Description of the Protection Status from NSBA	Hardly protected
Area (sqkm) of the full extent of the Vegetation Type	45478.96
Name of the Biome	Nama-Karoo Biome
Name of Group (only differs from Bioregion in Fynbos)	Bushmanland Bioregion
Name of Bioregion (only differs from Group in Fynbos)	Bushmanland Bioregion

Distribution

Northern Cape Province: Spanning about one degree of latitude from around Aggeneys in the west to Prieska in the east. The southern border of the unit is formed by edges of the Bushmanland Basin while in the northwest this vegetation unit borders on desert vegetation (northwest of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariep Broken Veld, Kalahari Karroid Shrubland and Gordonia Duneveld. Most of the western border is formed by the edge of the Namaqualand hills. Altitude varies mostly from 600–1 200 m.

Conservation

Least threatened. Target 21%. Only small patches statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. Erosion is very low (60%) and low (33%).

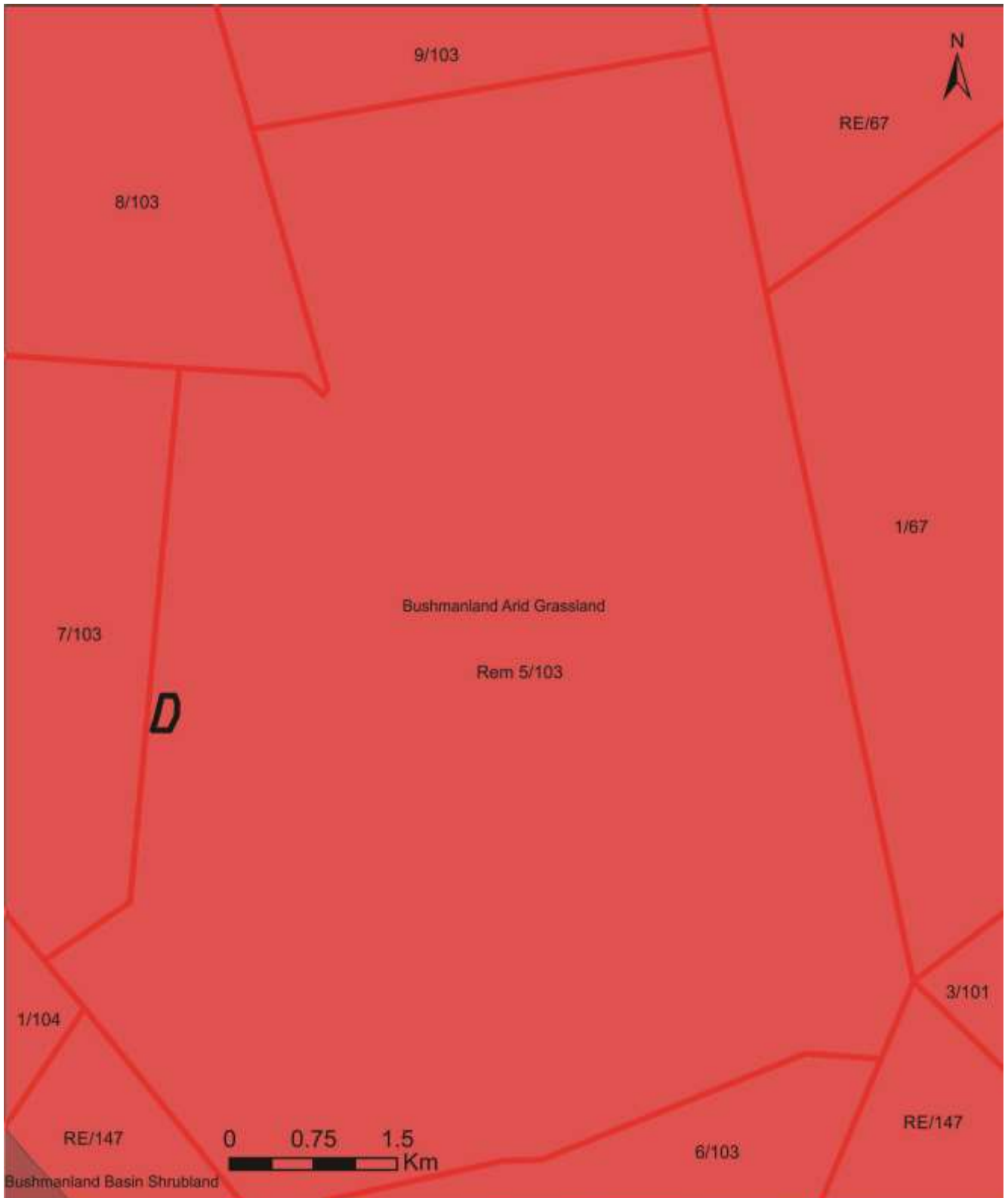


Figure 9: Original vegetation classification of the site, As per Mucina and Rutherford, 2012

b) Specialist flora assessment to date

As the flora and fauna of the windfarm have been assessed, in the scoping phase we have perused the report prepared by Simon Todd Consulting (Refer full report in Annexure A hereto). Accordingly we include the following extracts below to reflect on the findings of that report.

1. Fine scale vegetation mapping

Figure 3 of the Todd report maps the area of and surrounding the mining permit application area as Calcrete Plains Shrubland.

2. Sensitivity description of the Calcrete Plains Shrubland (Extract from Todd report pg 18)

Calcrete Plains Shrubland

The Calcrete Plains vegetation unit occurs in areas of shallow soils overlying calcrete, often with the calcrete exposed. This vegetation unit is broadly equivalent to the Bushmanland Basin Shrubland vegetation type of Mucina & Rutherford (2006). This is a low open shrubland with few trees. Dominant species include *Pteronia sordida*, *Pteronia glomerata*, *Rosenia humilis*, *Pentzia incana*, *Stipagrostis obtusa*, *Enneapogon desvauxii*, *Plinthus karoicus* and *Lycium cinereum*. This is not considered to be a sensitive plant community as the plant diversity is quite low and it occurs on gently sloping plains where the risk of secondary impact such as erosion is low. This community is particularly prominent in the eastern part of the site where a large proportion of the turbines are located.

14.1.6 Animal Life

a) Site Plan Consulting assessment

Vast expanses of the same habitat surrounding the site provide a habitat suitable for species typical of the area. These include rodents (rats, mice, shrews etc.), reptiles (snakes) birds and insects. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard.

Experience at many mining operations in which Site Plan Consulting have been involved over the past 30 years reveals the following in respect of **impact** on mobile wildlife:

- Initial blasting and activity in the short term scares away mammal and bird life but these soon return despite daily crusher and other activity noise or even subsequent periodic blasting. (This comment is informed by the fact that a very successful bird park with bird hides visited by members of the Port Elizabeth ornithological clubs reports a broad diversity of species in the rehabilitated valley adjacent to the continued plant and excavation operation at Moregrove Quarry, Eastern Cape.
- Small buck footprints were found daily in the silt deposits in the proximity of the plant of the Outeniqua Quarry in George
- Leopard being sighted within the mining area during the active crushing plant construction period of Palmiet Quarry in the Western Cape, notable for being situated within the Kogelberg Biosphere Reserve
- Fish eagles nest and breed successfully every year in the same Bluegum tree immediately adjacent to the face-advance of Peak Quarry in Eerste River, despite immediately adjacent blasting and the direct line of sight, crusher noise and hauling activities
- Blue crane pairs observed nesting in the post-rehabilitation monitoring the first year following closure of a large “soft rock” calcrete borrow pit near Still Bay.
- Egyptian Geese which live year-round in the old Glencairn Quarry at Fish Hoek, western Cape, and which can be seen remaining unperturbed during and despite

the use of the old quarry now being as a Firing Range for the False Bay Sports Shooting Club.

- Visits to temporarily abandoned quarries and old quarries with hard rock faces at numerous sites reveal almost immediate re-use of such sites by dassies and nesting birds (notably raptors, including owls).

b) Specialist Fauna assessment to date

As the flora and fauna of the windfarm have been assessed as part of the windfarm EIA, in the scoping phase we have perused the report prepared by Simon Todd Consulting (Refer full report in Annexure A hereto). Accordingly we include the following extracts below to reflect on the findings of that report.

1. Terrestrial mammals

Two species of conservation concern may occur at the site, the Black-footed cat *Felis nigripes* (Vulnerable) and the Honey Badger *Mellivora capensis* (SA RDB Endangered). However as both these species are widely distributed across the arid and semi-arid areas of South Africa, the development would not amount to a significant amount of habitat loss for these two species. The construction phase of the development would generate a lot of noise and disturbance which would deter many larger mammals from the area. However during the operational phase the levels of disturbance will be significantly lower and disturbed species or individuals are likely to return to the site. Initially, some mammals may be wary of the turbines, but are likely to become habituated to their presence.

2. Reptiles

The site falls within the distribution of range of 39 reptile species and an additional four species have been recorded from the area by SARCA, which are outside their published distribution range. The reptile community composition of the site is likely to be very high in lizards and skinks relative to snakes other groups. Species observed during the site visit include the Variegated Skink *Mabuya variegata*, Karoo Girdled Lizard *Cordylus polyzonus*, Ground Agama *Agama aculeata*, Spotted Sand Lizard *Pedioplanis lineocellata* and Namaqua Sand Lizard *Pedioplanis namaquensis*. No listed reptiles are known from the area. Although the rocky hills are likely to contain greater reptile species richness than other habitats, there are no specific habitats at the site which are particularly important for reptiles. As a result impacts on reptiles are likely to result largely from habitat loss and the disruption of landscape connectivity, rather than a specific threat to any rare or unique reptile habitats. Many reptiles are vulnerable to predation when traversing open areas and the presence of the roads will result in increased predation risk for susceptible reptiles. The overall impact on reptiles is however not likely to be highly significant as the total amount of habitat loss is not very large and the surrounding landscape is overwhelmingly intact and there are no rare or restricted reptile habitats that would be affected by the development.

3. Amphibians

The site lies within the distribution range of 10 frog species. Of these, only the Giant Bullfrog *Pyxicephalus adspersus* is of conservation concern and is listed as Near Threatened. This species is associated with temporary pans and as there were no temporary or permanent water bodies within the site, it is not likely that it is an important area for the Giant Bullfrog. In terms of the other species which may occur at the site, only those species which are able to survive away from permanent water are likely to occur at the site. Given the paucity of temporary or permanent water at the site, it is not likely to have a very diverse amphibian population and impacts on amphibians are not likely to be of much consequence. The greatest threat to amphibians associated with the development is probably chemical and fuel/oil spills related to the construction activities, rather than the presence of the development in the long-term. It is not likely that the development of the facility would have a significant long-term impact on local amphibian populations.

Regarding overall ecological sensitivity, the mining permit area falls within the Todd ecological sensitivity classification of Medium in a range of Very High, High, and Medium as per his figure 8 in Annexure A hereto.

14.1.7 Surface Water

As indicated on the Mine Plan (Figure 4 and Appendix 4), the site is not located on near any surface water bodies and as such there are no impacts expected for surface water resources. The excavations following mining will remain shaped to be internally draining.

14.1.8 Ground Water

Given the minimal depth of mining the groundwater regime will not be impacted upon in any way.

14.1.9 Air Quality (Dust)

a) Ambient dust levels.

At present, the existing ambient dust levels are extremely low and attributed to the following:

- Very occasional vehicles on unsurfaced roads in the area
- Minimal agricultural activities surrounding the site (primarily livestock movement)
- Additionally, from the time of commencement of the mining activities additional dust generation will be underway from the construction of the wind energy facility over the farm.

b) Dust generation activities by the mining include

- Topsoil removal and topsoil berms prior to grass seeding
- Short delivery road construction
- Drilling and blasting if undertaken. (While these activities are provided for, they could occur locally on an ad hoc basis. Regarding their dust generation, it is noted that all drill rigs are equipped with efficient dust extraction systems and that blast dust will be sporadic one of events)
- Dozing and loading of material
- Crushing and screening by mobile crusher (normally the highest dust generator, unless attenuated)
- Stockpiling
- On site truck and front end loader maneuvering (the second ranked dust generator)

c) Expected dust dispersion under the wind regime of Copperton

As shown in the Windrose for Copperton below, dust generated on the borrow pit site will be dispersed primarily:

- Towards the northeast/ east sector; and
- Towards the west/southwest sector.

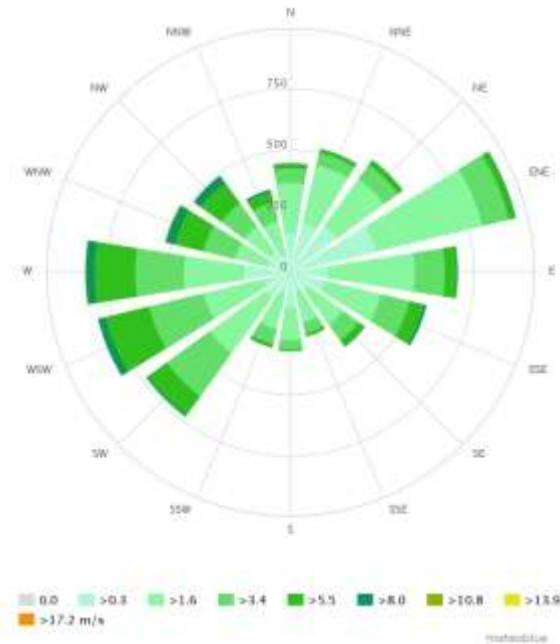


Figure 10: Windrose of Copperton town adopted from www.meteoblue.com

Dispersion in the direction of the town at the distance of 7.2 to 9 km to the west will not cause dust impact at such distance (Figure 7). While dust dispersion under the higher wind speeds of west-south-westerly wind will be in the direction of the Boesmansberg Guest House, dust will also not impact on this facility given the distance of 8 km and the topographic ridges between the Mining Permit area and the guest house. Given low wind speed from the north and a distance of 4 km between the mine and the R357 and the Nels Poortjie Guest House of the landowner, dust will not impact on either the road or guest house and low wind incidence

It is noted that dust impact is a well-known element which the quarry industry faces and accordingly the industry has developed numerous attenuation measures which it applies under appropriate circumstances to minimise dust impact.

d) Dust standards

Quarry dust is considered within the SANS 1929:2004 Dust Fall Standards and even to the recognition that certain enterprises need to operate within “band 3” by virtue of “the practical operation of the enterprise...” provided that the best available control technology is applied for the duration”. As the industry has developed methods of attenuation which can be shown to attenuate the various dust levels from the respective sources, these SANS standards are retained herein. In this regard, given the isolation of the site, the sought after dust level to be achieved at a distance of 600 meters is set at 600 mg/m²/day within the context of operating within band 3 for limited periods.

“DUST FALL STANDARDS SANS 1929:2004

4.8 Dust Deposition

4.8.1 General

The four-band scale to be used in the evaluation of dust deposition is given in 4.8.2 and target, alert and action levels indicated in 4.8.3. Permissible margins of tolerance are outlines in 4.8.4 and exceptions noted in 4.8.5

4.8.2 Evaluation Criteria for Dust Deposition

Dust deposition rates shall be expressed in units of $\text{mg m}^{-2} \text{day}^{-1}$ over a 30-day averaging period. Dust deposition shall be evaluated against a four-band scale as presented in Table 9.

Table 9 – Four-band scale evaluation criteria for dust deposition

Band number	Band description label	DUSTFALL RATE (D) ($\text{mg}/\text{m}^2/\text{day}^1$ 30-day average)	Comment
1	Residential	$D < 600$	Permissible for residential and light commercial.
2	Industrial	$600 < D < 1\ 200$	Permissible for heavy commercial and industrial.
3	Action	$1\ 200 < D < 2\ 400$	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	$2\ 400 < D$	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

4.8.3 Target, Action and Alert Thresholds are given in Table 10

Table 10 – Target, action and alert thresholds for dust deposition

Level	DUSTFALL RATE (D) ($\text{mg}/\text{m}^2/\text{day}^1$ 30-day average)	Averaging period	Permitted frequency of exceedances
Target	300	Annual	
Action residential	500	30 days	Three within any year, no two sequential months
Action industrial	1 200	30 days	Three within any year, no two sequential months.
Alert threshold	2 400	30 days	None. First exceedance requires remediation and compulsory report to authorities.

4.8.4 Margin of Tolerance

An enterprise may submit a request to the authorities to operate within Band 3 (ACTION Band), as specified in Table 9, for a limited period, providing that this is essential in terms of the practical operation of the enterprise (for example the final removal of a tailings deposit) and provided that the best available control technology is applied for the duration.

No margin of tolerance will be granted for operations that result in dust fall rates which fall within Band 4 (ALERT Band) as specified in Table 9.

4.8.5 Exceptions

Dust falls that exceed the specified rates but that can be shown to be the result of some extreme weather or geological event shall be discounted for the purpose of enforcement and control. Such event might typically result in excessive dust fall rates across an entire metropolitan region, and not be localised to a particular operation. Natural seasonal variations, such as dry windy period during the Highveld spring will not be considered extreme events for this definition"

The following wind rose reflects the prevailing wind regime for the area:

As background for the reader, the following table outlines where quarrying dust is generated and what related attenuation measures are normally applied to attenuation of dust by such generation activities:

Dust generation activities/areas/points	Related attenuation measures which can be considered when and if necessary given isolation of the site
Site preparation, including dozing of topsoil to berms, delivery road construction, digging of stormwater channels, and construction of the primary ramp.	Pre-wetting of areas prior to earthmoving
Drilling. (Not generally but on an ad hoc basis)	All rigs equipped with dust extraction equipment
Blasting (Not generally but on an ad hoc basis)	Blast design shall be designed to optimize rock fracturing with minimal air blast. Furthermore, blasting can be scheduled for suitable day or time of day when wind favours dispersion away from a

	receiving environment.
Blasting or Loading and hauling of shot rock to crusher. (Not generally but on an ad hoc basis)	The blast pile can be wet by fire hose spraying from water cart prior to loading
Crushing and screening.	Water sprays and mist sprays on all tipping and conveyer belt transfer points, screens and conveyor discharges.
Stockpiling (As above, liberal application of water by sprinklers can be applied to concrete aggregate stockpiles without affecting material quality).	Agricultural-type water sprinklers on stockpiles and removal of non-concrete aggregate production material from site to reduce on-site stockpiles of dust generating materials.
On site maneuvering and dispatch trucking	Combination of water cart wetting of all maneuvering and roadways and sprinkler installations along gravel delivery route and past the weigh bridge.

14.1.10 Noise

Current noise generating activities in the area are related to:

- Passing traffic
- SANDF missile testing range

Additionally, at the time of commencement of the mining activities additional noise generation will be underway from the construction of the wind energy facility within the farm.

14.1.11 Archaeology/Heritage

In terms of Heritage, the site has been subject to a heritage assessment, in terms of the National Heritage Act (refer Annexure B). The findings of which are that concluding that heritage poses no restrictions on construction use of the site.

14.1.12 Traffic (Refer Figure 5)

There should be no traffic increase in the R357, as the material produced in the mining permit area will not leave the farm i.e the windfarm project is within the same property as the borrow pit. R375 will only be used as an access road to the site and there shall be no need for road closures related to fly rock from blasting.

14.1.13 Blast Vibration and fly rock

As blast design is infinitely variable, and the prescriptions for blast impact consideration in mining require such impact to be based on risk, the impact of blast vibration is a factor of both method of blasting (blast design) and distance to affected infrastructure or persons.

As state and mentioned in the previous sections the site is located in a remote area and there are no structures that may be affected by the blast operation. Even the Eskom Powerline is over 500 meters away from the quarry

At Draft Scoping Level the following can be said:

- i. Through appropriate blast design **blast vibration can be managed to pose no threat**, based on numerous blast vibration records of other quarries.
- ii. **Fly rock** is legally acknowledged as being a potential impact within a radius of up to 500m. As such this operation will not impact on any surrounding farmsteads or

other activity centres, but would impact on farm personnel and livestock who may be in close proximity to the quarry at the time of blasting (**which persons will by prescription of the EMP and the blasting regulations have been alerted well in advance of such blast, and the blaster shall ensure that all personnel and livestock are evacuated from the danger zone prior to blasting**).

The quarry manager will notify adjacent landowners/managers of the intended date and time of the next blast in order that:

- The residents and personnel outside the danger area can expect the blast, and in so doing the startling effect of the blast by the air blast vibration can be reduced.
- All farm personnel will avoid entering the danger radius during the period of the blast.

In accordance with the blasting code:

- The blaster shall drive along the perimeter fences to inspect the adjacent lands to ensure that there are no persons or livestock within the blast radius
- a hooter/siren will alert all persons in proximity of the pending blast

14.2 Description of the current land uses

The farm is currently utilised for limited livestock grazing and wilderness use.

The following land uses surround the proposed site (Refer Figure 7).

- Widespread wilderness use and grazing of livestock
- The closest community is that of Copperton town 7.2 to 9 km to the west (Figure1),
- The Closest farmsteads are those of the land owners 4.5 km to the southeast

14.3 Description of specific environmental features and infrastructure on the site.

Refer Figure 1, Para 14.1 and 14.2 as well as para 5.

14.4 Environmental and current land use map.

(Show all environmental and current land use features)

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15 Impacts identified

(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).

Step one is to identify applicable impacts, as per table below. Second step is to ascribe significance and details as per table thereafter.

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water	Ground Water	Animal Life	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/ Cultural	Hydrocarbon Impact	Traffic /Access	Blast vibration/fly rock
	Application for Mining Permit																
1.	Pre-Establishment/ Establishment Phase																
1.1.	Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 3).																
1.2.	existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)																
1.3.	Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery																
1.4.	Remove topsoil by grader from demarcated area to topsoil berms for later re-use (ref Fig 3).																
1.5.	As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains																
1.6.	Establish steel-banded diesel tank of <20,000 liters.																
1.7.	Establish logistical facilities of single container as office and store and two chemical toilets																
1.8.	No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles																
1.9.	Establish mobile tracked crushing and screening plant.																
1.10	Grass-seed the topsoil berms.																

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water	Ground Water	Animal Life	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/ Cultural	Hydrocarbon Impact	Traffic /Access	Blast vibration/fly rock
1.11	Conduct establishment phase monitoring.																
2	Operational Phase																
2.1.	Dozer rips hardpan surface	Red	Red		Red	Red					Red	Red			Red		
2.2.	Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.	Red	Red								Red	Red			Red		
2.3.	Doze ripped hardpan and 0.6 m upper calcrete to crusher feed pile				Red						Red	Red			Red		
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.				Red						Red	Red			Red		
2.5.	Crushing and screening to dispatch stockpiles or direct to dump trucks to central stockpile.										Red	Red			Red		
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.										Red	Red			Red		
2.7.	Provide sump in floor to permit floor drainage							Green									
2.8.	Conduct dust suppression on haul roads and plant.											Red					
2.9.	Refuelling and hydrocarbon management.														Green		
2.10	Chemical toilets managed by contractor								Green								
2.11	Conduct operational phase monitoring.																
2.12	Operational phase maintenance.																
2.13	Construct and maintain side drain and mitre drains on short delivery road.							Green									
2.14	Continuous ad hoc eradication of any alien vegetation					Green	Green										
3	Decommissioning Phase																
3.1.	Doze pit perimeter faces to 1:3 slope	Red	Red		Red						Red	Red			Red		
3.2.	Doze undulating areas in floor to smooth.	Red	Red		Red						Red	Red			Red		
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)				Red												
3.4.	Rip/Scarify hardened./compacted surfaces										Red	Red			Red		
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover			Green		Green					Red	Red			Red		
3.6.	Remove containers, (diesel tank) and chemical toilets																
3.7.	Grass seed re-topsoiled areas.						Green										

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Geology	Topography	Soil/ Topsoil	Visual	Land Capability	Vegetation	Surface Water	Ground Water	Animal Life	Noise	Air Quality (Dust)	Social/ Economic	Archaeology/ Cultural	Hydrocarbon Impact	Traffic /Access	Blast vibration/fly rock
3.8.	Conduct hydrocarbon decontamination.																
3.9.	Retain perimeter fence as sheep camp use by landowner.																
3.10	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms																
3.11	Conduct final performance assessment for closure.																
3.12	Lodge Closure Application																
3.13	Allow quarry floor to drain to rain water sump during rainfall episodes																
4	Aftercare Period																
4.1.	Remove alien vegetation, if present																
4.2.	Monitor revegetation success, with follow-up seeding if required																
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)																

Note the table below contains only the potential negative impacts identified in the above. It does not (and is not meant to) show beneficial impacts which arise out of operational or decommissioning rehabilitation activities or monitoring. This has been done in order to reduce the length of this report.

So, for example, the positive impact on soil, vegetation and land capability which arises out of topsoil replacement is not shown in the tables which follow.

								Extent to which impact can cause or be:		
Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Nature of Impact	Extent	Duration	Probability	Significance	Reversed	irreplaceable loss of resource	avoided managed or mitigated
Application for Mining Permit										
Demarcate no go zones										
1.	Pre-Establishment/ Establishment Phase	Impact	Nature of Impact	Extent	Duration	Probability	Significance	Reversed	irreplaceable loss of resource	avoided managed or mitigated
1.1.	Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 4).									
1.2.	Use existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)									
1.3.	Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery	Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
1.4.	Remove topsoil by grader from demarcated area to topsoil berms for later re-use (ref Fig 4).	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9

		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
1.5.	As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains									
1.6.	Establish steel-bunded diesel tank of <20,000 liters.	Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
1.7.	Establish logistical facilities of single container as office and store and two chemical toilets									
1.8.	No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles									
1.9.	Establish mobile tracked crushing and screening plant.	Visual	view of mining activities and denuded appearance of the mining area	Mining area and adjacent public roadway	Life of Mine	Definite	Minor given short the remoteness of the site	NA	NA	Refer Para 22.9
1.10.	Grass-seed the topsoil berms.	Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
1.11.	Conduct establishment phase monitoring.									
2	Operational Phase	Impact	Nature of Impact	Extent	Duration	Probability	Significance	Reversed	irreplaceable loss of resource	avoided managed or mitigated

2.1.	Dozer rips hardpan surface	Geology	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Topography	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Land capability	Loss of original land capability until rehabilitation	Mining Area	Until successfully rehabilitated	Definite	Insignificant	Yes	No	Refer Para 22.9
		Visual	view of mining activities and denuded appearance of the mining area	Mining area and adjacent public roadway	Until successfully rehabilitated	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9
		Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
2.2.	Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.	Noise	Noise generated by drilling equipment and widespread startling effect of blast on surrounding land users	Localised	Ad hoc during life of mine	Possible should blasting be required	Insignificant (None on surrounding land users)	No	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Local and potentially	Ad hoc during life of mine	Possible should blasting be required	Low given distances, prevailing winds, remoteness of site	No	No	Refer Para 22.9

		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Until remediation	Possible should blasting be required	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
		Geology	Change in geological feature of the land	Mining Area	Permanent	Possible should blasting be required	Insignificant	No	Yes	Refer Para 22.9
		Topography	Change in geological feature of the land	Mining Area	Permanent	Possible should blasting be required	Insignificant	No	Yes	Refer Para 22.9
		Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
2.3.	Doze ripped hardpan and 0.6 m upper calcrete to crusher feed pile	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9

		Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
2.5.	Crushing and screening to dispatch stockpiles or direct to dump trucks to central stockpile.	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9

2.7.	Provide sump in floor to permit floor drainage									
2.8.	Conduct dust suppression on haul roads and plant.	Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
2.9.	Refuelling and hydrocarbon management.									
2.10.	Chemical toilets managed by contractor									
2.11.	Conduct operational phase monitoring.									
2.12.	Operational phase maintenance.									
2.13.	Construct and maintain side drain and mitre drains on short delivery road.									
2.14.	Continuous ad hoc eradication of any alien vegetation									
3	Decommissioning Phase	Impact	Nature of Impact	Extent	Duration	Probability	Significance	Reversed	irreplaceable loss of resource	avoided managed or mitigated
3.1.	Doze pit perimeter faces to 1:3 slope	Geology	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Topography	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9

		Air quality (dust)	Dust generated by earthmoving equipment and	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
		Noise	Noise generated by earthmoving equipment	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
3.2.	Doze undulating areas in floor to smooth.	Geology	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Topography	Change in geological feature of the land	Mining Area	Permanent	Definite	Insignificant	No	Yes	Refer Para 22.9
		Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
		Noise	Noise generated by earthmoving equipment	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)	Visual	view of mining activities and denuded appearance of the mining area	Mining area	Life of Mine	Definite	Minor given short lifespan	NA	NA	Refer Para 22.9

3.4.	Rip/Scarify hardened./compacted surfaces	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover	Noise	Noise generated by earthmoving equipment and haul trucks	Mining area and surrounds	Life of Mine	Definite	Insignificant given remoteness of the site	Fully reversible	No	Refer Para 22.9
		Air quality (dust)	Dust generated by earthmoving equipment and haul trucks	Localised	Life of Mine	Definite	Minor given limited extent of excavation ,remoteness of the site	Fully reversible	No	Refer Para 22.9
		Hydrocarbon Impact	Potential Hydrocarbon leaks	Localised	Life of Mine	Possible	Insignificant if remediated	Fully reversible	No	Refer Para 22.9
3.6.	Remove containers, diesel tank and chemical toilets									
3.7.	Grass seed re-topsoiled areas.									
3.8.	Conduct hydrocarbon decontamination.									
3.9.	Retain perimeter fence as sheep camp use by landowner.									
3.10.	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms									

3.11.	Conduct final performance assessment for closure.									
3.12.	Lodge Closure Application									
3.13.	Allow quarry floor to drain to rain water sump during rainfall episodes									
4	Aftercare Period	Impact	Nature of Impact	Extent	Duration	Probability	Significance	Reversed	irreplaceable loss of resource	avoided managed or mitigated
4.1.	Remove alien vegetation, if present									
4.2.	Monitor revegetation success, with follow-up seeding if required									
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)									

16 Methodology used in determining the significance of environmental impacts

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

As an Application for the authorization of Mining activities, the first and foremost consideration is that of mining being a **place-bound activity**, reliant fully on the local geology and suitability of the site for mineral beneficiation.

The locality of the Site must thus be considered within this consideration together with the Mining Legislation which requires that an area is demarcated for Application prior to provision of any documentation, which area is then fixed and which does not offer option for revision once the Application process has commenced.

Given the above, a full assessment of the site prior to application is of utmost importance, and, full aspects of the site were assessed to guide the Site locality prior to Application, inclusive of geology, Social, and environmental considerations, and acting as an assessment of constraints, opportunities and feasibility of the envisioned development.

As the Mineral Legislation does not favour advertising of the project for public input prior to the Application, the pre-Application assessment will be herewith strengthened with further inputs from Interested and Affected Parties, but was based on specialist inputs from commencement.

17 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)

All potential impacts of the operation have been addressed to date in paragraphs 14 and 15.

All comment regarding revision of the originally indicated Site Layout will be included in final and pending documentation.

18 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).

Refer Paragraph 22.9.

19 The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

Refer para 11 and 12, and geology Para 5.1.

20 Motivation where no alternative sites were considered.

Not applicable.

21 Statement motivating the preferred site.

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

Refer Paragraph 11 and 12.

22 Plan of study for the Environmental Impact Assessment process

22.1 Description of alternatives to be considered including the option of not going ahead with the activity.

The sole alternative to the sought mining operation would be that of not proceeding with the operation. The considerations in respect of this option are discussed in paragraphs 9-12.

22.2 Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)

The following activities and environmental aspects thereof will continue to be assessed during the EIA process:

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Provisionally assessed in the Draft Scoping Report	Status in Final Scoping Report
	Application for Mining Permit			
	Demarcate no go zones			
1.	Pre-Establishment/ Establishment Phase	Impact		
1.1.	Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 4).			
1.2.	Use existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)			
1.3.	Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery	Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
1.4.	Remove topsoil by grader from demarcated area to topsoil berms for	Noise	Yes, Refer Part 15	No changes as yet

	later re-use (ref Fig 4).	Visual	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
1.5.	As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains)			
1.6.	Establish steel-bunded diesel tank of <20,000 liters.	Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
1.7.	Establish logistical facilities of single container as office and store and two chemical toilets			
1.8.	No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles			
1.9.	Establish mobile tracked crushing and screening plant.	Visual	Yes, Refer Part 15	No changes as yet
1.10.	Grass-seed the topsoil berms.	Air quality (dust)	Yes, Refer Part 15	No changes as yet
1.11.	Conduct establishment phase monitoring.			
2	Operational Phase	Impact		
2.1.	Dozer rips hardpan surface	Geology	Yes, Refer Part 15	No changes as yet
		Topography	Yes, Refer Part 15	No changes as yet
		Land capability	Yes, Refer Part 15	No changes as yet
		Visual	Yes, Refer Part 15	No changes as yet
		Noise	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
2.2.	Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.	Noise	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
		Geology	Yes, Refer Part 15	No changes as yet
		Topography	Yes, Refer Part 15	No changes as yet
2.3.	Doze ripped hardpan and 0.6 m upper calcrete to crusher feed pile	Noise	Yes, Refer Part 15	No changes as yet
		Visual	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.	Noise	Yes, Refer Part 15	No changes as yet
		Visual	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
2.5.	Crushing and screening to dispatch stockpiles or direct to dump	Noise	Yes, Refer Part 15	No changes as yet

	trucks to central stockpile.	Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.	Noise	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
2.7.	Provide sump in floor to permit floor drainage			
2.8.	Conduct dust suppression on haul roads and plant.	Air quality (dust)	Yes, Refer Part 15	No changes as yet
2.9.	Refuelling and hydrocarbon management.			
2.10.	Chemical toilets managed by contractor			
2.11.	Conduct operational phase monitoring.			
2.12.	Operational phase maintenance.			
2.13.	Construct and maintain side drain and mitre drains on short delivery road.			
2.14.	Continuous ad hoc eradication of any alien vegetation			
3	3. Decommissioning Phase	Impact		
3.1.	Doze pit perimeter faces to 1:3 slope	Geology	Yes, Refer Part 15	No changes as yet
		Topography	Yes, Refer Part 15	No changes as yet
		Visual	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
		Noise	Yes, Refer Part 15	No changes as yet
3.2.	Doze undulating areas in floor to smooth.	Geology	Yes, Refer Part 15	No changes as yet
		Topography	Yes, Refer Part 15	No changes as yet
		Visual	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
		Noise	Yes, Refer Part 15	No changes as yet
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)	Visual	Yes, Refer Part 15	No changes as yet
3.4.	Rip/Scarify hardened./compacted surfaces	Noise	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet
		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover	Noise	Yes, Refer Part 15	No changes as yet
		Air quality (dust)	Yes, Refer Part 15	No changes as yet

		Hydrocarbon Impact	Yes, Refer Part 15	No changes as yet
3.6.	Remove containers, diesel tank and chemical toilets			
3.7.	Grass seed re-topsoiled areas.			
3.8.	Conduct hydrocarbon decontamination.			
3.9.	Retain perimeter fence as sheep camp use by landowner.			
3.10.	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms			
3.11.	Conduct final performance assessment for closure.			
3.12.	Lodge Closure Application			
3.13.	Allow quarry floor to drain to rain water sump during rainfall episodes			
4	4. Aftercare Period	Impact		
4.1.	Remove alien vegetation, if present			
4.2.	Monitor revegetation success, with follow-up seeding if required			
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)			

22.3 Description of aspects to be assessed by specialists

The following specialists will be tasked with the studies to include the tabulated items (amongst others) in their brief:

Specialist field of study	Tasks to be undertaken/ Aspects covered in study	Has it been included in Final Scoping report / Status as at Final Scoping report
Heritage	Heritage practitioner has prepared an assessment of the site	Yes, see Annexure B hereto
Vegetation	Specialist Botanist has been tasked with a study to describe existing on site vegetation, to additionally assess the CBA mapping accuracy of the site, and then to provide inputs to rehabilitation / restoration methodology.	To be appended to documentation once received. In the interim the specialist findings of the windfarm EIA are included as annexure A with relevant flora extracts in paragraphs 14.1.5 and 14.1.6 in respect of Fauna.

22.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

In this scoping reporting the environmental aspects have been assessed based on the experience of the report compilers through on site assessment and consideration in light of many years' experience (Refer CV in Appendix 1 & 2). These will be further assessed and refined in the following ways:

- Consultation with / Call for comments from all Interested and Affected Parties (I&AP's)
- Call for specialist studies to include assessment on specific environmental elements.

The results of such further assessments are to be included in the EIR-EMP Report and will be included in the pending EIR/EMP.

22.5 The proposed method of assessing duration and significance

As per Para 22.4.

22.6 The stages at which the competent authority will be consulted

The Scoping report was submitted to relevant State Departments. This final Scoping report is being submitted to the competent authority (DMR) and such report contains the full details and results of the initial public participation as at date of lodgement. (Further responses received within the response period of scoping will be uploaded to SAMRAD or conveyed to DMR by email as and when received).

The competent authority will decide on the implementation of the Plan of Study. If the applicant is given the go ahead to continue, then the EIA and EMP will be subject to public participation and finally lodged to the competent authority.

22.7 Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

22.7.1 Steps to be taken to notify interested and affected parties

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

Notification of I&AP's will take place in a system relative to their expected input as follows:

- 1) Landowner and adjacent surrounding land owners: Through personal or telephonic consultation, and provision of Draft Scoping Reports by registered mail as background information.
- 2) General public: Through advertisement in local press, documentation prepared for perusal at the Nels Poortjie Guest House, and Notices placed along the boundary of the Application property with R357.
- 3) In addition, the relevant Government Departments have been and will continue to be contacted by emails, possibly telephone calls in respect of the proposed project.

Note that all registered parties will have full access to this Final Scoping report by request

and the Draft EIR/EMP through distribution to registered I&As, the landowner and government departments.

22.7.2 Details of the engagement process to be followed.

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and records of such consultation will be required in the EIA at a later stage).

All parties (except landowner and State Departments) will have to register their interest in the matter. This registration continues from now until finalisation of the EIR/EMP. (Land owner and State Departments will be deemed to be registered I&AP's)

All registered I&AP's will be kept abreast of the application throughout the process and will be supplied with all relevant documentation and be consulted one on one if they so wish.

All commenting periods will not exceed 30 days as per the NEMA Regulations.

22.7.3 Description of the information to be provided to Interested and Affected Parties.

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

The information presented will depend on timing. Initially, the draft scoping report served as the basis for initial comment, followed by the draft EIA/EMP which when compiled and distributed to all registered I&APs will form the basis of a second round of consultation.

22.8 Description of the tasks that will be undertaken during the environmental impact assessment process.

The following tasks will need to be undertaken during the EIA process:

- Public participation will proceed as transparently and all-inclusive as possible. If the interest is sufficient then a Public Open Day will be held and if not, then all registered I&AP's will be kept informed and provided several opportunities to comment.
- Draft EIA / EMP will be compiled as basis for further consultation
- Specialist studies will be completed with the following required at this stage (this list may be modified as a result of public participation):
 - Botanical assessment of the site
 - Archaeology / Heritage: Heritage Practitioner has already submitted a specialist assessment

22.9 Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
	Application for Mining Permit			
	Demarcate no go zones	This is a mitigation measure		
1.	Pre-Establishment/ Establishment Phase	Impact	Mitigation Type	Potential for residual risk
1.1.	Demarcate Mining Permit corners with posts and fence with two gates (Ref Fig 4).	This is a mitigation measure		
1.2.	Use existing farm road from existing gate on R357 for access road for site establishment (Ref Fig 1)	NA		
1.3.	Construct two short (30 m and 40m) connection roads for access and delivery and upgrade 200 m of existing farm road for delivery	Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	
1.4.	Remove topsoil by grader from demarcated area to topsoil berms for later re-use (ref Fig 4).	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
1.5.	As site is located on level ground on watershed no stormwater control is required in the mining area (new short connection roads and upgraded delivery road to get side and mitre drains	This is a mitigation measure		

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
1.6.	Establish steel-banded diesel tank of <20,000 liters.	Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
1.7.	Establish logistical facilities of single container as office and store and two chemical toilets	This is a mitigation measure		
1.8.	No primary ramp is built as the excavator loading the mobile crusher hopper will stand on top of the dozed crusher feed piles	NA		
1.9.	Establish mobile tracked crushing and screening plant.	Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
1.10	Grass-seed the topsoil berms.	Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation (saltbush rows) should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
1.11	Conduct establishment phase monitoring.	This is a mitigation measure		
2	2. Operational Phase	Impact	Mitigation Type	Potential for residual risk
2.1.	Dozer rips hardpan surface	Geology	Excavation according to approved Mine Plan	Potential if left denuded and unrehabilitated
		Topography	Excavation according to approved Mine Plan	Potential if left denuded and unrehabilitated
		Land capability	Rehabilitation (Shaping, topsoiling, reseeding)	Potential if left denuded and unrehabilitated
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
		Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
2.2.	Drilling and Blasting only conducted ad hoc in patches where hardpan is too hard to rip.	Noise	The quarry manager will notify adjacent landowners /managers of the intended date and time of the next blast in order that the residents and personnel outside the danger area can expect the blast, and in so doing the startling effect of the blast by the air blast vibration can be reduced.	None

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
		Geology	Excavation according to approved Mine Plan	Potential if left denuded and unrehabilitated
		Topography	Excavation according to approved Mine Plan	Potential if left denuded and unrehabilitated
2.3.	Doze ripped hardpan and 0.6 m upper calcrete to crusher feed pile	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
2.4.	Excavator perched on crusher feed pile loads feed pile material to crusher hopper.	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
2.5.	Crushing and screening to dispatch stockpiles or direct to dump trucks to central stockpile.	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
2.6.	Dispatch loading of delivery vehicles by front-end loader either direct from crusher stockpiles or central stockpile.	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
2.7.	Provide sump in floor to permit floor drainage	This is a mitigation measure		
2.8.	Conduct dust suppression on haul roads and plant.	Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
2.9.	Refuelling and hydrocarbon management.	This is a mitigation measure		
2.10	Chemical toilets managed by contractor	This is a mitigation measure		
2.11	Conduct operational phase monitoring.	This is a mitigation measure		
2.12	Operational phase maintenance.			
2.13	Construct and maintain side drain and mitre drains on short delivery road.	This is a mitigation measure		
2.14	Continuous ad hoc eradication of any alien vegetation	This is a mitigation measure		
3	Decommissioning Phase	Impact	Mitigation Type	Potential for residual risk
3.1.	Doze pit perimeter faces to 1:3 slope	Geology	Shapping according to approved Rehabilitation Mine Plan	Potential if left denuded and unrehabilitated
		Topography	Shapping according to approved Rehabilitation Mine Plan	Potential if left denuded and unrehabilitated
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
		Air quality (dust)		
		Hydrocarbon Impact		
		Noise		
3.2.	Doze undulating areas in floor to smooth.	Geology	Shapping according to approved Rehabilitation Mine Plan	Potential if left denuded and unrehabilitated
		Topography	Shapping according to approved Rehabilitation Mine Plan	Potential if left denuded and unrehabilitated
		Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
		Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
3.3.	Consolidate retained stock neatly in designated area (for wind farm maintenance)	Visual	Mining and shaping of excavations in accordance with final planning	No given that full rehabilitation is a requirement for Closure
3.4.	Rip/Scarify hardened./compacted surfaces	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.
3.5.	Grade topsoil from berms to cover 1:3 slopes and floor as far as possible to 50-100 mm cover	Noise	Ensure vehicle silencers are in operation. Limit activities to daylight working hours	None
		Air quality (dust)	Wetting of unsurfaced areas by water cart spray when required (use of water for dust mitigation is to be kept to an absolute minimum.). Limiting of speeds on the affected roadways. Removed vegetation should be utilized as brush packing over denuded surfaces not under direct operational use	Potential if left denuded and unrehabilitated
		Hydrocarbon Impact	Control and remedy through Hydrocarbon management protocol.	Although unlikely, there is a minor residual risk if leak goes unnoticed or is not remedied.

Activity. This table identifies potential impacts but does not differentiate between negative or beneficial impacts.		Impact	Mitigation Type	Potential for residual risk
3.6.	Remove containers, diesel tank and chemical toilets			
3.7.	Grass seed re-topsoiled areas.	This is a mitigation measure		
3.8.	Conduct hydrocarbon decontamination.			
3.9.	Retain perimeter fence as sheep camp use by landowner.	This is a mitigation measure		
3.10	Retain short delivery roads to existing farm road and new road for use by landowner and for maintenance access to windfarm roads and platforms	NA		
3.11	Conduct final performance assessment for closure.			
3.12	Lodge Closure Application			
3.13	Allow quarry floor to drain to rain water sump during rainfall episodes			
4	4. Aftercare Period	Impact	Mitigation Type	Potential for residual risk
4.1.	Remove alien vegetation, if present	This is a mitigation measure		
4.2.	Monitor revegetation success, with follow-up seeding if required			
4.3.	Allow re-topsoiled and seeded areas to revegetate naturally by wind-blown seed over long term (Following after-care period)			

Additionally, the following applies over Life-of-Mine

Employee movement on site	<ul style="list-style-type: none"> • Strict control of employee movement on site, • Enforcement within the Conditions of Employment of staff, regarding potential fines or dismissal should staff not stay within the bounds of activity. • Environmental Induction training of the staff, inclusive of : <ul style="list-style-type: none"> ○ Importance of the environmental, ○ Caution against polluting activities (use of veld as toilet, hydrocarbon management, danger of veld fires)
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23 Other Information required by the competent Authority

23.1 Compliance with the provisions of sections 24(4) (a) & (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:

23.1.1 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 **Appendix 3** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Socio-economic impact occurs as a result of the following parties' socio-economic status being altered:

- Mining Company and employees: controlled cost and limitation of excessive and unnecessary transport fees (importation of suitable materials).
- Consumer: Guaranteed supply of construction aggregate at pre-determined costs
- Land owner: Staff movement on property with associated potential for theft, damage to land, as well as Loss (however temporary) of grazing use of the land over which the mining will occur.

Land Claims Commission response has indicated that the property is not under any land claims at the moment.

23.1.2 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)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 3** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

A specialist has been appointed to compile a specialist assessment is attached hereto as Annexure B. Such assessment and mitigation procedures will be incorporated into all further documentation.

24 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**).

Not Applicable

25 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

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



Signature of the EAP

DATE: 17/08/2016

26 UNDERTAKING REGARDING LEVEL OF AGREEMENT

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



Signature of the EAP

DATE: 17/08/2016

Appendix 1 & 2 CV and Qualification of the EAP

I, Stephen van der Westhuizen, declare that —

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

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

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

Signature of the environmental assessment practitioner: 

(SINATUUR) KOMMISSARIS VAN EDE
(SIGNATURE) COMMISSIONER OF OATHS
Name of company: Site Plan Consulting

VOORNAAM EN AFTREKSEL 2015
FULL FIRST NAMES AND SURNAME IN BLOCK LETTERS
L. ALTEBA WJH

BESIGHEFTSADRES (STRAATADRES)
BUSINESS ADDRESS (STREET ADDRESS)
STAND

RANG/RANK
CST
SA POLISIEDIENS
SA POLICE SERVICE

SUID-APRYKAANSE POLISIEDIENS
STRAND GENEESKAPDIENSTSENTRUM
19 AUG 2015
STRAND COMMUNITY SERVICES CENTRE
SOUTH AFRICAN POLICE SERVICE

Profession: Environmental Geologist

Date of Birth: 20 December 1955

Parent Firm: Site Plan Consulting CC (and previously jointly with Settlement Planning Services (Setplan))

Position in Firm: Member (previously Director of Setplan)

Years with the Firm: 34 years with Site Plan Consulting and Setplan

Nationality: RSA

Education:

Year	Qualification	Institution
1972	Senior Certificate Matriculation	Hottentots Holland High School, Somerset West, South Africa
1973 - 1976	Bachelor of Science (BSc) Geology	University of Stellenbosch
1977 - 1979	Master of Town and Regional Planning (cum laude)	University of Stellenbosch

Professional Qualifications:

Member of the Geological Society of South Africa.

Member of the South African Council for Planners (under the Planning Professions Act; 36 of 2002 (Registration number A/310/1985))

Languages and Degree of Proficiency:

English (fluent, read, write)

Afrikaans (fluent, read, write)

Countries of Work Experience:

South Africa, Lesotho, Namibia, Botswana, Angola

Scope of Training and Experience:

- Background training in the earth sciences and spatial planning, and 34 years of practical experience in these fields.
- Four year partnership with industrial engineers in project feasibility, design and construction supervision in parallel with Site Plan between 1983 and 1986.
- Specialist expertise in construction project impacts including having served as lead environmental planner in Setplan's award winning Lesotho Highlands Water Project Team.
- Author of over 300 Environmental Management Programme Reports (EMPRs) for mines and quarries submitted to the Department of Minerals and Energy/Mineral Resources related to dam and road construction, commercial aggregate supplies and the mining of various minerals (salt, diamonds, rare earths, dimension stone granite and marble, kaolin, gypsum, copper, veldspar and pegmatite minerals).
- Feasibility studies/mining cost assessments and rehabilitation cost calculations.

In addition to geological, mine planning and mine rehabilitation investigations Stephen has been extensively involved in researching the feasibility of mining operations. Of specific reference is his experience in:

- Compilation of monthly and annual cash flow analyses for amongst others: Messrs. Titan Lime; Grabouw (Palmiet) Quarry (a large metropolitan quarry to serve Cape Town); Prieska Gypsum mines.
- Valuation of material reserves in State expropriation cases.
- Rehabilitation cost calculations for all mines for which EMPR's have been compiled (in excess of 300 to date). Such valuations include quantification of cost of removal of facilities and the site's rehabilitation as well as assessment of the value of such facilities which may be taken over by the land owner, which costs are either deducted from royalties payable or from responsibility for rehabilitation.
- Economic assessments of mineral deposits such as the Platinum/Chrome reserves west of the Pilanesberg as the basis for infrastructure investment by the Development Bank of Southern Africa.

His experience extends into feasibility studies and environmental considerations for non-mining infrastructure investment appraisals, conducted by Setplan for DBSA project appraisals (project values of up to R75 million).

Relevant Project Experience:

Prospecting Rights (including public participation and compilation of EMPlans (inclusive of EIAs)):

- Groen River Diamond prospecting
- Kuruman dolomitic aggregate
- Berg River Limestone
- Rare Earth Minerals, Namaqualand
- Three Rivers Prospecting – Breede River Valley

Mining Permits and Rights (including full Public Participation and compilation of EMPs inclusive of EIAs)

- Rare Earth Minerals, Steenkampskraal, Knersvlakte
- Palmiet Quarry (within Kogelberg Biosphere)
- Numerous quarries for Afrimat Limited (Stanford, Kliprug, Hartebeestfontein (Kusile power station))
- Kuipersbult (Medupi power station) ,
- Numerous Granite Dimension-stone mines, including Naroehuis Granite Mine,
- Lafarge Group quarries (large commercial quarry sites in Cape Town, East London, Port Elizabeth, Saldanha and other)
- Borrow Pits to serve renewable energy projects in Tsitsikamma, Molteno, and Sutherland Districts
- Numerous salt and gypsum extraction mining operations
- ..over 300+ Mining Authorizations over the past 34 years

Environmental Performance Assessments (monitoring) of the following sites on one off or regular basis:

- Numerous Granite Dimension stone mines, including Naroehuis Granite Mine,
- Numerous SANRAL and Provincial Road contract quarries and borrow pits, (Stilbaai, Graafwater, Hopetown-Strydenberg
- Hermanus River gravel mine
- Numerous Sand Mines, including Kersfontein sand mine, Doornfontein sand mine,
- Assessment of nation-wide mining operations of Afrimat Limited (35+ mining sites)

Closure Applications (for mining and prospecting operations):

- O'Okiep Copper Company
- Alexkor SOC – Compilation of Closure Plan
- SANRAL and provincial Road contract quarries and borrow pits, (Stilbaai, Graafwater, Hopetown-Strydenberg
- Alexkor; Closure rehabilitation of historic disturbances

Other non-mining tasks

- Lesotho Highlands – Katse Dam. Integration of Lesotho Highlands Phase 1b into the physical, economic and environmental planning of north-west Lesotho.
- Numerous resort developments on the Eastern Cape coast.
- Strategic feasibility and initial planning of Madikwe Game Reserve.
- Richards Bay; Bay and Beachfront Development Plan, including stabilization of Pelican Island.

Contact Number:

Should the reader require specific information on any aspect of the above, please contact Stephen van der Westhuizen at telephone number: (021) 8544260 OR steve@siteplan.co.za.

Profession: Environmental Scientist

Date of Birth: 12 November 1990

Parent Firm: Site Plan Consulting

Position in Firm: Trainee Environmental Consultant/GIS operator

Years with the Firm: 6 Months

Nationality: RSA

Education:

Year	Qualification	Institution
2008	Senior Certificate Matriculation	Wesbank High School, Kuilsriver, South Africa
2012	Bachelor of Science (BSc) Environmental and Water Sciences	University of the Western Cape
2013	BSc (Honours) Environmental and Water Sciences	University of the Western Cape
Current (2016)	MSc Environmental and Water Sciences (Hydrology)	University of the Western Cape

Languages and Degree of Proficiency:

English (fluent, read, write)
 Isixhosa (fluent, read, write)
 Afrikaans (Fair)

Countries of Work Experience:

South Africa

Scope of Training and Experience:

- Conducting basic EIA's and processes of determining project impacts, NEMA, ISO standards
- Good understanding of project implementation processes, water law, environmental law, and wastewater processes.
- Catchment hydrology, Groundwater Hydraulics, Geomorphology, Zoology, Botany.
- With experience on ArcGIS, digitizing, creating Geodatabases.
- Writing of research proposals.
- Presentation (SANCIAS, Ground Water Division, Literacy Facilitator)
- Hydrologic data analysis and Hydrological modelling (MSc thesis)
- Research methodology processes
- 6-Months full time employment by Site Plan Consulting, including
 - Environmental Performance Assessments and EIA/EMP compilation
 - GIS mapping and plan compilation
 - Compiling and Authorisation of mining applications and closures

Relevant Project Experience:

Mining Permits and Rights (including full Public Participation and compilation of EMPs inclusive of EIAs)

- 4 mining Permits for Sutherland Borrow Pits
- 1 borrow pit Mining Permit application in Klipheuwel

Environmental Performance Assessments (monitoring) of the following sites on one-off or regular basis:

- Final EPA for 3 borrow Pits in Humansdorp

Closure Applications (for mining and prospecting operations):

- Compilation of Closure Applications for 3 borrow Pits in Humansdorp

Contact Number:

Should the reader require specific information on any aspect of the above, please contact Siphumelelo Mbali at telephone number: (021) 854 4260 or siphumelelo@siteplan.co.za.

Appendix 3 Socio-Economic (Notifications and responses to date)

Appendix 4: Site (mine) Layout Plan

