2009/2010

ENVIRONMENTAL MANAGEMENT PROGRAM REPORT

FOR

NELL BROTHERS (PTY) LTD

(A MEMBER OF MARLIN HOLDINGS (PTY) LTD)

ON THE FARM

WONDERKOP 400 JQ, REMAINING EXTENT PORTION 1 AND REMAINING EXTENT OF PORTION 2

18 December 2009

DME REF: NW 30/5/1/2/3/2/1(390) EM

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EXECUTIVE SUMMARY

Nell Brothers (Pty) Ltd, an affiliate of Marlin Holdings, is an existing small - scale dimension stone mining operation situated on the remainder of portion 1 and 2 of the farm Wonderkop 400 JQ in the Rustenburg District. The Quarry known as Wonderkop amongst employees has been periodically operational since the late 1980's and comprises a disturbed area of approximatelly 23 hectares. It is situated approximatelly 30 kilometres east from Rustenburg and 7.6 kilometres north east from Marikana Train Station. The townships of Segwaelane and Wonderkoppies (Marikana) are situated within 2.5 and 5 kilometres from the mining site.

It is the company's intention to successfully amend the Environmental Management Programme Report (EMPR) in order to comply with the latest requirements as stipulated in the regulations contained within the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) under item 3, Schedule II. This EMPR, on approval by the authorities, will become a legally binding document to be executed by mine management in the pursuance of the objectives of the Act, namely, "optimal exploitation, processing and utilization of minerals" within the constraints of sound environmental practise.

The operation is comprised of two sections namely Wonderkop 1, which is currently dormant and Wonderkop 2 which is active. Wonderkop Quarry lays stratigraphically in the strongly layered Pyramid Gabbro-Norite of the Rustenburg Layered Suite of the Bushveld Complex. The Pyramid Gabbro-Norite shows classical features of magmatic layering which not only influence the geological structure, but also are very important for the mining of dimension stone. These quarries have been in operation since the late 1980's on an ad hoc basis and many of the impacts associated with dimension stone operations have already occurred and are managed as a part of the standard operational procedures at these quarries.

The majority of the environmental mitigation measures applicable to impacts which are associated with dimension stone mining are already being implemented. The impact assessment indicates both significant and insignificant impacts across the natural and social environments. The overall benefit of this mining operation will be a sustainable job creation within the immediate region, skills development across various disciplines, upliftment of the surrounding communities and an increase in foreign exchange.

Internalisation of impacts through consolidation of disturbed areas is the central focus of the Environmental Management Programme. Through this focus the EMPR has been amended were applicable, to include latest methods and technologies with

respect to mitigation of impacts including rehabilitation, both as ongoing and for end of life of mine. Auditing of Wonderkop Quarry has ensured that the financial provision estimates is regularly updated and that mining practices are kept in line with the Best Practice Guideline for dimension stone mining as presented by the Department of Minerals and Energy. The current practices at Wonderkop Quarry show commitment by Marlin Holdings to continually improve mitigation measures and also to incorporate environmental planning into the daily operations.

The ***current*** closure objective is for the site to revert to wilderness area or low intensity grazing land. It is important to note that at least 35 hectares of the site will be disturbed through the creation of access and haul roads, quarry pits and the formation of waste rock dumps. The site cannot be restored to pre-mining status due to the exploitation of gabbro - norite. Commitments can, however, be made to reduce environmental impacts that may remain after mine closure.

Basic Mining Information	
Applicant:	Nell Brothers (Pty) Ltd.
Mined Mineral:	Gabbro Norite
Mine classification:	Category C
Mining method:	Open Cast Bench Operation
Expected life:	Approximately 26 years at 6690 saleable cubic metres per year

MPRDA Regulations pertaining to the Environmental Impact Assessment and Environmental Management Programme are addressed in the following sections and pages of this document.

REGULATIONS – MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 28 OF 2002		
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SECTION 51. ENVIRONMENTAL MANAGEMENT PROGRAMME		
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SECTION 1: INTRODUCTION

1.1 DOCUMENT OUTLINE

This document is comprised of five sections that are aimed to reach several goals. Firstly the environmental management plan must be practical for ease of implementation by the mine manager, ensuring that environmental auditing is easily facilitated. Secondly, the document should read easily and be understood by all parties concerned. Lastly, the information within the document should be relevant, particularly with respect to the current environment so that impacts that are occurring and those that may still occur are identified and managed. It is with these main aims in mind that the document has been structured as described below.

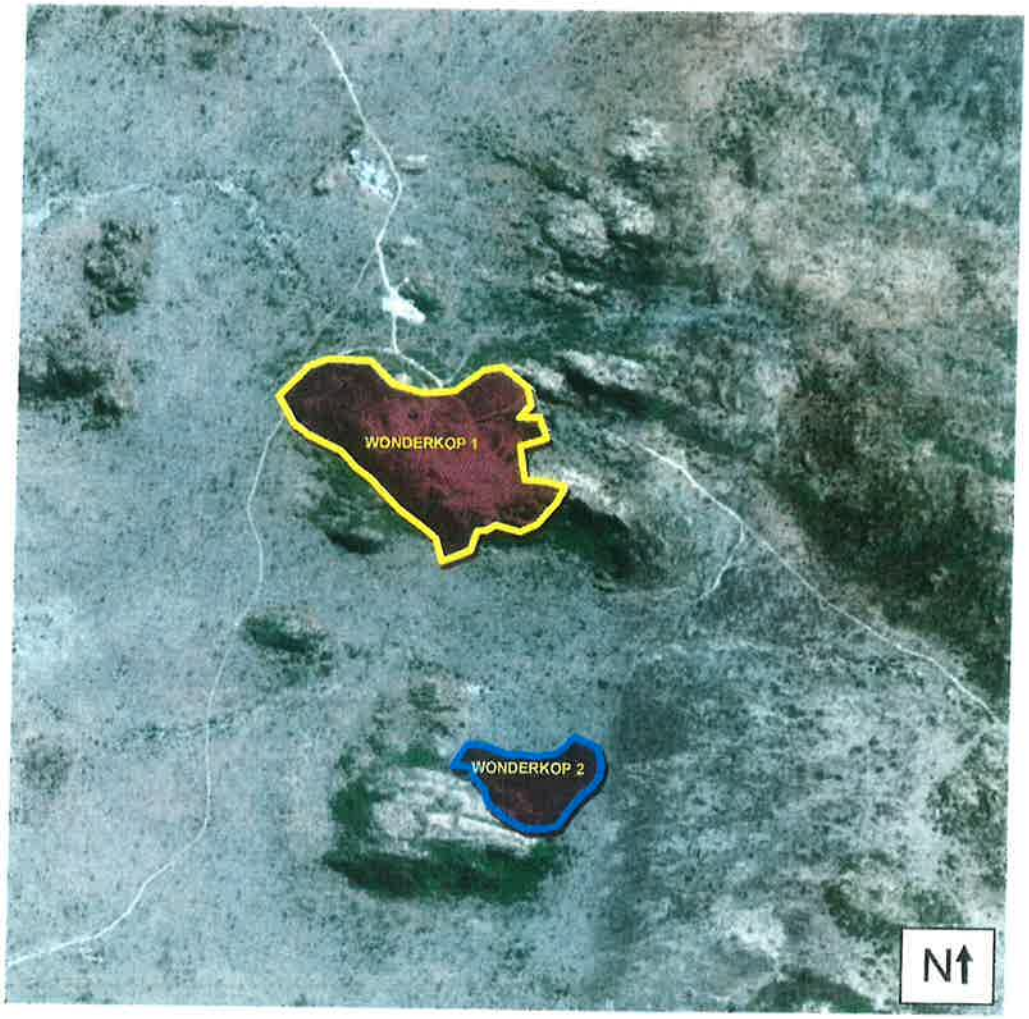
The introduction (Section 1) provides a background to the document. Section 2 provides a description of the current and ongoing quarry operations. Section 3 provides a description of the current environment. Any attempts at a description of the background environment as relating to the pre-mining environment (i.e. pre 1980's) does not serve to add true value to the impact assessment. The current status of the environment serves as a more realistic guide with respect to the impact assessment and management plan. Section 4 relates to the environmental impact assessment. Section 5 relates to the management of those impacts identified within Section 4. As described, impacts of the construction phase have already occurred. Operational phase impacts are currently occurring and are managed on an ongoing basis. A description relating to the current management of these impacts are provided. Where improved methods of managing impacts are identified, or additional impacts are identified these are also provided for. Section 6 is the conclusion to the document.

1.2 BACKGROUND INFORMATION

Nell Brothers (Pty) Ltd. ("applicant") is a wholly owned subsidiary of Marlin Holdings, owned by Finstone SA (Pty) Ltd. There is currently one operational section operational within the boundaries of this application, which will be referred to as the "Wonderkop 2 Section". The other section, which is older than the active quarry section have been laying dormant for more than 5 years. Natural vegetation established naturally on waste rock dumps (mine residue deposits) and other disturbed areas at this dormant quarry section over the years. A distinct absence of vegetation is however visible at dormant quarry pits or extensively prospected areas where bulk sampling took place, as prospected boulders or rock formations are

exposed as grey coloured areas . The image in figure 1 shows the two quarry sections referred to in this paragraph.

Figure 1: The yellow bordered area is the dormant section. The blue bordered area is active. The sections can also be seen in Plan B attached in Annexure A of this document.



Compliance with the requirements of the MPRDA necessitates a scoping document as the first step towards an environmental management program. The scoping document which (Ref 30/5/1/2/3/2/1 (390) EM, was accepted by the Department of Minerals and Energy North West Province on 06/07/2009.

The primary purpose of the scoping document was to serve as a guide for compiling an environmental impact assessment which is site specific and ultimately, the compilation of an Environmental Management Programme. Many of the studies required to compile this document were covered within the original Environmental

Management Programme. Since the quarry has been in operation for some time, many if not all of the construction phase impacts have already occurred and are managed as part of the operational phase of the quarry.

Since the quarry is an existing operation, quarry sections, together with mine residue deposits (waste rock dumps), workshops, offices and roads are already established. Many of the operational phase impacts are thus managed on a day to day basis at the mine. Currently management of the quarry revolves around internalisation of impacts through the consolidation of mine residue deposits and quarry sections. This serves to ensure that no virgin or sensitive areas are unnecessarily disturbed. Operational progress and environmental performance are continually monitored and documented in annual audit reports and environmental performance reports

1.2 BACKGROUND INFORMATION

Name of mine	**Wonderkop Quarry**
Mine manager	Mr. Pieter Smuts
Postal address	Nell Brothers (Pty) Ltd. P.O. Box 56 Marikana 0284
Telephone no.	(014) 572 1800 / Cell: 083 327 0057
Fax no.	(014) 572 1841
Name of mine owner	**Nell Brothers (Pty) Ltd**
Company registration no.	1947/ 039830/07
Postal address (Head Office)	P. O. Box 65043 Benmore 2010
Telephone no.	(011) 775 5000
Fax no.	(011) 883 2079
Contact person:	Mrs. J. Strachan
Environmental Consultant	**EIM Environmental Services cc**
Telephone no.	(011) 979 2846/083 680 1032
Fax no.	(011) 979 3788/086 658 0637
Contact person:	**Mr J. van der Linde**

SECTION 2: OPERATIONS & DESCRIPTION OF THE WONDERKOP QUARRIES

The Wonderkop operation is an existing operation. The details presented in this section are applicable to the operations as evaluated during 2008 and 2009.

2.1 LOCALITY & SURFACE DESCRIPTION

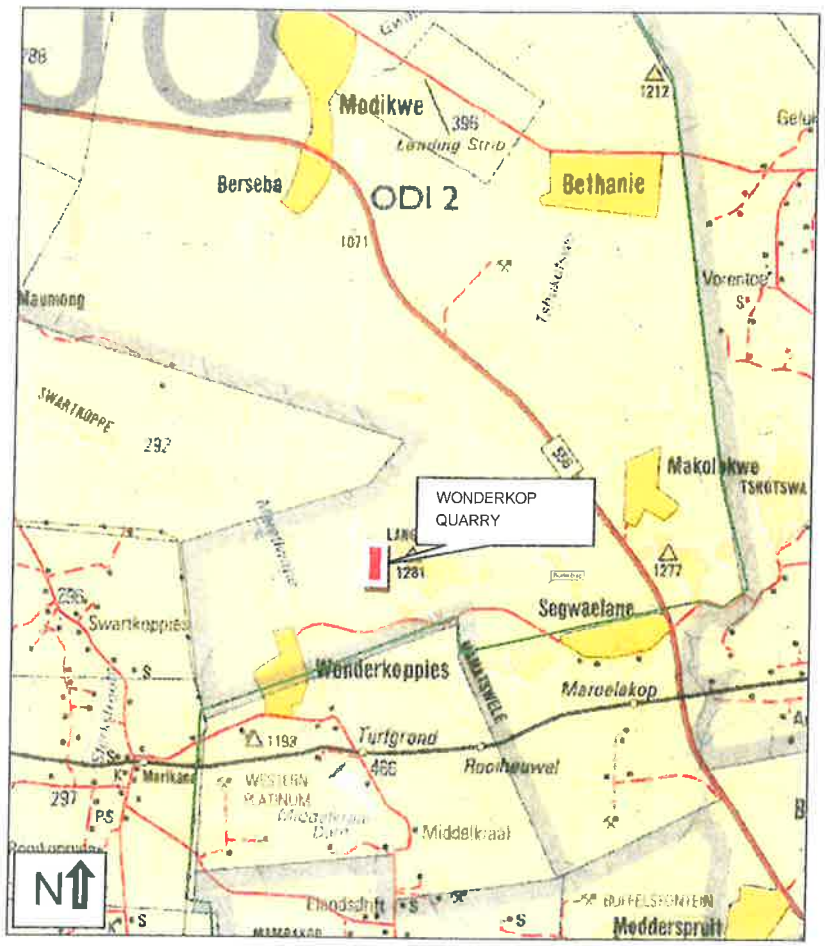


Figure 2: Wonderkop locality plan

Figure 2 as well as **Appendix B** provides an indication of the locality of the operation Quarries as extracted from 1:50 000 and 1:250 000 topographical maps. The proposed quarry falls within the Magisterial District of Madibeng, North West Province. The approximate location of the quarry area can be found on the 1:50 000 sheet 2527DA at 27°32'52.82"E, 25°38'44.64"S (ENPAT, 2001).

The general area where the site is situated can be described as being flat to undulating, with natural and disturbed rocky outcrops.

Currently mining is only taking place at the Wonderkop 2 section. The quarry can be best described as a hillside quarry since the quarry pit is situated on a hillock. The same relates to Wonderkop 1 section.

2.2 SURFACE INFRASTRUCTURE

2.2.1 Layout

Appendix A, Figure 2 B is a general layout plan of the dimension stone quarry operation. **Appendix A, Figure 2 C** is an enlargement of the physical quarry areas and associated infrastructure.

2.2.2 Transport Routes (Road and Railways) and Power lines

The R556 (Sun City road) runs approximately 7.5 km east from the mine. A secondary tar road running between Segwaelane and Marikana (Wonderkoppies) is used to access a gravel road leading to the quarry as seen on the attached aerial photograph (**See Figure 2 D – Appendix A) (Google Earth, 2009)**. It should, however, be noted that the mining operations necessitates the ongoing construction of haul roads to various extractable reserves. No railway lines exist within the mining area. No electricity exists on the mine and mining equipment is powered by diesel fuelled generators. The railway station situated at Marikana siding is utilised to distribute material to Durban, Richards Bay and Cape Town where after it will be shipped to various clients abroad. Blocks earmarked for the local market will be transported by flatbed trucks to various beneficiation plants at Brits, Marikana and Garankuwa or any other national destination.

2.2.3 Office area other buildings/infrastructure

a) Office/workshop area:

No workshop is constructed at Wonderkop as major services are executed at the regional workshop facility on the farm Schaapkraal at the Minaco operation situated approximatelly 3 kilometres North West from the Wonderkop operation. An office area is however present on the mine and is mainly used to park the two earth moving machines and the conduct of administrative tasks. The location of the office/workshop area is presented in **Appendix A (Figure 2B – B)** as the small rectangle immidiatelly east of the active quarry section. The specific area is also indicated in the photo below.

Figure 3: View of the office area at Wonderkop Quarry.

Infrastructure within the office area of approximatelly 1760 m² includes:

- 1 x mobile container office of approximatelly 18 m²
- 2 x standard steel containers
- 1 x 13 000 litre diesel fuel tank and spillage containment construction
- 1 x water (5000 litres) tank

b) Other infrastructure on site includes the following:

- 4.5 km gravel access road as measured from the nearest tarmac road
- Block stock yard
- 5 x (5000 L.)Water tanks and pipelines
- 3 x Mobile generators

Once again it is important to highlight the small scale characteristics of the operation that employs approximatelly 25 people during operational phases.

2.2.4 Solid Waste Management

All domestic waste that is generated on site is transported to the Marlin Marikana operation on the farm Schaapkraal, where recyclable waste is sorted and removed to recyclable waste collectors. Domestic waste that cannot be recycled is removed the Townlands landfill site that is situated within the Rustenburg Local Municipality's jurisdiction. Scrap metal is sold for recycling purposes via the group workshop. Petrochemical material is collected and recycled or managed by the Rose

Foundation and Oil Separation Group. Rubbish bins for domestic type waste are provided at strategic places on site.

Historically, mining waste rock has been discarded in a largely "haphazard" manner in close proximity to the workings. Current and future operations will rectify such past practices by the establishment of "Designated Waste Rock Dumps" which may necessitate the consolidation of past mining waste rock with newly identified waste rock dumps/mine residue deposits.

Designated waste rock dumps sites have been identified for both Wonderkop 1 section and Wonderkop 2 section respectively as seen in figure 11 which indicates existing mine residue deposits (waste rock dumps).

2.2.5 Water Management

The workforce at Wonderkop operation totals a maximum of 25 people under current production levels. No running water is present at the operation. Drinking water and process water is sourced from Minaco Quarry, a sister company operating under Kudu Granite Marikana (Pty) Ltd., situated on the farm Schaapkraal 292 JQ portion 8 and 12. Water used for mining processes are carted from Minaco water filled quarry pit and stored in 5 x 5000 l. water tanks that is filled up as required. Drinking water is transported from Minaco borehole as and when required required. Ablution facilities are provided to employees in the form of 2 chemical toilets that are managed by Sanitech (Pty) Ltd; hence no sewerage plant is required on site. The nature of the mining operations negates the necessity or existence of pollution control dams such as evaporation, settling, return catchment and catchment dams, although shallow depressions (pits) at the toe of both sections fulfil the same purpose as a settling dam, as surface water from the quarry areas drain into these depressions during storm water events. The designated waste rock dump and soil berms(soil stockpiles) of approximatelly 2 metres high, borders active quarry sections and reduced suspended solids from entering floodplains as seen in figure 4.

The main source of potentially polluted water could occur from the two earthmoving machines comprised of a 35 ton front end loader, dumper truck and track excavator, which will be sourced from the Minaco operation when required.

Runoff from office area where the machines are parked is minimal since the area consumes approximatelly 300 m^2 in total in relation to the site office area that totals 1760 m^2.

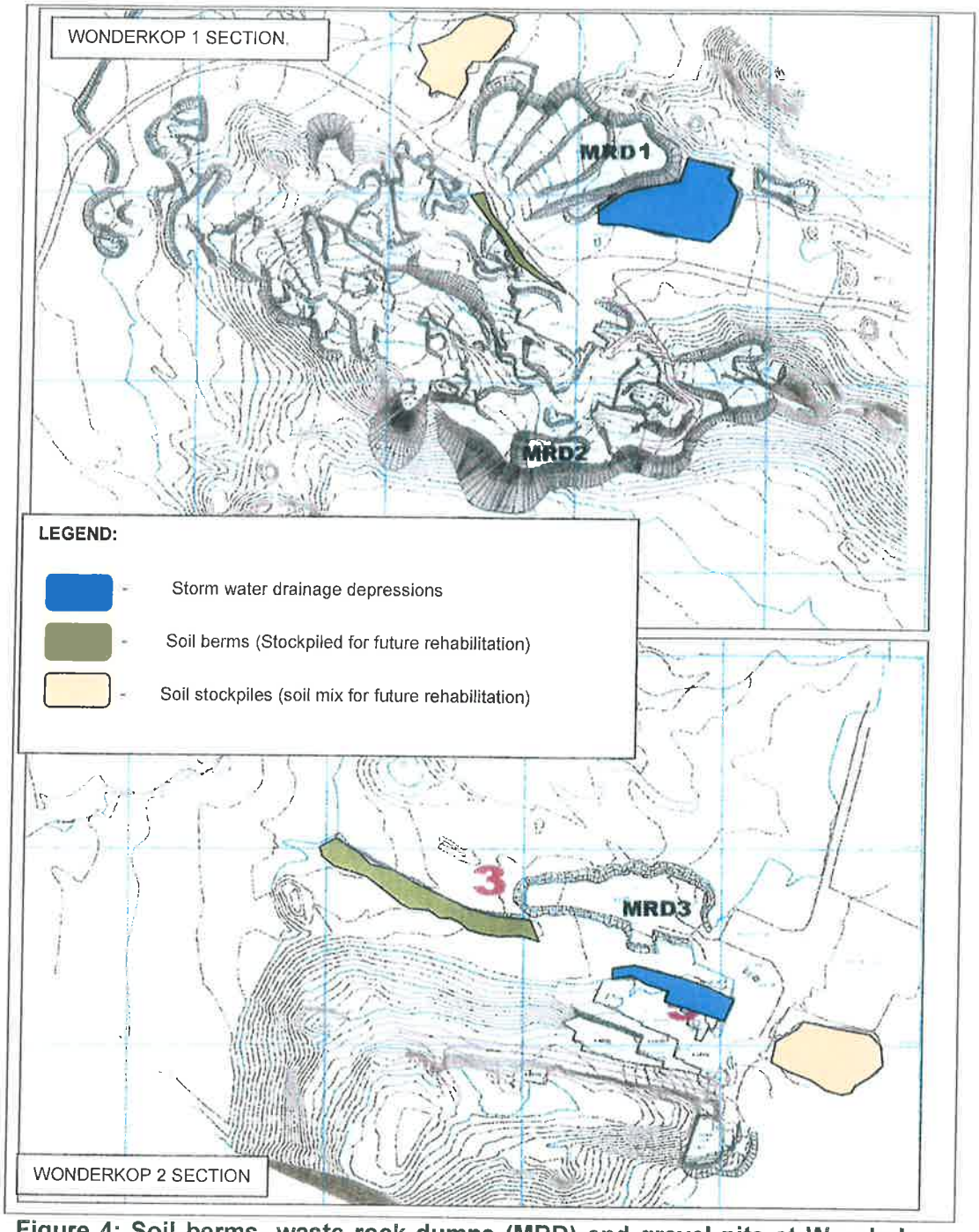


Figure 4: Soil berms, waste rock dumps (MRD) and gravel pits at Wonderkop quarry

Analyses of water samples obtained from the borehole where groundwater and surface water are abstracted is presented in **Appendix F** and the average use per day is reported to be in the vicinity of 4730 litres during productive cycles.

Table 1: Ground water Resource

Borehole	Co-ordinates	DWAF – Registration number.	Yield (l/h)
Borehole (Minaco Quarry at borehole for potable use)	27°31'19.72"E 25°36'45.15"S	10097646	±1500 l/h estimated
Water filled quarry pits pit at Minaco for mining processes	27°31'24.71"E 25°36'56.62"S	Not yet issued by DWAF (DWAF RECEIPT: AD 496254)	Not applicable as utilised on an ad hoc basis

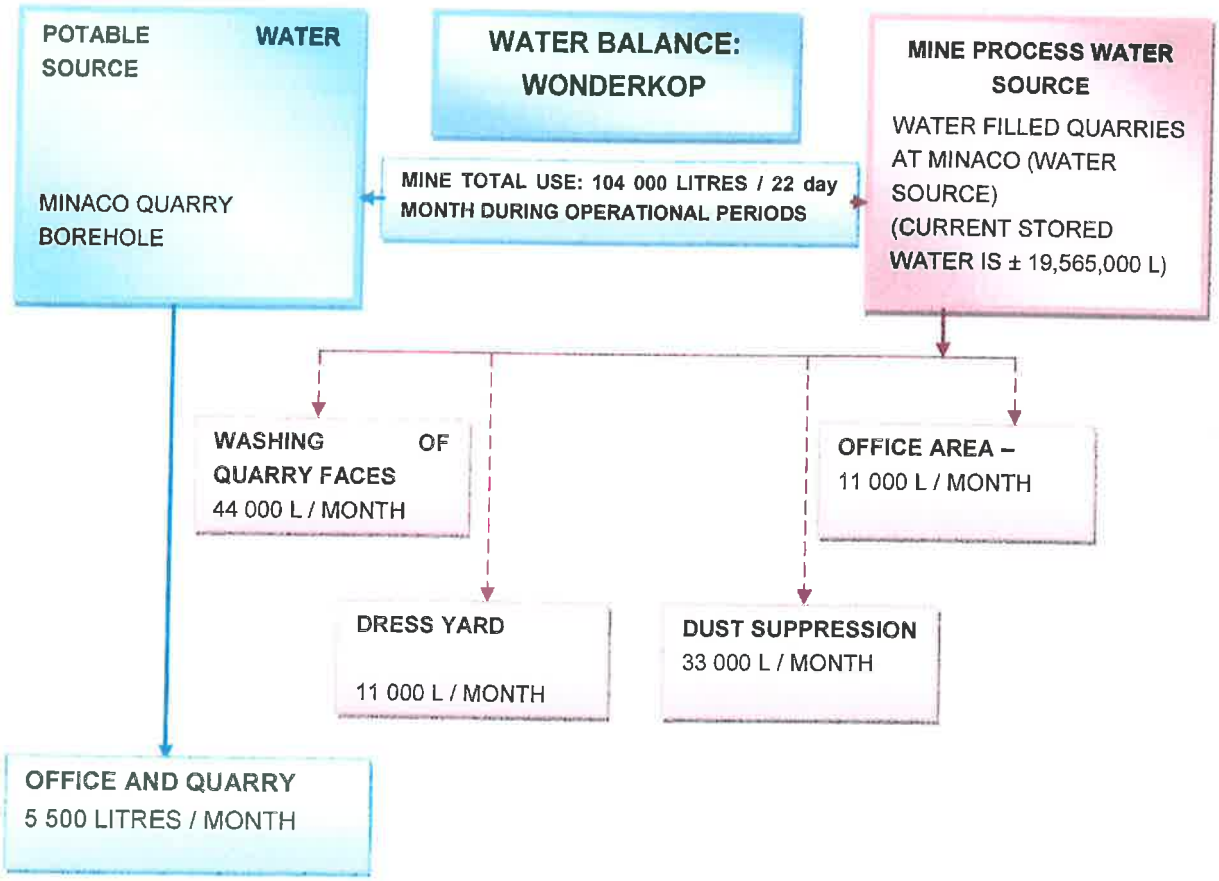


Figure 5: Wonderkop Quarry – Water Balance Diagramme

2.3 LIFE OF MINE

2.3.1 Ore Reserve

2.3.1.1 Resource versus Reserve

In practical terms, a resource can be considered as a realistic source of extractable material in the future. A reserve is that portion of the resource that has been more carefully evaluated such that there is confidence that profitable mining can commence immediately. Generally, in the dimension stone industry, resources can only be regarded as reserves after pilot quarries have been opened and sample blocks extracted and tested. This process is known as bulk sampling. This has long since taken place on site, where established quarries with proven reserves exist.

2.3.1.2 Definition of Dimension Stone Reserves

A quarry or deposit's reserve is an estimate of the volume of stone (m^3) of first choice material, which can be recovered as blocks from a defined area. Its accuracy depends on the geological knowledge of the deposit and the degree of quarry development.

Proven Reserves meet the following requirements:

- Material already prepared for quarrying
- Development work (overburden stripping is done)
- Volume of material can be measured directly
- Portion of the deposit drilled out where necessary
- Recovery rate is very predictable
- Distribution of first grade material is predictable, confirmed by a reliable production performance
- Details of the geology, mineralogy and physical properties are known

Indicated Reserves are:

- Volume of rock in the deposit in which quarrying development is most likely to take place
- Based on detailed knowledge of the geology of the deposit

Inferred Reserves are:

- Located in currently underdeveloped portions of the deposit
- Based on known geological model of the deposit
- Less well known than proven and indicated reserves

In Situ Resources

These are mainly situated sub surface in flat lying areas and as such have not been fully investigated to date. Many millions of cubic meters of in situ resources exist.

- Located in non-explored portions of the property.
- Based on known geological model of the deposit.
- Unknown potential – additional investigation needed.

Based on the above definitions, the operation has proven, indicated and inferred reserves as well as in situ resources. Previous extensive geological investigations, prospecting activities and production quarrying were undertaken to a greater or lesser degree on this portion over a prolonged period.

Detailed geological mapping and interpretation have identified a stratigraphically favourable reef horizon with the required mineralogy, physical properties and market desirability.

Quarry establishment have identified areas of suitable recovery to develop long-term sustainable quarries. Overburden stripping and boulder formation mining, where a certain amount of unpredictability exists, have long ago been completed. Solid formation bench and level mining, where recoveries are accurately predicted, is being done. Based on these activities the following categories of ore reserves have been established.

2.3.2 Present Ore Reserve Area (See Figure 6)

I. PROVEN AND INDICATED RESERVES

Proven and indicated reserves relates to the active quarry section at Wonderkop Quarry as well as the dormant section that have been well explored in the past.

Reserves are based on actual mining exposures from a certain level to surface. No subsurface reserves were calculated due to a lack of core drilling. Proven ore reserves are calculated 6 metres below current or recent operations in respect of which there exists a history of recovery during actual mining.

II. INFERRED RESERVES

Hundreds of thousands of cubic meters of inferred reserves exist. They need to be further prospected and developed before moving up the ladder to *Indicated* and *Proven* reserves.

An ongoing process of exploration, evaluation and trial quarry development will continue to generate more proven and indicated reserves, as market demand and economic viability change with time. The applicant is confident that long-term sustainable quarry operations can continue on the property

III. IN SITU RESOURCES

These are mainly situated sub surface in flat lying areas and as such have not been fully investigated to date. Hundreds of thousands of cubic meters of inferred reserves exist and is located in non-developed portions of the property and is:

- Based on known geological model of the deposit.
- Unknown in terms of potential viability.

After approximatelly 26 years of operation, the quarry should have potentially reached the end of life of mine. This time frame is however dependent upon various factors as discussed above.

RESERVE CATEGORY	PROVEN	INDICATED	INFERRED	TOTAL
In – Situ Volume (m³)	384,000	1,084,500	1,857,000	3,325,500
Recovery	18%	14%	10%	14%
Saleable product (m³)	69,120	151,830	185,700	406650

Table 2: Summery of Wonderkop Ore Reserves

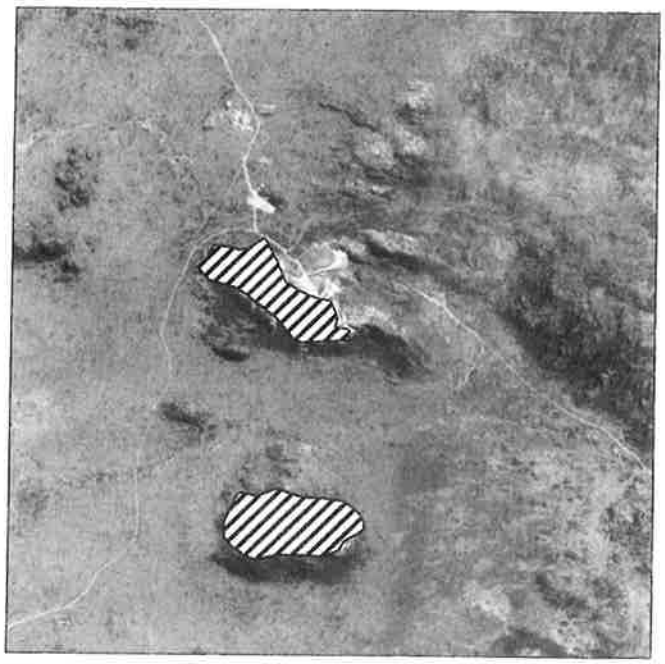


Figure 6: Location of proven and indicated reserves at Wonderkop Quarry

2.4 MINE PRODUCT

Blocks of Gabbro-norite, which are on average 3.8m^3, with typical dimensions 180-300cm by 60-180cm by 60-150cm and weighing between 10 and 35 tons, are to be produced once solid formations have been reached (see **Figure 7**). Approximately 10% of the material produced undergoes beneficiation inside South Africa within factories located some distance from the quarry in Marikana, Brits, Rustenburg and Garankuwa. In most cases the beneficiation process occurs only after export to foreign countries. The mine product can thus be seen as large blocks, produced mainly for the export market.

In addition to standard sized blocks, Special sized blocks used for base/surface plates. These blocks are usually produced for clients abroad and is a niche market focussing on the manufacture of precision surface plates that provide an accurate reference plane for work inspection and for work layout. The high degree of flatness, enable engineering businesses to mount sophisticated mechanical, electronic and optical gauging systems.

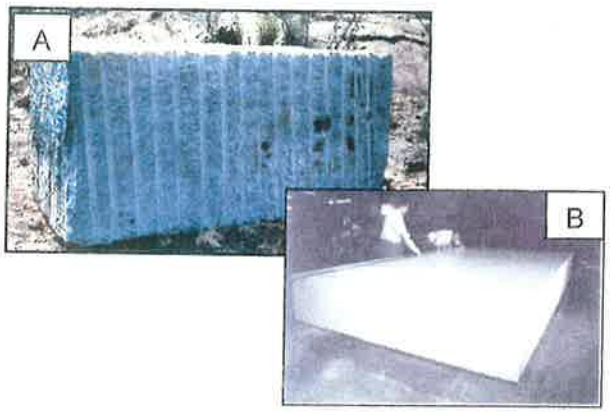


Figure 7: Example of a raw gabbro-norite block sample (A) and a base plate (B).

2.5 MINE METHOD

2.5.1 Proposed Mine Method

The mining method consists of opencast quarry operations using a benched configuration in loose boulder and solid formations. Overburden is usually cleared with an excavator, front-end loader and dump truck, with blasting into smaller fragments where necessary. Economically extractable boulders are quarried by means of line drilling of small diameter holes (<40mm), by means of hand held pneumatic rock drills, and blasting with black powder or splitting with expansive mortar or plug and feather, in order to progressively reduce the stone into blocks

which can be handled by means of front-end loaders. Once solid formations have been exposed mining operations will be by method of "slab mining". Mining will progress in the following stages, as illustrated in **Figure 8**:

- Creating a primary cut
- Cutting slabs
- Cutting dimension stone

The primary cut and slabs are cut by means of diamond wire to ensure a clean cut with minimal damage to the rock being removed. The steps involved in diamond wire cutting are as follows:

Step A: Holes are drilled on both the vertical and horizontal surfaces to join at right angles.

Step B: The holes are then flushed with water to clear out debris.

Step C: Diamond wire is then fed through the vertical holes, exiting through the horizontal drilled holes.

Step D: The diamond wire is pulled through the vertical plane of the rock. The wire is pulled through the rock by a device mounted in rails, pulled by a cog mechanism, powered by a generator (**Figure 9**). Water is flushed through the holes during this cutting stage to cool the wire and remove debris.

Step E: The horizontal plane is loosened through minimal drilling and low velocity gunpowder or expanding mortar.

The levels and benches will have been created during the trial quarry stage of the operation, generating a "saw-tooth" layout. The purpose of this layout is to expose a workable rock face of approximately 6m high and 12m long.

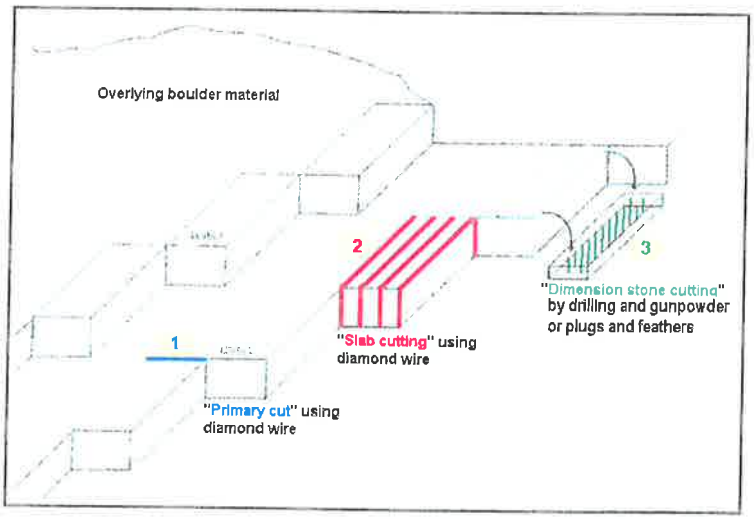


Figure 8: A schematic diagram of the steps involved in mining.

① Primary Cut

The first stage of mining involves creating a vertical primary cut, measuring approximately 9m deep. The cut is made using diamond wire, as described in Steps A to D above. (See **Figure 8**).

② Slabs

Using diamond wire, slabs are then cut at right angles to the primary cut to the free side, as illustrated in **Figure 8.** The thickness of the slabs varies between 1.6 and 2m, and is as long as the block from which they are cut. Low velocity gunpowder or expanding mortar is then used to loosen the slab from the horizontal surface. The slab is then pulled over onto the horizontal surface for cutting into dimension stone blocks, using hydro-bags.

③Dimension Stone Blocks

The slabs are then inspected for, veins, cracks, faults, flaws, impurities or other natural defects present in the Gabbro-norite. The dimension block profiles or dimensions are then drawn onto the surface of the slab, avoiding any material that is not desirable by the market. The blocks are then cut by jack-hammer drilling and gunpowder (black powder), or plugs and feathers, and transported to the block yard for storage until sold.

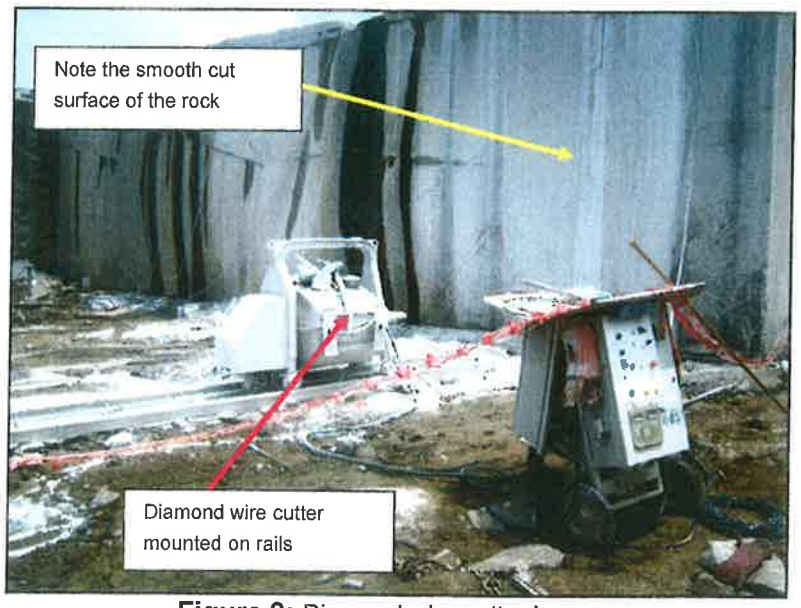


Figure 9: Diamond wire cutter in progress.

Blocks thus extracted are transported (according to their quality and size), either to the mine residue deposit or temporary stockpile, or to the dressing yard for further trimming and final quality inspection, prior to being displayed at the block stock yard to potential customers.

2.5.2 Mine Residue Deposits

The expected life of mine is an estimated 28 years and as described in **Section 2.3** this life of mine may be longer or shorter depending on various market related conditions which will determine the production rate. From an environmental perspective, planning of mine residue deposits (particularly the compromise between area and height of deposits) for rock removal over a 28 year period becomes an exercise in numbers, especially against the backdrop of unknown material quality and market response to the material. Boundary lines drawn as final footprint areas of residue deposits for waste material over a 28 year period would become open to abuse since the area between the final footprint area and any current utilised area may become unnecessarily disturbed. This is costly both for financially (rehabilitation cost) and environmentally (unnecessary disturbance) reasons. The reason for establishing the outer boundary of the footprint area first, is that mitigation against any potential visual impact. Part of the mitigation of the visual impact is to establish the outer perimeter of the residue deposit and rehabilitate the outer section of the deposit. This will then allow for quarry operations to continue without a significant visual impact where visual exposure is expected to be high.

Based on all the variables concerned and taking environmental perspectives into consideration planning of the residue deposits will be based on projected figures for a period of approximately 5 - 10 years. This will serve not only to keep financial and environmental costs to a minimum, but will also allow for potential reserves to be reclassified from "indicated & inferred" status to possible "proven" status. After this time frame a better understanding of all the factors influencing the generation of waste will be obtained (including recovery rates, exchange rates, demand for the material etc) i.e. some of the variables "unknowns" will become "knowns". Should the quarry still show viability after this time frame then an addendum can be applied for in order to facilitate changes to the position and sizes of the mine residue deposit and allow for additional longer term planning. Ten years of mine residue deposit planning will thus confine the deposit to a small area of disturbance limiting unnecessary disturbance. Should the mine become dormant or apply for closure, rehabilitation of the mine residue deposits will be easily facilitated.

Two landscaping aspects are important in the creation of mine residue deposits, firstly soil (growth medium) conservation through the removal (and stockpiling) of soil in front of the advancing mine residue deposits (waste rock dumps) and secondly, terracing of the mine residue deposits to assist rehabilitation and minimise the visual impact (See Section 5 for a description for soil conservation for concurrent and future rehabilitation). Most residue deposits have steep slopes that are extremely difficult to rehabilitate as the sides or slopes sections cannot always be covered with a satisfactory amount of growth medium. The creation of terraces limits the length of

the sides of the deposit and creates flat surfaces that can allow for vegetation establishment, particularly trees and large shrubs (See **Figure 10c**).

The use of terraces by breaking the slope lengths allows for ease of rock shading on these slopes as part of the rehabilitation measures. Rehabilitation of the residue deposit by allowing the natural vegetation to establish is also important since this would reflect a self sustaining system that does not require any active management. Currently Marlin is exploring the option of creating an uneven (wavy) edged toe line of the residue deposit, as opposed to a straight line edge (See **Figure 10 a & b**). The wavy toe line will create "pockets" where trees can be planted and microhabitats can establish, simulating environments similar to that found on the natural rocky outcrops and "koppies" characteristic of the area (see figures below). The "pockets" will also create microclimates with different moisture regimes and degrees of protection from grazing and fire.

Throughout the construction and landscaping phase of the mine residue deposit, exposed rock will be sprayed with ferric chloride. This process is called rock shading and will be implemented at decommissioned waste rock dumps or decommissioned sections on active waste rock dumps to mitigate the visual impact.

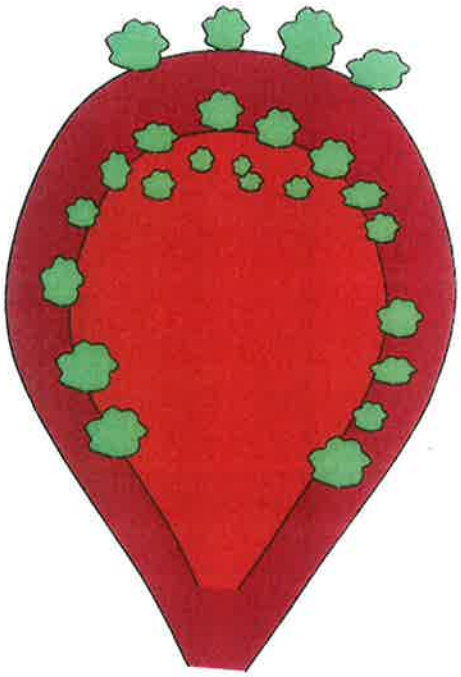


Figure 10a: A mine residue deposit with one terrace level.

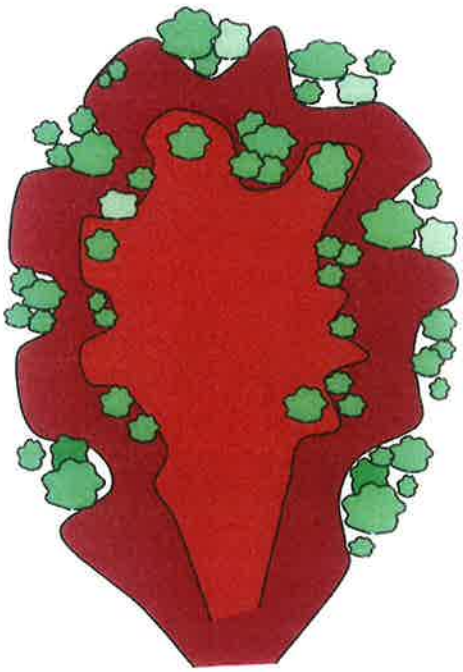


Figure 10b: A mine residue deposit with one terrace level with a wavy toe-line.

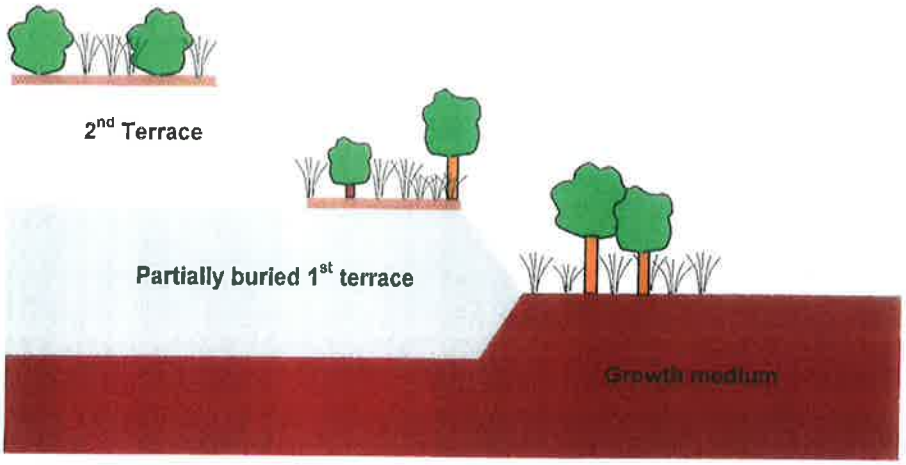


Figure 10c: A schematic side profile through a mine residue deposit with two terrace

Figure 10d indicates the the already constructed terraced waste rock dumps at the Wonderkop 1 section. The photo is taken from the first terrace towards an additional 3 levels which has revegetated naturally over a period of approximatelly 20 years.

Figure 10 e is an aerial view of five established terraces at Wonderkop 1. Terrace 5 represents the active section of the waste rock dump (MRD 1/Mine residue deposit 1).

Figure 11 indicates the planned footprints of the mine residue deposits at both Wonderkop 1 and Wonderkop 2 sections. Under normal conditions mine residue deposits are created as close to the quarry excavations as possible and then expanded outward from the quarry. In the case of Wonderkop Quarry (Wonderkop 2 section only), the mine residue deposit will be visible at more developed stages from the tar road linking Segwaelane and Marikana, but only from certain angles.

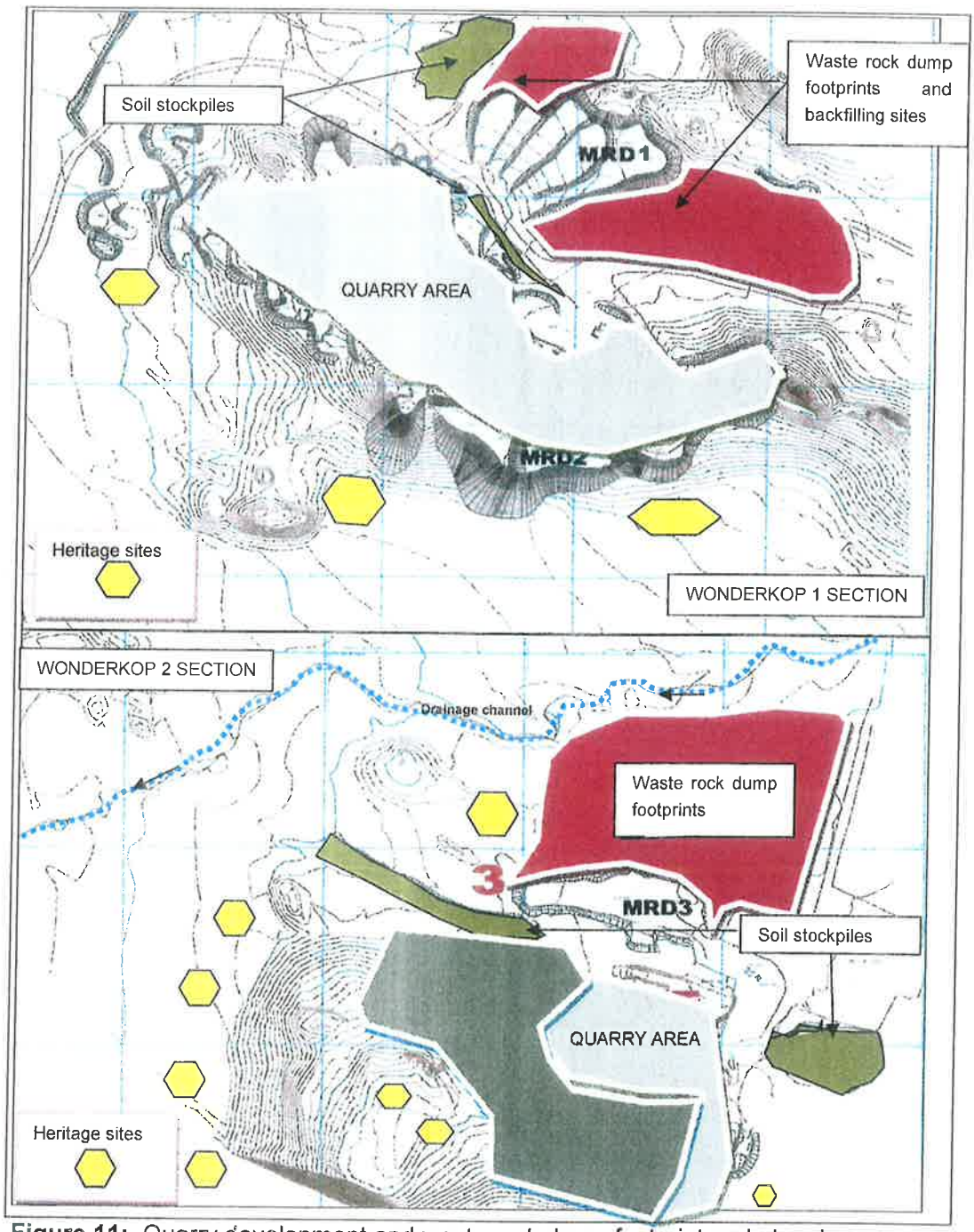


Figure 11: Quarry development and waste rock dump footprint and planning

Figure 11 also indicates areas earmarked for backfilling and consolidation of waste rock dumps. Backfilling and consolidation of dumps in this section will take place once it is established that no mineable reserves will be affected by the decision.

2.6 MINING ACTIVITIES ON WONDERKOP QUARRY

Due to the fact that Wonderkop Quarry is an existing operation, the majority of activities associated with the construction phase have already occurred. The current operation thus revolves around the operational phase of the quarry although certain construction phase aspects are applicable to newly proposed sections.

An office with diesel tank facility exist on the site, as does an oil storage area (for 3 x 200 litre oil drums) that is integrated with the diesel tank facility. There exist gravel haul roads within the quarry that are used to access the quarry pit. These can all be seen on the attached mine layout plan in **Appendix A – Figure 2B - B**. The quarry area is well established, as are the mine residue deposits. The mine is audited on an annual basis and an annual environmental performance report is also produced which ensures compliance within the environmental management program report in addition to providing practical means of carrying out the ongoing rehabilitation objectives of the quarry activities. Planning meetings are held on a weekly basis to determine quarry development and include the planning of mine residue deposits and ongoing rehabilitation procedures. The group surveyor produces maps of the physical quarry areas whereby detailed removal and planning strategies can be monitored.

The quarry footprint areas at both Wonderkop Sections 1 and 2 are indicated in figure 11.

Activities associated with the operational phase which includes the following:

- ongoing operations/rehabilitation with respect to the mine residue deposits;
- ongoing quarry operations and development;
- operations associated with basic vehicle maintenance;
- ongoing operations in respect of access and haul road maintenance and storm water management;
- ongoing operations in respect of growth medium stockpiling;
- ongoing operations in respect of environmental monitoring and reporting;
- ongoing operations in respect of environmental auditing;
- health and safety requirements including monitoring and management;
- mine work program reporting and monitoring;
- ongoing tasks in respect of social and labour plan commitments

The decommissioning phase will involve the following activities:

- final profiling of waste rock dumps (mine residue deposits);
- dismantling and removal of infrastructure and buildings (this will be done in conjunction with consultations with local communities and authorities with respect to utilisation of the infrastructure and buildings);
- ripping of haul roads (this will be done in conjunction with consultations with local communities and authorities with respect to utilisation of the roads);
- clearing of stockpile areas and rehabilitation thereof;
- utilisation of topsoil/growth medium stockpiles;
- spreading of topsoil/growth medium on benches and waste rock dumps;
- re-vegetation(if required) of areas where soil has been reintroduced;
- environmental monitoring;
- erosion control measures;
- removal of unsalable blocks; and
- Placement of safety measures & safety signs in affected areas.
- eradication and management of invader species

It is important to note that rehabilitation is an ongoing process and needs to be integrated into the day-to-day operations of the quarry operations.

SECTION 3: ENVIRONMENTAL DESCRIPTION

3.1 GEOLOGY

The gabbronorites mined at Rustenburg occur within the Pyramid Gabbronorite Formation, a stratigraphic interval of the Rustenburg Layered Suite. The Rustenburg Layered Suite comprises the basal mafic layered division of the Bushveld Complex. The Bushveld Complex, dated at ca. 2050Ma is intrusive into the Transvaal Supergroup, and underlies an area of about 66 000km2, making it by far the largest known intrusion of its kind in the world.

The Rustenburg Dimension Stone Mining district occurs within the Western Lobe of the Bushveld Complex with layers of gabbronorite dipping gently north-east at between 6-120 (although in the vicinity of the Brits Graben and towards Bon Accord dips of up to 300 have been recorded). Individual layers of Gabbronorite vary from centimetres to tens of metres in thickness. Colour variation of the Gabbronorite is not strata bound and darker material does not occur due to the presence of magnetite in the feldspar, as is the case for 'Belfast Black' materials.

3.1.1 Lithology and Mineralogy

The Gabbronorite mined at Rustenburg are coarse-grained plutonic rocks. They are the coarse grained equivalents of volcanic basalts and hypabyssal dolerites. Mineralogically the Gabbronorite comprises plagioclase, orthopyroxene, clinopyroxene and minor amounts of quartz, magnetite, apatite, hornblende and mica. Petrographic evidence indicates that oikocryst reflectors occur in all Rustenburg Grey material. A combination of studies on borehole cores and slab logging of polished material has shown that these can be divided into five categories based on size and frequency. There is also a systematic size variation in reflectors with stratigraphic height that can be traced and correlated between quarrying areas 25km apart. Zones of relatively 'bad' and 'good' material, pertaining to oikocryst reflectors, can be predicted for declared reserves.

An important and fundamental conclusion of the oikocryst studies is that it is solely the poor polishing and flaming characteristics of a mineral known as inverted pigeonite, which results in the prominent reflectors. The texture, colour and grain size of Rustenburg Grey requires the presence of inverted pigeonite; without which the material cannot be Rustenburg Grey. Therefore all stone quarried and sold as Rustenburg Grey will contain inverted pigeonite and it is only the oikocryst bearing zones within the Main Zone that are being quarried for dimension stone.

At least five distinct layers or sub-zones (only two of which contain 'Rustenburg Grey' material) have been identified within the Main Zone of the Bushveld Complex from exposure during mining, exploratory drilling, geological field work and by geophysical and petrographic methods (see 0). Sub zone C is the most economically important of these (from a dimension stone mining point of view) and has a thickness of at least 200 metres in the Rustenburg-Marikana area, compared to a total thickness of the main zone of between 2000 and 3000m found in this area. Sub zone E, which is less important economically, is very much thinner than sub zone C and indeed pinches out and disappears from the stratigraphy from time to time.

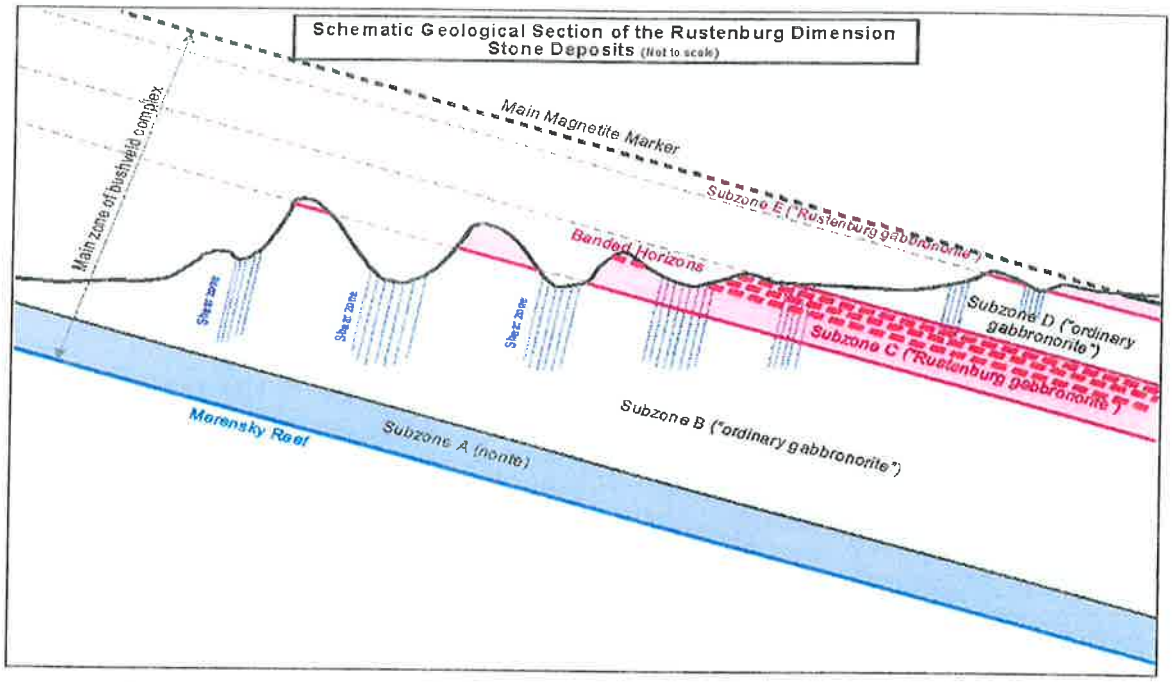


Figure 12: Schematic Geological Section Of The Rustenburg Dimension Stone Deposits

This knowledge has important implications for the total Rustenburg dimension stone resource, which is far more limited than was believed in the past, as well as for the production potential of specific properties with reference to their location with respect to the geology. In addition, the presence of at least four banded horizons of thickness varying between 8 and 30 metres (and at intervals of around 40 metres in the upper horizons of sub zone C) has significant implications both in terms of ore reserves and mine planning.

3.1.2 Geology specific to the mining area

In addition to the layers discussed in 3.1.1, there is potentially exists another layer (Wonderkop material) within sub zone B. This material is an intermediate

composition between the "ordinary Gabbronorite "and the "true Rustenburg material containing significant amounts of both inverted pigeonite and primary orthopyroxene.

There is however not sufficient knowledge of this part of the stratigraphy to determine whether outcrops of this material actually comprise another layer or whether they are just isolated pods. The material has been mined in the past at Wonderkop quarry and possible more recently at Kareepoortberg, west of Brits.

The economically viable Gabbronorite outcropping at Wonderkop Quarry falls within subzone C of the main zone. The Zebra marker is found at several locations on the property and strikes north – north west to south south east and dips at approximatelly 60 metres to east north east. From the outcrop in the south west, it reaches a maximum depth of around 200 metres towards the north east. The average depth from surface to the cutoff is 124 metres over the areas demarcated as ore reserves. The banded horizons are typically between 10 and 30 metres in thickness.

3.2 REGIONAL CLIMATOLOGY

The climatic data presented in this section has been obtained directly from the Weather Bureau and from publications of the Weather Bureau (WB 40, 1986). The study area is approximately 30km east from Rustenburg and the data used was recorded at the Rustenburg weather station, hence this data will largely represent the conditions on site.

The site is situated within the summer rainfall area of South Africa. The majority of the rainfall occurs in the months of November, December, January and February, the highest mean monthly value of ±138 mm (Rustenburg) being in January. The driest months are June, July and August, the lowest mean monthly value of ±5 mm being recorded in July for Rustenburg. The mean annual rainfall of the area is in the range of 685mm in Rustenburg while the mean annual evaporation is approximately 2055mm (Rustenburg) resulting in an average evaporation deficit of 1370mm per annum. For this reason the area may generally be considered as dry.

The mean monthly maximum and minimum temperature ranges from 30.6°C (January) to 20.6°C (July) and 16.3°C (December) to 1.8°C (July) respectively.

The prevailing wind direction in Rustenburg is from the north-west. The second most common direction is from the south-west.

Thunder storms, hail and frost have been recorded in the Rustenburg area for the period 19951-1984. Snow has not been recorded. The survey area is also subject to periodic droughts as often experienced in the Southern African sub-region.

3.2.1 Rainfall

The mean monthly rainfall is given in **Table 3**. The highest rainfall is obtained in January. The mean annual rainfall for the Rustenburg region is 685 mm.

Table 3: Mean Monthly Rainfall (mm)

Month	Rainfall	Month	Rainfall	Month	Rainfall
January	138	May	17	September	17
February	98	June	8	October	53
March	76	July	5	November	98
April	57	August	7	December	111

3.2.2 Temperature

The mean maximum and mean minimum temperature recorded in Rustenburg is given in **Table 4**.

Table 4: Mean maximum and mean minimum temperatures (°C) for the Rustenburg area.

Month	Min.	Max.	Month	Min.	Max.
January	13.4	34.6	July	-1.6	24.6
February	12.6	33.1	August	-0.5	28.7
March	10.1	32.3	September	2.9	32.9
April	5.8	30.0	October	6.2	34.7
May	1.5	27.6	November	10.1	34.9
June	-1.3	24.6	December	11.9	34.9

3.2.3 Mean monthly wind direction and speed

The prevailing wind direction in Rustenburg is north-west with the second most common direction being south-west. The average yearly frequency (%), for given speed intervals (m/s) for Rustenburg are given in **Table 5**.

Table 5: Average wind speed (m/s) and yearly frequency (%)

Wind Speed (m/s)	0-1	1.1-1.5	1.6-3.3	3.4-5.4	5.5-7.9	8.0-10.7
Frequency (%)	45.4	15.4	24.1	11.6	2.9	0.6

3.2.4 Mean monthly evaporation

Mean monthly evaporation and precipitation as recorded by the Department of Water Affairs and Forestry at the Bospoort Dam is shown in **Table 6** below. These records are based on the 1980 data set (This year was during a dry period).

Table 6: Mean monthly evaporation and precipitation

Month	Evaporation (A pan) mm	Precipitation (mm)
January	287	123
February	238	113
March	210	34
April	197	19
May	159	16
June	118	0
July	116	3
August	159	8
September	195	18
October	260	43
November	253	120
December	301	52
Mean	**2491**	**547**

3.2.5 Incidence of Extreme Weather Conditions (e.g Frost, Hail, Snow)

The incidence of thunder, hail, snow and frost in Rustenburg for the period 1951-1984 is given in a summary form in **Table 7.**

Table 7: Incidence of thunder, hail, snow and frost in the Rustenburg area.

Frequencies – Average No. Of Days with				
Month	**Thunder**	**Hail**	**Snow**	**Frost**
January	11.9	0.3	0.0	0.0
February	8.5	0.2	0.0	0.0
March	7.8	0.1	0.0	0.0
April	4.3	0.1	0.0	0.0
May	1.7	0.0	0.0	0.2
June	0.4	0.0	0.0	3.6
July	0.4	0.1	0.0	3.6
August	1.1	0.1	0.0	1.4
September	2.8	0.3	0.0	0.1
October	7.2	0.4	0.0	0.0
November	9.8	0.6	0.0	0.0

December	10.6	0.8	0.0	0.0
Total	66.5	3.0	0.0	8.9

3.3 TOPOGRAPHY

Wonderkop quarry can be best described as a as a hillside operation since quarrying activities take place on a hillside in comparison to "surface" quarrying activities that takes place on planes. The topography of the site is hilly with plains that surround hillocks. The general landscape is best described as undulating with prominent hillocks to the north and eastern boundaries of the physical mining areas. The adjacent areas west, south west and south of the physical mining area is best described as flat, sloping down towards the Maretlwane river situated approximatelly 2 kilometres from the nearest mining activities.

The active mining section is located at an altitude of approximately 1165 amsl. The topography of the active and dormant quarry sections can be seen in **figure 13**. The elevation of the property is between 1100 amsl. And 1215 amsl. (above mean sea level)The topography has been affected by dimension stone activities in the past since hillocks or rock outcrops have been systematically quarried away to lower levels

Figure 13: 3D representation of the Wonderkop operation viewed in a northern direction from the tar road linking Segwaelane and Marikana (Google Earth, 2009).

3.4 SOIL CLASSIFICATION

Elevated areas, such as hillocks have very little soil, if any; whereas the lower lying areas have soil depths of up to 1.5 meters. The active quarry areas are characterised by between 70 % - 90 % rock with very little soil present.

Soils were interpreted and evaluated with the purpose of obtaining sufficient information on an exploration scale with regards to the soils present. The following information is included within this section:

- A description of the soil types present on the site.
- Qualitative soil depth.
- Qualitative soil erodibility.
- Dry Land production potential.
- Irrigation potential.

Conceptually there are only two major divisions of soil types that can be found at Wonderkop Quarry. The two major divisions are soils associated with the rocky outcrops and soils associated with the plains area interspersed between the outcrops.

Soil types identified in the area

Table 8: Soil forms and –families identified in the area.

Soil Form	Soil Family	Diagnostic Horizon
Arcadia	Rustenburg	Vertic A
Mayo	Glenecho	Melanic A Lithocutanic B
	Grassmere	
Milkwood	Effingham	Melanic A Hard Rock
Mispah	Myhill	Orthic A Hard Rock
	Gulu	
Hutton	Stella	Orthic A Red apedal B
	Hayfield	
Shortlands	Roedtan	Orthic A Red structured B
	Groothoek	

The area can be divided into two (2) major sections:

- mostly rocky outcrops with little soil present, and

- Lower laying areas with dark vertic soils present.

Rocky outcrop areas

The area is covered with between 70 – 90 % rock with very little soil present in the area. Soils of Hutton/Shortland and Mispah are associated with these areas.

Hutton

A Hutton soil consists of an Orthic A-horizon over a Red apedal B-horizon. An Orthic A-horizon is a surface horizon that does not qualify as an Organic, Humic, Vertic or Melanic topsoil although organic matter may have darkened it. The Red apedal B-horizon is non-calcareous within any part of the horizon and occurs within 1500mm of the surface. It has no structure but in moist conditions it can show signs of weakly developed blocky structure. See **Figure 14**

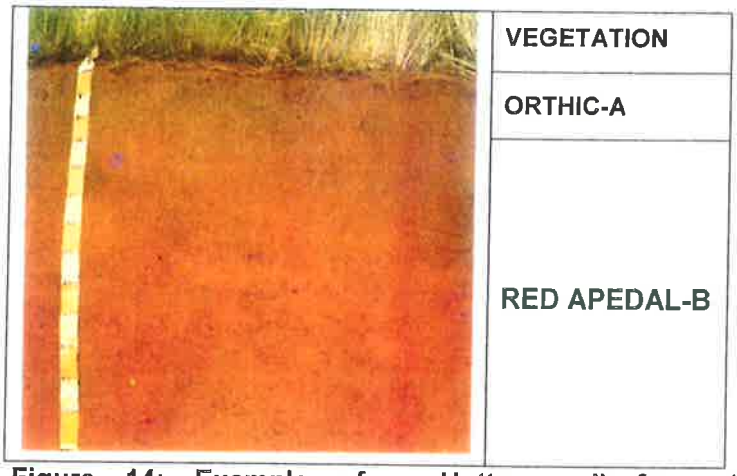


Figure 14: Example of a Hutton soil form (Soil Classification, a Taxonomic System for South Africa, 1991).

The soil depth of the Hutton soil form on the site is very shallow. Hutton soils have a low fertility status due to the high permeability that causes leaching and low base status. The soil is resistant to erosion in its natural state due to the permeability and microstructure of the soil. The Hutton soil form on the mining site has neither irrigation potential nor dry land production potential.

Mispah

A Mispah soil consists of an Orthic A-horizon over Hard Rock. The Orthic A-horizon is a surface horizon that does not qualify as an Organic, Humic, Vertic or Melanic topsoil although organic matter may have darkened it. The Hard Rock is self explanatory and its appearance is dependent on the type of rock. See **Figure 15**

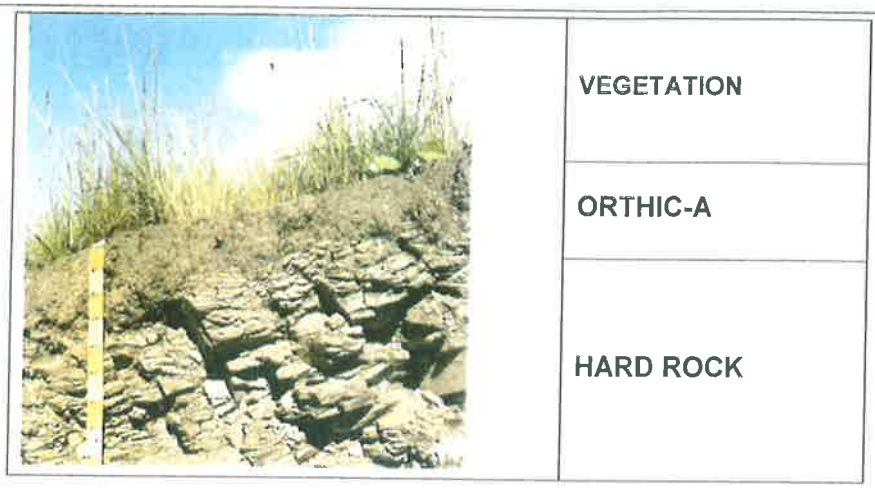


Figure 15: Example of a Mispah soil form (Soil Classification, a Taxonomic System for South Africa, 1991).

This is a very shallow soil and therefore has no cultivation potential, but may be suited for natural grazing.

Soils of the lower laying areas

Soils associated with these areas consist mainly of Arcadia soil form. Soils of the Arcadia form consist of a dark brownish black to black colour, weak to moderate blocky/crumble, fine clay topsoil, 50 – 90 cm thick on hard rock and saprolite (weathered rock).

These soils of the lower laying areas are divided into two (2) parts:

a. areas consisting mainly of vertic soils with less than 40 % outcrops, and
b. areas consisting of vertic soils and 40 – 60 % rock outcrops.

Arcadia

This soil consists of a Vertic A-horizon over Unspecified material. The Vertic A-horizon has a strongly developed structure and clearly visible, regularly occurring slickenside's. This horizon has a very dark colour and has high clay content which allows the soil to swell under wet conditions. See **Figure 16**

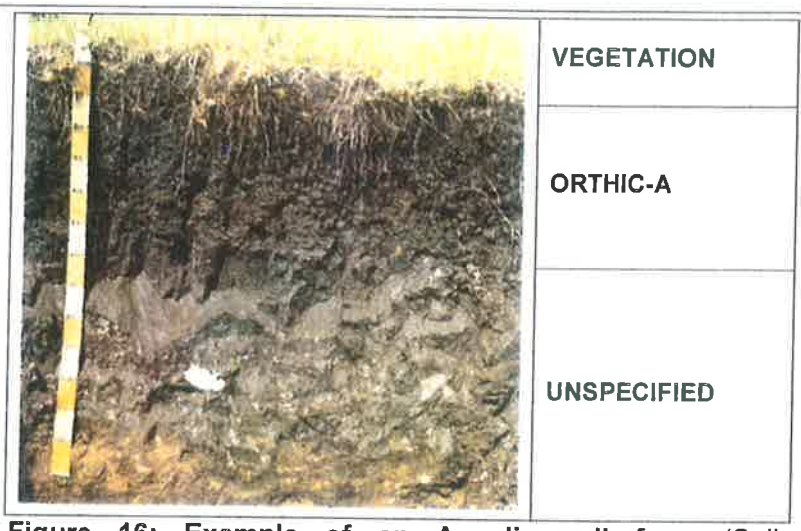


Figure 16: Example of an Arcadia soil form (Soil Classification, a Taxonomic System for South Africa, 1991).

Soil fertility and erodibility

Soils of the Arcadia form with 20 – 40 % rock outcrops have a high fertility, due to the high clay content (> 60%) and the high cation exchange capacity (140 cmol/kg clay) present in these soils. It has a low erodibility potential when present in flat areas, but will erode easily on a sloping landscape, which is an important reason why this soil should not be used extensively for the covering of waste rock dumps slopes during the rehabilitation process.

Soils of the Arcadia form with more than 60 % rock outcrops have a high fertility, but soil usage is more restricted due to the surface rock. Erodibility potential is the same as the previously mentioned soils.

Areas consisting mainly of rock outcrops (70% – 90%) with soils of the Hutton and Shortlands forms have a low fertility due to the large amount of rock present. These soils have a low to medium erodibility potential.

Areas consisting mainly of soils of the Mispah form with 60 – 80% rock outcrops have a low to medium fertility due to the shallow depth and rockiness of the area. These soils have a medium to low erodibility potential.

Areas consisting mainly of soils of the Mispah form with a bleached surface have a low fertility due to the removal of ions by water infiltration. These soils have a low erodibility potential.

Soil potential

The potential of each soil type is summarised in **Table 9**.

Table 9: Soil potential of the different soil types.

SOIL FORM	SOIL POTENTIAL		
	Dry land	Irrigation	Grazing
Arcadia (<40 % rock)	Medium	Medium to low	High
Arcadia (>40 % rock)	Low	Low	High
Hutton/Shortlands	Low	Low	Medium to High
Mispah	Low	Low	Low to Medium
Mispah (bleached)	Low	Low	Low

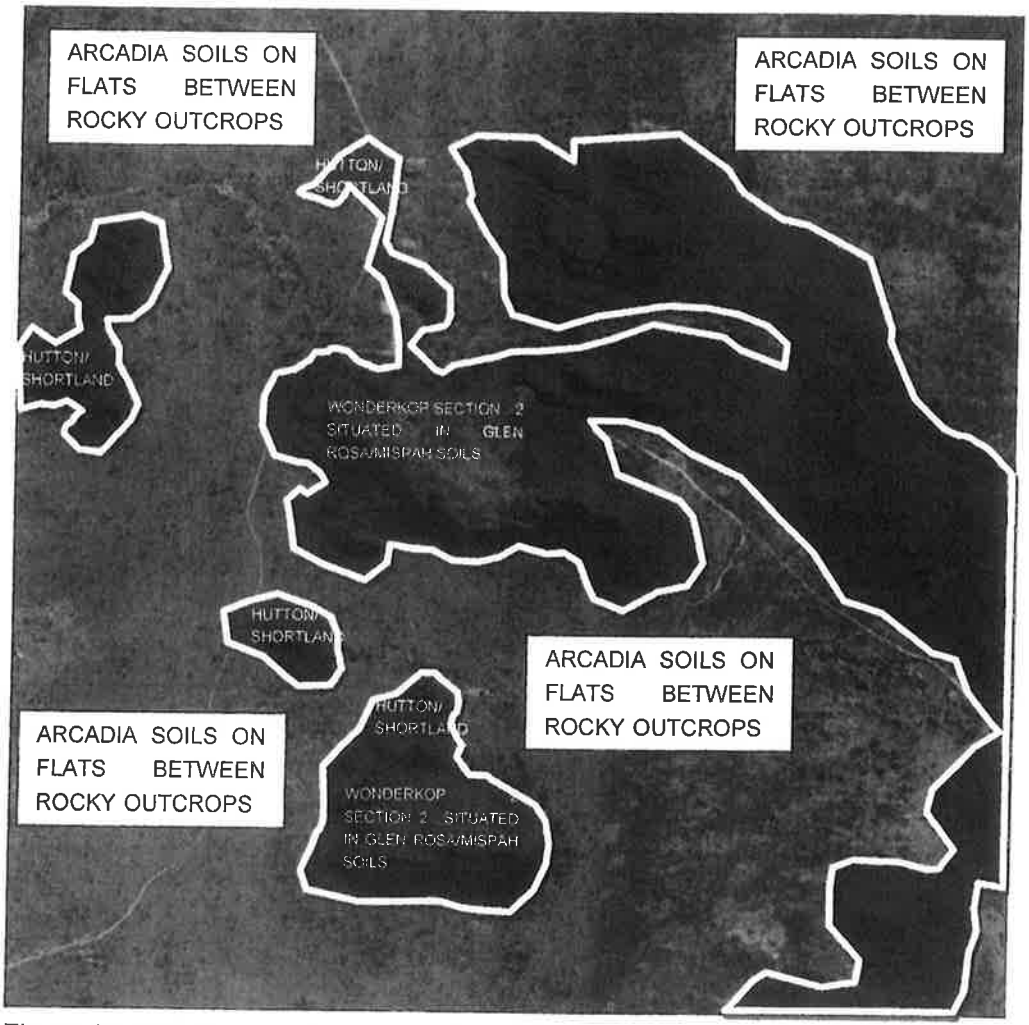


Figure 17: Soil Map for Wonderkop Quarry

3.5 VEGETATION (FLORA)

The vegetation of the mining area falls under veld type no. 19, Sourish Mixed Bushveld, of Acocks (1988). See **Appendix A - Figure 1A** (ENPAT, 2001). (Refer to **Appendix C** for a full report by Galago Environmental.

In 1979, Van Der Meulen and Westfall produced a "Vegetation Map of the Western Transvaal Bushveld" encompassing the areas of granite quarrying. The above authors recognised four broad vegetation-habitat classes and various syntaxanomic and synecological community as a result of their research. The four broad vegetation-habitat classes within the common Rustenburg Granite environments are:

i) Microphyllous thornveld communities of warm, dry lowlands are grouped into *Acacia tortilis – Panicum maximum* Woodland Order comprising several alliances and associations. Floristic differences between the minor syntax are mainly determined by differences in soil properties. The thicket-like *Acacia tortilis-Carissa bispinosa* Woodland Alliance on diabase dykes and termite mounds is found on small areas throughout the area.

ii) Mesophyllous community of cool, moist uplands are described as the *Combretum molle, Diheteropogon amplectens* Woodland Order. Altitude, aspect and soil texture are the main habitat factors determining the distribution of the various minor syntaxa.

iii) Traditional woodland has species of both xeric lowland bushveld and mesic upland bushveld and occurs on lower slopes and bottomlands and on calcareous substrates.

iv) Azonal riparian forest vegetation (described in the *Combretum erythrophyllum – Celtis Africana* Forest alliance) occurs as narrow strips of vegetation along river banks and in riverine kloofs.

The following Syntaxa and Broad Habitat Characterization occur within the area of granite quarrying operations (Van Der Meulen and Westfall, 1979):

SYNTAXA	BROAD HABITAT CHARACTERZATION
▪ *Acacia erubescens* Woodlnad Association (3.1) ▪ *Acacia tortilis* Woodland Association (3.2)	▪ Sandy tostony soils on ferro-gabbro. ▪ Clayey soils
▪ *Spirostachys Africana – Sporobolus ioclados* Woodland Association (3.3) ▪ *Combretum apiculatum – Eragrostis nindensis* Woodland Association (7.3)	▪ Solonetzic, clayey soils in depressions. ▪ Gravelly (plinthic) sands on granite.
▪ *Croton gratissimus – Setaria lindenbergiana* Woodland Association	▪ Warm, stony hillsides of koppies

(6.1) ▪ *Acacia caffra – Bewsia biflora* Woodland Association (8.1)	▪ Clayey lithosols on southern slopes.
▪ *Acacia tortilis – Aristida bipartite* Woodland Association (1)	▪ Black, vertic clays.

Several other trees and shrubs are currently undergoing revision with regards to their conservation status. The vegetation, in general, of the site cannot be considered as pristine due to the fact that the quarry has been operational for some time. It must however be noted that the koppie bordering the southern section of the mining property has been 98% preserved.

There is also an increased anthropogenic influence through the collection of firewood from surrounding villages. It can thus be summarised that the vegetation, although in good condition, has undergone disturbance. While in areas associated with rehabilitated mine residue deposits the vegetation is recovering from previous disturbance. The type of vegetation found within this specific site can be characterized as occurring throughout most of the area.

List of plant species common to the surrounding areas of the Wonderkop 400 JQ quarry operations

3.5.1 Tree Species

Botanical name	Common names	
	English	Afrikaans
Acacia ataxacantha	Flame acacia	Vlamdoring
Acacia caffra	Common hook-thorn	Gewone haakdoring
Acacia karroo	Sweet thorn	Soetdoring
Acacia nilotia	Scented thorn	Lekkerruikpeul
Acacia robusta	False umbrella thorn	Vals haak-en-steek
Acacia tortilis subsp. *Heteracantha*	Umbrella thorn	Haak-en-steek
Berchemia zeyheri	Red ivory	Rooi-ivoor
Bridelia mollis	Velvet Sweetberry	Fluweel soetbessie
Cassine aethiopica	Koobo-berry	Koeboebessie
Combretum hereroense	Russet bush willow	Kierieklapper
Combretum molle	Velvet bush willow	Basterrooibos
Combretum zeyheri	Large fruited bush willow	Raasblaar
Croton gratissimus	Lavender croton	Laventelkoorsbessie
Cussonia paniculata	Mountain kiepersol	Bergkiepersol
Dichrostachys cinerea	Sickle bush	Sekelbos
Dombeya rotundifolia	Wild pear	Drolpeer/Dikbas
Ehrethia rigida	Puzzle bush	Deurmekaarbos
Euclea crispa	Blue quarri	Bloughwarrie
Grewia flava	Brandy bush	Wilderosyntjie
Maytenus senegalensis	Confetti tree	Bloupendoring
Mimusops zeyheri	Transvaal red-milkwood	Moepel
Mundulea sericea	Cork bush	Kurkbos/Visgif
Pappea capensis	Indaba tree	Doppruim

Pavetta zeyheri	Small-leaved brides bush	Fynblaar bruidsbos
Peltophorum africanum	Weeping wattle	Huilboom
Pouzolzea hypoleuca	Soap nettle	Seepnetel/Snotterbel
Rhus lancea	Karee	Soetkaree
Rhus leptodictya	Mountain karee	Bergkaree
Sclerocarya birrea	Marula	Maroela
Securinega virosa	White-berry bush	Witbessiebos
Syzygium cordatum	Undoni	Waterbessie
Tarchonanthus camphoratus	Camphor bush	Kanferbos
Vangueria infausta	Wild medlar	Wilde mispel
Vitex zeyheri	Silver pipe-stem tree	Vaalpypsteelboom
Ziziphus mucronata	Buffalo thorn	Blinkblaar-wag-'n-bietjie
Reference (Coates, 1995).		

3.5.2 Shrubs/Perennial Indigenous herbs

Botanical name	Common names	
	English	Afrikaans
Aselepias fruticosa	Shrubby milk weed	Tontelbossie/Melkbos
Cyperus papyrus	Papyrus	Papyrus
Hibiscus sp.	Wild hibiscus	Wildestokroos
Leucas martinicensis	Tolbossie	Tolbossie
Protasparagus africanus	Wild asparagus	Katdoring
Protasparagus laricinus	Wild asparagus	Bergkatbos
Protasparagus suaveolens	Wild asparagus	Katbossie
Sida sp.	Pretoria sida	Taaiman

3.5.3 Grasses (Indigenous)

Botanical name	Common names	
	English	Afrikaans
Aristida scabrivalvis	Purple three-awn	Perssteekgras
Bothriochloa insculpta	Pinhole grass	Stippelgras
Brachiaria eruciformis	Sweet signal grass	Litjiesinjaalgras
Eragrostis lehmanniana	Lehmann's love grass	Knietjiesgras
Eragrostis rigidior	Curly leaf	Krulblaar
Eragrostis superba	Sowtooth love grass	Weeluis eragrostis
Fingerhuthia africana	Thimble grass	Vingerhoedgras
Heteropogon contortus	Spear grass	Assegaaigras
Ischaemum afrum	Turf grass	Turfgrass
Panicum deustum	Reed panicum	Breëblaarbuffelsgras
Panicum maximum	Guinea grass	Buffelsgras
Themeda triandra	Red grass	Rooigras
Reference (Gibbs-Russell, 1990).		

3.5.4 Three main different habitats, each with its own type of vegetation exist in the area.

3.5.4.1 In the more flat and depressed areas of black clay soils the woody vegetation is clearly dominated by Acacias and a few other species.

The most common plant species found under these conditions are:

Botanical name	Common names	
	English	Afrikaans
Trees		
Acacia tortilis subs. *Heteracantha*	Umbrella thorn	Haak-en-steek
Acacia nilotia	Scented thorn	Lekkerruikpeul
Dichrostachys cinerea	Sickle bush	Sekelbos
Ehrethia rigida	Puzzle bush	Deurmekaarbos
Euclea crispa	Blue quarri	Bloughwarrie
Maytenus senegalensis	Confetti tree	Bloupendoring
Grasses		
Bothriochloa insculpta	Pinhole grass	Stippelgras
Eragrostis rigidior	Curly leaf	Krulblaar
Heteropogon contortus	Spear grass	Assegaaigras
Ischaemum afrum	Turf grass	Turfgrass
Panicum maximum	Guinea grass	Buffelsgras

3.5.4.2 Vegetation in and around the rocky hills

This is a special habitat where the plants afford some protection against veld fires and benefits from dew and rain deposited in the boulders. Evaporation is minimised by shade and less wind. Broadleaved species dominate over *Acacias* and other narrow-leafed species. A few evergreen species occur. The more typical trees and shrubs at the base and in-between the boulders of the rocky hills are as follows:

Botanical name	Common names	
	English	Afrikaans
Trees and Shrubs		
Berchemia zeyheri	Red ivory	Rooi ivoor
Cassine aethiopica	Koobo-berry	Koeboebessie
Combretum molle	Velvet bush-willow	Baster-rooibos
Croton gratissimus	Lavender croton	Laventelkoorsbessie
Dombeya rotundifolia	Wild pear	Drolpeer/Dikbas
Mimusops zeyheri	Transvaal red-milkwood	Moepel
Pappea capensis	Indaba tree	Doppruim
Pavetta zeyheri	Small-leafed bridesbush	Fynblaar bruidsbos
Pouzolzia hypoleuca	Soap nettle	Seepnetel/Snotterbel

Sclerocarya birrea	Marula	Maroela
Syzygium cordatum	Undoni	Waterbessie
Grasses		
Heteropogon contortus	Spear grass	Assegaaigras
Panicum deustum	Reed panicum	Breëblaar buffelsgras
Panicum maximum	Guinea grass	Buffelsgras

3.5.4.3 Spaces between any two nearby hills

The interspaces between any two nearby rocky hills are usually somewhat raised and are more or less rocky and have a mixed type of vegetation where some of the species mentioned under point 3.3.4.1 and 3.3.4.2 co-exist together with a few more. Most common species not included under 3.3.4.1 and 3.3.4.2 is:

Botanical name	Common names	
	English	Afrikaans
Trees		
Acacia ataxacantha	Flame acacia	Vlamdoring
Acacia caffra	Common hook-thorn	Gewone haakdoring
Acacia karroo	Sweet thorn	Soetdoring
Acacia robusta	False umbrella thorn	Vals haak-en-steek
Combretum hereroense	Russet bush-willow	Kierieklapper
Grewia flava	Brandy bush	Wilderosyntjie
Mundulea sericea	Cork bush	Kurkbos/Visgif
Peltophorum africanum	Weeping wattle	Huilboom
Rhus leptodictya	Mountain karee	Bergkaree
Vitex	Silverpipe-stem tree	Vaalpypsteelboom
Ziziphus mucronata	Buffalo thorn	Blinkblaar-wag-'n-bietjie
Rhus lancea	Karee	Soetkaree

3.5.5 Widespread and/or rare species

Some of the species mentioned under 3.3.4.1 and 3.3.4.2 are also present in this intermediate area (3.3.4.3) with the exception of the following species which only occur at specific habitats, usually next to water, in rocky sites, e.g. the two evergreen species *Mimusopis zeyheri* and *Syzygium cordatum.*

Other species, more rare, found in the area: *Tarconanthus camphoratus, Vangueria infausta, Pavetta zeyheri, Securinega virosa, Mundulea sericea* and *Vitex* sp.

3.5.6 Exotic Species

Botanical name	Common names	
	English	Afrikaans
Shrubs, Forbs and Grasses		
Nicotiana glauca	Wild tobacco (shrub) (invader/weed)	Wilde tabak
Pennisetum setaceum	Fountain grass (invader/weed)	Pronkgras
Physalis spp.	Wild gooseberry (annual forbs, weed)	Wilde appelliefie
Solanum spp.	Bitter apple (forbs, small shrubs, declared weed/invader)	Bitterappel
Tagetes minuta	Mexican marigold (forb, weed)	Kakiebos
Zinnia multiflora	Redstar zinnia (garden scapee)	Wilde jakob-regop
Ricinus communis	(castor oil tree)	Kasteroilieboom
Gomphocarpus fruticosis	(Milkweed)	Melkbos

3.5.7 Protected / Endangered Flora Species

The only two plant species found in the area which are declared protected/endangered species are *Cussonia paniculata* (Cabbage treeand *Sclerocarya birrea* (Marula), although no Cabbage trees were observed on site. The Marula species mainly occurs on the lower slopes and open plains; whereas the Cabbage tree is commonly found on the rocky outcrops. It has been noted that the Marula species has been found growing through the waste material of the toe edges of the mine residue deposits, indicating that ecological process can be sustainable in areas of previous disturbance. The cabbage tree is very rarely seen within the study area and needs to be protected from the mining activities whenever identified.

3.5.8 Other tree species of value

There are at least three other tree species, although not declared endangered or protected, all evergreen, which due to their value (aesthetic, fruit-bearing, shade, rarity) deserve to be protected and multiplied.

Botanical name	Common names	
	English	Afrikaans
Mimusops zeyheri	Transvaal red-milkwood	Moepel (Figure 19)
Berchemia zeyheri	Red ivory	Rooi-ivoor (Figure 20)
Syzygium cordatum	Undoni	Waterbessie (Figure 21)

Figure 18: Transvaal Red-Milkwood (*Mimusops zeyheri)*

Figure 19: Red Ivory (*Berchemia zeyheri)*

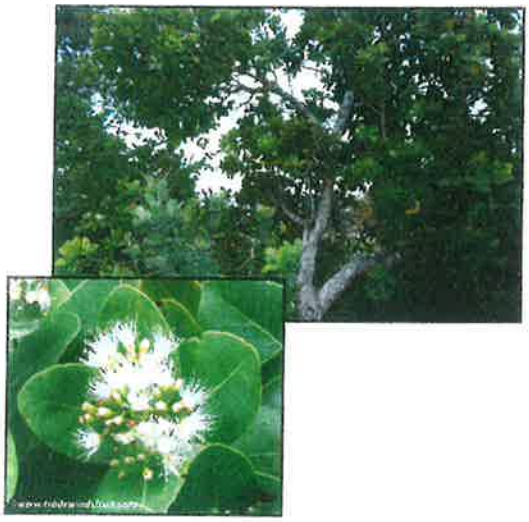


Figure 20: Waterbessie (*Syzygium cordatum)*

3.6 ANIMAL LIFE (FAUNA)

3.6.1 Commonly Occurring Species

An animal survey was conducted to determine the presence of certain animals within the area of interest (See **Appendix D** for a list of faunal species that may occur within the study area). As was found within the vegetation study anthropogenic forces appear to have influenced animal presence. Possible poaching (through traps) and habitat disturbance has reduced the animal diversity. Since the quarry has been in operation for some time, the negative influence of the operation on animal life has already occurred. It is, in fact, unlikely that the species lists presented on Mammals, Reptiles, and Birds etc. in Appendix E will be a true reflection of the "Faunal Status" of the lease area due to various reasons mentioned.

In contrast to this the mine residue deposits have become inhabited by a range of animal species (and this is a positive impact). It should be noted that the mine residue deposits, once rehabilitated as proposed in the environmental management plan, represent a similar habitat to those areas that are currently being mined i.e. koppies. As the mine residue deposits undergo further succession processes they will provide further opportunity for inhabitation.

3.6.2 Endangered/Vulnerable/Indeterminate and Rare Species

According to the literature survey undertaken the following Red Data Species may occur within the regional setting of the operations.

Mammal Species

Common Name	Scientific Name
Vulnerable	
Pangolin	*Manis temminckii*
Honey Badger	*Ellivora capensis*(Figure 16)
African Wildcat	*Felis lybica*
Aardvark	*Orycteropus afer*
Rare	
Hedgehog	*Atelerix frontalis*
Striped Weasel	*Poecilogale albinucha*
Civet	*Civettictis civetta*
Brown Hyaena	*Hyaena brunnea*
Aardwolf	*Proteles cristatus*
Serval	*Leptailurus serval*
Leopard	*Panthera pardus*

Indeterminate	
Lesser Dwarf Shrew	*Suncus varilla*
Short-eared trident Bat	*Cloeotis percivali*
Kuhl's Pipistrelle	*Pipistrellus kuhlii*
Tiny Fat Mouse	Steatomys parvus
Water Rat	*Dasymus incomtus*
Reference (Smithers, 1984).	

Figure 21: Honey Badger (*Ellivora capensis)*

Bird Species

Common Name	Scientific Name
Vulnerable	
Cape Vulture	*Gyps coprotheres*
Lappet-faced Vulture	*Torgos tracheliotus*
Kori Bustard	*Ardeotis kori*
Grass Owl	*Tyto capensis*
Rare	
Little Bittern	*Ixobrychus minutus*
Yellow-billed Stork	*Mycteria ibis*
White Stork	*Ciconia ciconia*
White-headed Vulture	*Trigonoceps occipitalis*
Hooded Vulture	*Necrosyrtes monachus*
Red-necked Falcon	*Falco chicquera*
Baillon's Crake	*Porzana pusilla*
Lesser Jacana	*Microparra capensis*
Indeterminate	
Black Stork	*Ciconia nigra*
Red-necked Falcon	*Falco chicquera*

Baillon's Crake	*Porzana pusilla*
Grass Owl	*Tyto capensis*
Pennant-wing Nightjar	*Macrodipteryx vexillaria*
House Martin	*Delichon irbica*
Endangered	
Wattled Crane	*Bugeranus carunculatus* (Figure 17)
Reference (Brooke, 1984).	

Figure 22: Wattled Crane (*Bugeranus carunculatus)*

Reptiles

According to existing records, this area has a remarkably low number of reptile and amphibian species (Jacobsen, 1989). This is particularly noticeable when investigating the possible presence of rupicolous species. The Southern Rock Agama (*Agama atra*) is the only typical social rock-living species, which utilises the prominent rock outcrops found on the property. Other species, such as an undescribed skink (*Trachylepis sp.*) (Jacobsen, 1989), the Speckled Skink (*Trachylepis punctatissima*), the Variable Skink (*Trachylepis varia*) and the Transvaal Girdled Lizard (*Cordylus vittifer*) are lizards which live singly and utilise cracks and other retreats nearer to the base of koppies.

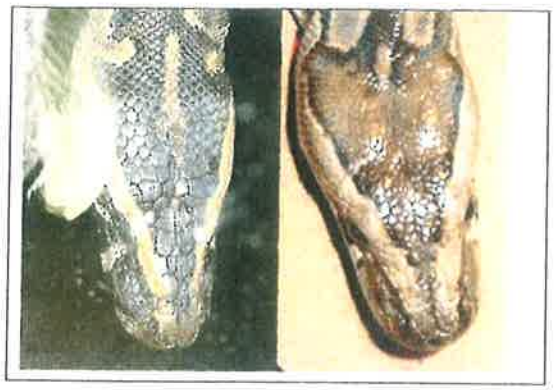


Figure 23: Comparison between the African Rock Python and Southern African Python on the right that occurs in the area (http://www.african-python.de/sebae.html)

The large Turner's Thick-toed Gecko (*Pachydactylus turneri*) is nocturnal and, although it usually is rock-living, may also occur on trees with loose bark or holes in the trunk. All of these species are relatively common in the area, but would only enter the un-rehabilitated waste dumps in small numbers, as narrow cracks between two rock faces are the preferred rock retreats. The White-throated Monitor, also referred to as Rock Monitor (*Varanus albigularis*), may use the artificial rock habitat but is not dependent on it. The African Rock Python have been seen on site and is a protected species

A list of snakes commonly seen in the area is:

Common Name	Scientific Name
Brown House snake	*Lamprophis fuliginosus*
Skaapsteker	*Psammophylax sp.*
Common egg eter	*Dasypeltis scabra*
Boomslang	*Dispholidus typus typus*
Rinkhals	*Hemachatus heamachatus*
Puff adder	*Bitis arientans arientans*
Blind snake	*Typhlops sp.*
Mole snake	*Pseudasphis cana*
Southern African Python (not be be confused with the African Rock Python)	*Python natalensis*
Mozambican Spitting Cobra	*Naja mossambica*
Southern vine snake	*Thelotornis capensis*

Bio-sensitivity:

Sensitivity levels are determined by the frequency with which vulnerable species are found in natural areas. According to the ENPAT Spatial Database, the entire mining area has a total bio-sensitivity level of **99,** where **150 are very sensitive** and **2 is the least sensitive**. To the north and east of the site, the bio-sensitivity of the region decreases to **96**. Refer to **Appendix A - Figure 1D** (ENPAT, 2001): Bio-sensitivity Map for more details. Predicted sensitivity levels of faunal groups occurring on site are as follows:

- Birds - **61**
- Scarab-species **- 6**
- Mammals **- 20**
- Reptiles - **2**
- Butterflies **- 10**

ENPAT-Spatial Database – Bio-Sensitivity Classification

						WDP				
2	15	30	45	60	75	90	105	120	135	150
Least Sensitive				Moderately Sensitive						Very Sensitive

WDP - Wonderkop

3.7 WATER

From a biophysical aspect, water is broadly described under two sections, namely groundwater and surface water. These are discussed below.

3.7.1 Surface Water

The mean annual runoff for North West Province is relatively low and the average mean annual runoff as a percentage of the precipitation is approximatelly six percent for the province, which is below the nine percent average for southern Africa.

The mean annual runoff varies significantly from east to west, ranging from approximately 7% in the eastern region of the province to less than 1% in the far western region.

The Crocodile Catchment covers about 10 450 km^2. The naturalised mean annual Runoff is 1 200 million cubic metres per year, with an estimated maximum yield (that is, the maximum amount storable in dams) of more than 850 million cubic metres per year.

There are two storm water drainage channels close to mining sections of which one dissects Wonderkop 1 and Wonderkop 2 sections as seen in Figure 11. These non perennial streams drain the mine area and eventually flow into the non perennial Maretlwane Spruit. The Maretlwane Spruit eventually flows into the S. P Botha Dam west north west of the operation and converge with the Gwatlhe river (Sterkstroom), which in turn drains into the Rooikoppies Dam. The Rooikoppies Dam is the receiving water body.

A hydrological map attached as **Appendix A, Figure 1C** indicates the mining area's position in relation to the Maretlwane non perennial stream and and the perennial Sterkstroom.

3.7.2 River Diversions

There are no river diversions as a result of the operations

3.7.3 Water Authority

The relevant water authority is the Department of Water Affairs and Forestry, North West Regional Office, based at Hartebeespoort Dam

3.7.4 Wetlands

No natural wetlands occur within the boundaries of the proposed mining site.

3.8 GROUNDWATER

The rocks of the Rustenburg Layered Suite (Bushveld Complex) are characterized by a well-developed igneous layering. The mainly mafic rocks include norite, gabbro, magnetite gabbro, anorthosite and pyroxenes.

Groundwater occurrence is associated mainly with deeply weathered and fractured mafic rocks. This gives rise to ground water compartmentalization in the area between Rustenburg and Pretoria.

More than 80% of the boreholes in the area yield less than 2 l/s. indicating poor ground water yield. This is a result of the low permeability of the clay rich soils (i.e. black turf soils) that reduce recharge to underlying aquifers.

Dimension stone mining is believed to have little impact on ground water resources when compared to other types of mining like coal and gold mining, since water is not that intensively during the extraction of reserves or the production of saleable blocks.

Du Toit from GEO pollution Technologies states the following in a report on the comparative effect of granite (dimension stone) on groundwater: "Although the weathering products of these rocks may differ somewhat from the ideal situation above, the rocks mined for dimensional stone invariable must be very hard and durable rock, thus precluding the use of rock containing minerals with high weatherability, like pyrite. It can thus be argued that very little, if any groundwater pollution can be expected from all industrial granite mining despite the incorrect use of the term (granite) in some instances."

Geo Pollution technologies also states that dimension stone quarries are usually situated on hill sides and rocky outcrops above the ground water level. Mining of

dimensional stone seldom extends below the water table as is the case at Wonderkop quarry. No boreholes are drilled for extracting water on the mine; instead the mine makes use of surface water stored in a water filled quarry pit north of the operational known as Minaco Quarry that belongs to the same group of companies. Ground water is also sourced from the Marlin – Minaco operation approximatelly 3 km North West from Wonderkop on an "ad hoc" basis for human consumption (when required) only. The borehole at Minaco Quarry is registered at the Department of Water Affairs **(See Appendix E).**

Recent water quality tests conducted by ERWAT (East Rand Water Care Company) shows that the ground water sourced from Minaco Quarry is free of pollutants and safe for human consumption. Also attached in Table 11 is the mineral composition and technical data of the Gabbronorite product mined at Wonderkop quarry. Water used for mining processes (industrial use) sourced from water filled quarry pits was also tested during August 2009 and shows little sign of pollutants. The heterotrophic plate count is between 1000 and 2000 cfu/1ml and is not fit for human consumption without chlorine treatment. Conductivity, Ammonia, Nitrate and Nitrate Nitrogen as well as pH levels are within acceptable levels for industrial use.

TABLE 11: MINERAL COMPOSITION AND TECHNICAL DATA				
Material trade name	:	NERO IMPALA® (RUSTENBURG GREY)		
Country of origin	:	South Africa		
Location	:	East of Rustenburg, North West Province		
Geological classification	:	Gabbro-norite		
Lithostratigraphic unit	:	Rustenburg layered suite of the bushveld igneous complex		
Macroscopic description	:	Unfractured medium grained dark grey rock consisting of phenocrysts of grey and black minerals		
Microscopic description **- primary minerals** **- secondary minerals**	: :	 Plagioclase (64%), orthopyroxene (30%), clinopyroxene (4%) Amphibole (<1%), chlorite (<1%), sericite (<1%), talc (<1%)		
Grain size	:	Medium - 5mm to 10mm		
Texture	:	Granular		
TECHNICAL DATA				
	Compressive strength		Mpa	240
	Flexural strength		Mpa	22
	Modulus of rupture		Mpa	26
	Abrasion resistance (wear)		mm	1,48
	Bulk specific gravity		Kg per m^3	2,930
	Co-efficient of thermal expansion		Mm per °C	9,07x10-6
	Porosity		% per mm	0,34
	Water absorption		%	0,10

3.8.1 Mean depth of water table

In view the fact that the groundwater is sourced from Minaco Quarry on the Farm Schaapkraal 292 JQ information details regarding depth of the water table is applicable to this ground water source. In the summer months the water table is approximately 20 meters deep and in the winter months approximately 25 meters deep.

3.8.2 Groundwater quality and use

The water from the registered borehole, is only used for human consumption at Wonderkop and the use does not exceed 6 000 litres per month. The yield for the borehole is approximately ~ 10 000 l. per day. This borehole is tested on an annual basis and has proved to be fit for human consumption when extracted directly from the borehole. Water stored in water tanks requires occasional chlorine treatment. Results of the analysis of the borehole water can be found within **Appendix F**.

3.9 VISUAL IMPACT

Granite mining is usually a highly visible operation due to the fact that many deposits are found in hilly outcrops, which gives a certain character to the region. However, some of these have been affected by past and current mining operations which have resulted in significant visual impact in such regions. The impacts are largely associated with the unnatural symmetry of quarry benches, waste rock dumps and the exposure of un-oxidized rock faces as well as the disturbance of natural vegetation.

Although the Wonderkop operation comprising Wonderkop Section 1 and Wonderkop Section 2 is best described as a hillside operation, due to the fact that quarrying occurs on an elevated rocky outcrop or hillock, the visual impact is currently minimal due to limited visual exposure towards areas with high viewer incidence. Waste rock dumps or mine residue deposits as it is also known that surround the physical quarry areas and is visible from the tar road south of the operation (from certain positions) as seen in figures 24 A - D.

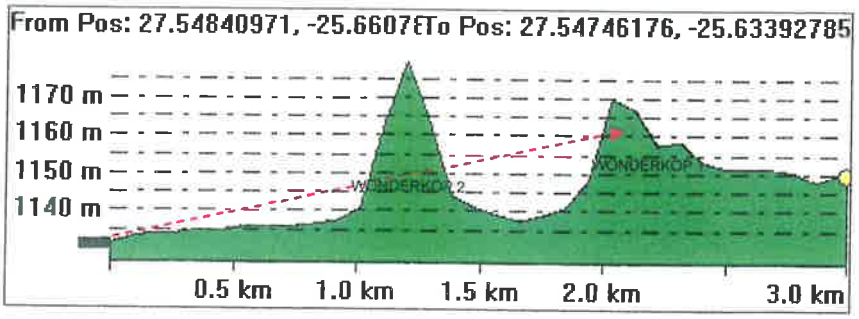


Figure 24A – View 1: Line of sight (South – North) from Segwaelane – Marikana road to Wonderkop Quarry

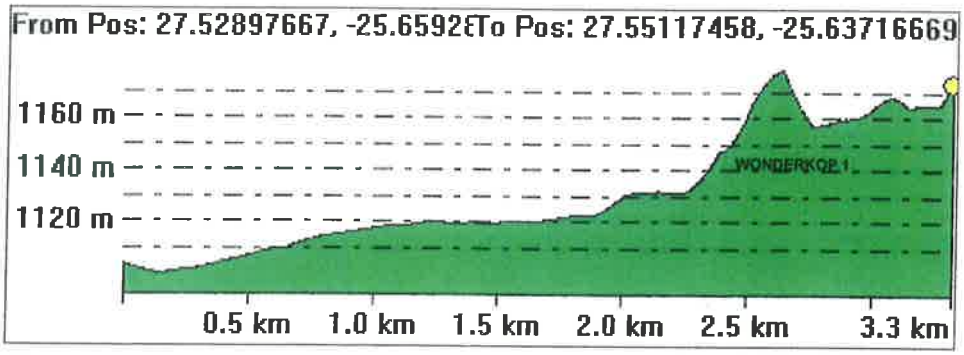


Figure 24B – View 2: Line of sight from Marikana (Wonderkoppies) towards Wonderkop 1 Quarry

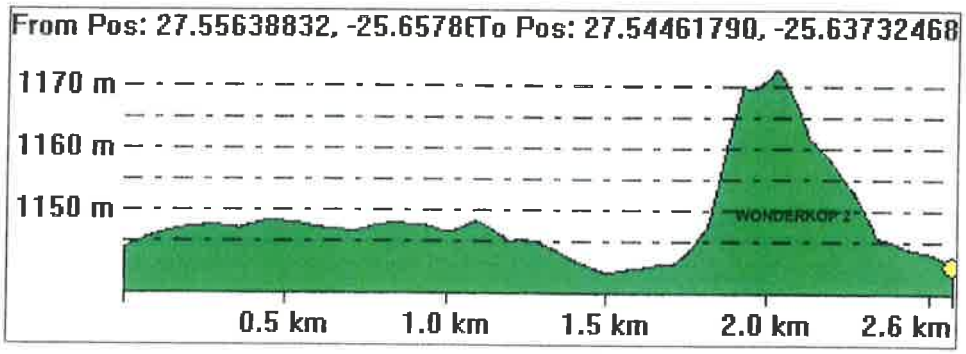


Figure 24C View 3: Line of sight (South east – North west) from Segwaelane – Marikana road to Wonderkop 2 Quarry

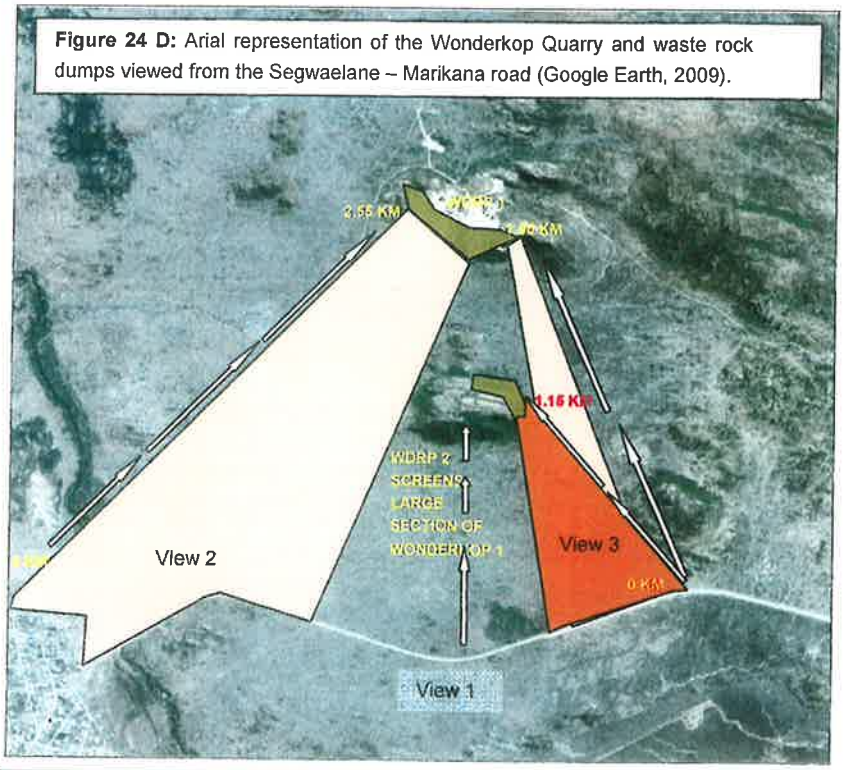


Figure 24 D: Arial representation of the Wonderkop Quarry and waste rock dumps viewed from the Segwaelane – Marikana road (Google Earth, 2009).

3.10 NOISE

As the quarry has been in operation for some time noise levels within the immediate vicinity of the quarry can be described as being high and it forms part of the standard operations within a normal dimension stone quarry.

The town of Marikana (Wonderkoppies) village is nearest to the operation, situated approximatelly 2.3 kilometres south west from Wonderkop Quarry. The community is not adversely affected by the operations since a natural noise barrier in the form of hillocks between the operation and the village dampen noise levels emanating from mining activities. Noise surveys are conducted within the mining area as a standard procedure of the operation.

- General noise levels on dimension stone quarries are as follows: The occupational exposure limit is 85dB

- Jackhammer Operator: 102.6 dB
- Diamond Wire Saw Operator: 89.9dB
- Quarryman 83.2 dB;
- Bullsetter 78.8 dB ;
- Loader; (94 dB in cab) and
- Dumper Truck 99.7 dB outside.

It is expected that advances in technology will see ambient noise levels produced during mining activities decline in future. This can be seen when comparing the noise levels (94 dB in cab) produced by the exiting loader on site compared to new generation Kumatso WA 600 that produces 73 dB in the operators cabin.

The latest report for Wonderkop Quarry is attached in **Appendix F**.

Figure 25 shows a Noise Level Decline Curve indicating the impact of jack hammers and throughway drills on ambient noise levels of the general surrounding area. This type of mining equipment was used for the assessment as it is regarded as the main source of noise on dimension stone mines. A maximum of 113.4 decibels at the point of origin were used to demonstrate whether the drilling activities would have a significant negative impact on ambient noise levels in surrounding communities.

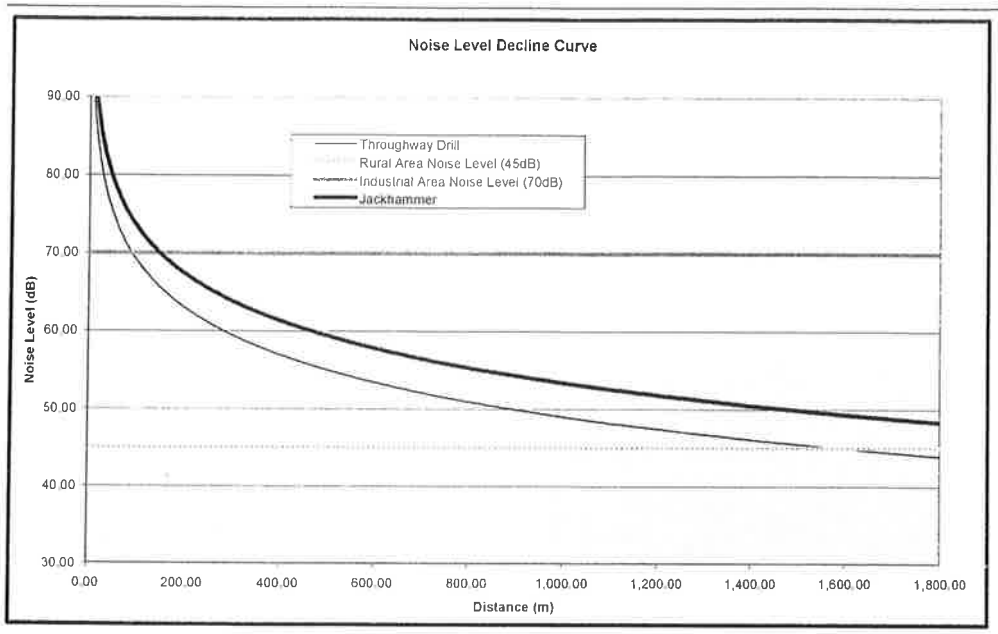


Figure 25: Noise level decline curve

Ambient levels between a rural landscape (45 db) where no significant noise producing equipment or machinery exists and an industrial area (70 db) is used as a guideline for determining whether the quarry operation would have a significant impact on noise levels on neighbouring communities in the area.

The chart does not take into account vegetation cover, climatic conditions, wind direction or topography that could either amplify or reduce noises generated on the mine. Taking into account the existence of waste rock dumps and hillocks it is safe to assume that noises will not travel as far as predicted by the noise level decline curve in the figure above. An extract of an aerial photo is used to demonstrate the decline in noise levels over distance as can be seen in **Figure 27**. Noise levels generated by a jackhammer will decline to less than 50 decibels over a distance of 1, 8 kilometres, which falls within acceptable levels for this quarry operation.

3.11 AIR QUALITY

Existing sources of air pollution in the region may possibly be comprised of the following activities:

- Mining and quarrying activities or mineral processing in the region
- Domestic coal fires from various townships or villages in the region
- Veld fires (particularly during the winter season)
- Dust associated with traffic movement on gravel roads (public and mining associated vehicles).
- Agricultural related activities.
- Industrial activities.

In general it is assumed that that the air quality is negatively affected by the larger mining operations to the south , south west and south east of Wonderkop Quarry .The prevailing wind direction in the area are NW and dust blown from the platinum mines does contribute to increased dust levels at Wonderkop quarry.

Dust monitoring is done on the quarry as part of the health, safety and environment regulations on a quarterly basis. The concentration of airborne pollutants within the general quarry area during the survey was 1.97 mg/m^3, where the OEL (Occupational Exposure Limit) is set at 3.00mg/m^3. The jackhammer operator must wear dust masks as the airborne pollutants increases to over 20mg/m^3 within their vicinity. The full report is provided within **Appendix F**.

Small scale dimension stone operations such as Wonderkop Quarry are not known to produce a large amount of dust and the majority of dust fallout occurs within the areas being quarried. This is mainly because a small number of earthmoving machines are operational on the mine. Also important is that the operation is opencast; ventilation of dusty air is very good in comparison to those of underground or subsurface mining. The product being mined is low in free SiO_2 (Quartz) unlike true granite and hence the amount of free silica generated by mining operations (drilling, cutting etc.) in the Occupational Exposure Limit of dust is expected to be low.

On a sub-regional basis the impact of the operation on air quality are considered to be small as a result of the mining methodology and product mined which produces no major emissions of substances likely to reduce the air quality within the region.

3.12 ARCHAEOLOGY, GRAVES AND SITES OF CULTURAL INTEREST

3.12.1 General

The National Heritage Resources Act (Act No 25 of 1999) requires all developers (including engineers, farmers [agriculturists] and mines) to undertake impact assessment studies whenever any development activities are undertaken. The law also provides guidelines for impact assessment studies to be done whenever cultural resources may be affected or destroyed by development activities. Permits have to be acquired from the South African Heritage Resources Agency (SAHRA) before a heritage site can be affected, altered or destroyed during the course of development activities.

Several acts are relevant to graves and the exhumation and relocation of human remains. These laws apply to different categories of graves, namely:

- Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983).

- Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the South African Heritage Resources Agency (SAHRA). The Procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999, National Heritage Resources Act) is applicable to graves older than 60 years which are situated outside a formal cemetery administered by a local authority.

- Graves older than 100 years are legislated as being archaeological and therefore protected under Act 25 of 1999 (National Heritage Resources Act). SAHRA authorisation is required for all graves in this category regardless of where they are located.

- Graves of victims of conflict regardless of how old they are or where they are situated are protected by Act 25 of 1999 (National Heritage Resources Act). SAHRA authorisation is required for all graves in this category.

Any alteration to a grave in the latter three categories or the relocation thereof must be supervised by a qualified archaeologist accredited by SAHRA and the Cultural Resource Management Section of the South African Association for Archaeologists. In order to handle and to transport human remains the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

3.12.2 The study area (Wonderkop 400 JQ remainder Portion 1 and 2) according Dr. van Schalkwyk.

A phase 1 Heritage Assessment for the mine was conducted during August 2009. The aim of the study was to locate, identify, evaluate and document sites. objects and structures of cultural significance found within the area that might be occupied by mining activities.

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied;
- A visit to the proposed development area.

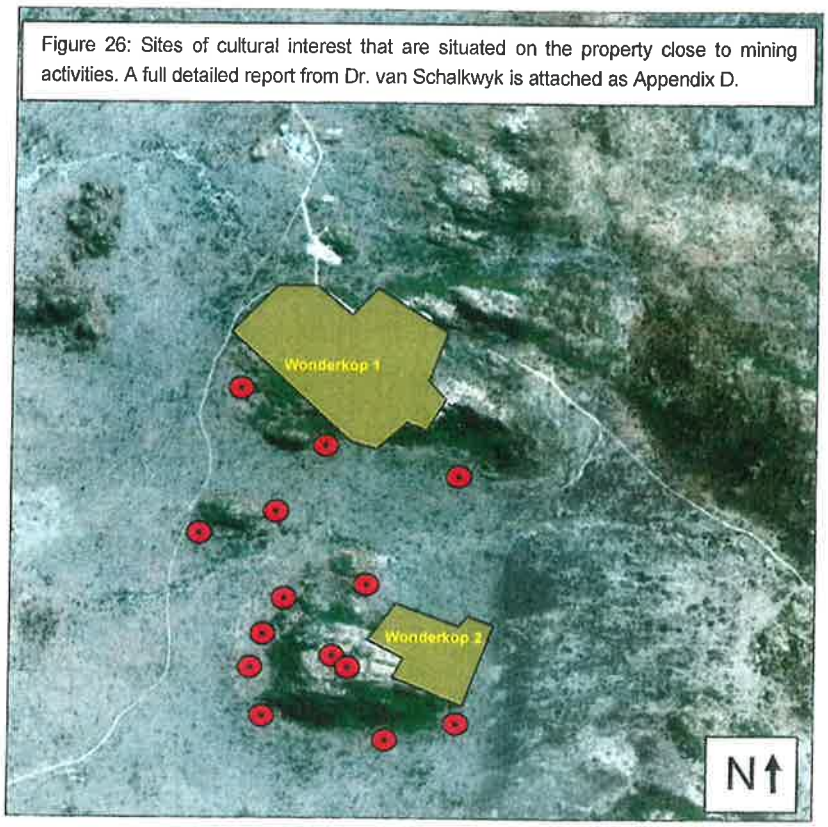
- The objectives were to Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

The following cultural heritage resources were identified in the study area:

- Middle Stone Age tools were noticed to occur in sporadic manner all over. As it is surface material, it is viewed to have no significance.
- 15 sites of Tswana origin dating to the Iron Age and specifically the period post 1600.

In terms of Section 7 of the National Heritage Resources Act, all the sites currently known or which are expected to occur in the study area are evaluated to have a Grade III significance, which means these heritage resources is worthy of conservation, on a local authority level.

Figure 26: Sites of cultural interest that are situated on the property close to mining activities. A full detailed report from Dr. van Schalkwyk is attached as Appendix D.



3.13 SOCIO ECONOMIC STRUCTURES

The surface of the remainder of portion 1 and 2 of the farm Wonderkop 400 JQ belongs to the Bapo Ba Mogale tribal Authority as per deed of transfer T216/1927. The mining area is situated within 3 kilometres from Marikana (Wonderkoppies).

The larger Rustenburg area as well as the rural urbanised areas surrounding Rustenburg has a high population density. Most of the families obtain their income from family members employed either in Rustenburg or for example Gauteng. Unemployment presents a major problem for the Province due to economic conditions and population growth. The major economic activities in the Rustenburg area include mainly mining activities, tourism and farming. These activities account for the majority of employment opportunities both on a local and regional scale.

Since Wonderkop Quarry (Marlin Holdings – Rustenburg) had been in operation for some time it has well established socio economic interactions with the local communities which is facilitated through management. The majority of the employees employed at the Rustenburg. Operations reside in villages in and around the operations such as Maumong, Rankilenyana, Mabitse and Mosenthal although a minority of the employees is residing in Rustenburg, Marikana and Brits.

The mining group has assisted local communities with infrastructure development in the past but future socio – economic contributions is documented in the Social & Labour Plan submitted with the conversion application.

There are four local communities which are within the sending areas for the proposed operations namely, Maumong, Mosenthal/Ikageng, Tlapa and Rankilenyana villages, all of which falls under the area of the Rustenburg Local Municipality, although few employees reside in Bethanie and Segwaelane and Brits.

In order to achieve meaningful and sustainable local economic development in each village; financial commitments were made by consolidating nine mining applications to be used for development according to the needs of the communities.

The Applicant consulted with ward councilors, LED managers and local communities, in conjunction with the Integrated Development Plan (IDP) of the Rustenburg Local Municipality, to determine the needs of the communities.

According to the IDP and the communities the following have been identified as some of the priority needs within the sending areas of the mines:

- Infrastructure – The construction of a community hall/community facility

- Poverty Eradication – A 50 hectare (per year) agricultural project
- Skills Development – Information Technology skills & Training at Local Schools
- *SMME Development – *Expansion of a waste rock utilization project.

3.14 INTERESTED & AFFECTED PARTIES

According to the Department of Environmental Affairs and Tourism (DEAT), an interested and affected party is defined as follows: "Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public. Information and correspondence related to the public participation process are attached as Appendix H.

The following parties were identified during the public participation process as potential interested and/or affected parties. Only the Kroondal Bewarings Forum, Rustenburg Environmental Coalition and Madibeng Local Municipality registered as Interested and Affected Parties, Although the owner of the land (Bapo ba Mogale Traditional Authority) were consulted during the compilation of the Environmental Management Programme Report.

The owner of the land: Bapo – Ba – Mogale Traditional Authority	The Department of Land Affairs
Private adjacent owners	Eskom
The Rustenburg Local Municipality	South African Heritage Resource Agency (SAHRA)
The Madibeng Local Municipality(**Registered IAP**)	Brits Bankeveld Bewarings Forum
Amirana Trading	Department of Agriculture (National and North West Province)
Adjacent mining companies	Kroondal Bewarings Forum(**Registered IAP**)
Bojanala District Municipality	RECO – Rustenburg Environmental Coalition (**Registered IAP**)

In addition to registered notices to possible interested and affected parties, the activity was also advertised on A2 laminated notices at public locations near the operation as well as at the Bapo – Ba – Mogale Traditional Authority offices in Bapong where a notice was posted on the community notice board from 12 June 2009 to 12 July 2009. Adverts in the Brits Pos and Rustenburg Herald were also placed on 11 and 12 June 2009, informing the public of the proposed mining activity and providing the public the opportunity to register and an Interested or affected Party.

Possible interested and affected parties were informed through the distribution of an information document that described the type of operation as well as indicating the location of the operation. This documentation were mailed via registered mail or delivered by hand.

In addition to notifications and information documentation, a copy of the old order EMPR was left for comment at the Bapo – Ba – Mogale Traditional Council for comment. The reason for this action was to give the landowner the opportunity to suggest where shortcomings in the existing documentation exist.

A database of all the interested and affected parties is kept up to date as they register throughout the public participation process. All the relevant public consultation documents are contained within Appendix H. A public meeting was held on the 4th August 2009 at the Rustenburg Public Library. The minutes and attendance list for the meeting is also attached in Appendix H.

Copies of the draft EMPRs were made available to the public for two weeks. Copies were left at the Marlin regional office at the Schaapkraal operation, the Bapo- Ba – Mogale Traditional Council offices and the Rustenburg library. The draft EMPRs were made available for comment from 5 November 2009 to 20 November 2009. Neither comments nor concerns on the draft EMPR were received.

3.15 ALTERNATIVE LAND USE

The right to mine is issued and will remain as such until the project is complete after which Nell Brothers (Pty) Ltd. will rehabilitate the land. Since the area demarcated for this application is already disturbed, no alternative land use except mining exists. Once the area is quarried out, it will be rehabilitated for agricultural use (Low - key grazing) or will remain wilderness area. The size and location of the property to other undisturbed areas falling under the jurisdiction of the Bapo – Ba – Mogale tribal Authority makes this area feasible for game farming.

No other alternative land use developments have been assessed, but it is not impossible that portions the land could in next 20 years be utilised for business or commercial purposes when taken into account its location in relation with the tarmac road linking Segwaelane and Marikana. In addition to its easily accessible position, it should be considered that waste rock dumps may be recycled in future to produce tiles, tomb stones or ornaments. Development of land is usually linked to its position around strategic routes and geographical nodes. The best alternative land use for undisturbed sections on the property may be considered to be game farming or a conservation reserve.

LAND USE	QUARRYING	GRAZING	RESIDENTIAL OR URBAN DEVELOPMENT/URBAN SPRAWL
PRIMARY IMPACT/S	Geology Topography Aesthetics Socio - Economical	Plant And Animal deterioration Life through uncontrolled veld fires and uncontrolled grazing practices	Socio – Economical Plant And Animal Life Engineering Services From Local Municipalities Potable Water
CUMULATIVE IMPACTS EXTENT	Since dimension stone mining in North – west Province is mainly active in the Brits – Marikana – Rustenburg areas the cumulative impact of dimension stone mining is limited extends to a sub-region The mining sector as an entity has a global impact on the environment	Uncontrolled grazing practices occur on a national basis and it is assumed that the cumulative impact of uncontrolled agricultural activities contributes indirectly to erosion and desertification	Urban sprawl or urban development has a significant international cumulative impact when taken into account population growth and its associated direct and indirect impacts The cumulative direct and indirect impact of population growth can be measured on a global scale

LAND USE	GAME FARM/CONSERVATION AREA
PRIMARY IMPACT/S	Aesthetics - positive Socio – Economical – positive Ecological - positive
CUMULATIVE IMPACTS EXTENT	Cumulative positive impact of game farms/conservation reserves compared to negative impacts of mining operations extends to national level

SECTION 4: ENVIRONMENTAL IMPACT ASSESSMENT

According to Guideline 5 of the Department of Environment and Tourism, an impact can be described as the change in an environmental parameter, that result from undertaking an activity, which is in this instance mining, or quarrying. The change is the difference between the effect on the environmental parameter (environmental impact category) where the activity is undertaken, compared to where the activity is not undertaken. Environmental impacts may occur over a specific period and within a defined area.

EIA ASSESSMENT CRITERIA AND SIGNIFICANCE RATING SCALES

The impacts associated with each of these phases will be specific to the mineral commodity, environmental context, mining method, spatial and temporal aspects of the operation and stated rehabilitation goals. The assessment criteria must permit the reporting of both positive and negative impacts as the environmental planning process should aim to minimise the negative impacts and maximise the beneficial or positive aspects.

In order to adequately assess the potential impacts of any mining development the temporal scale or duration, likelihood or degree of certainty, extent, duration, intensity or magnitude and unmitigated significance of the impact should be assessed.

IMPACT CATEGORY

Direct:	*Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.*
Indirect:	*Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity (e.g. the reduction of water in a stream that supplies water to a reservoir that supplies water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.*
Cumulative:	*Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.*

EXTENT OF IMPACT

Site:	*impact affects the whole, or measurable part of the mining area*
Local:	*site and immediate surrounds, adjacent households/village*
Sub Regional	*geographic area or municipal scale*
Regional:	*provincial scale or impacts across provincial borders*
National:	*Direct and indirect impacts affecting environmental elements on a National level (South Africa).*
International	*neighbouring countries with respect to shared borders or resources*

DURATION OF IMPACT

Short:	*Effect last for a period up to five years*
Medium:	*Effect continues at any point for a period of between 5 and 15 years*
Long:	*impact will last for the entire operational life-of-mine but will be mitigated by human intervention or natural processes thereafter,*
Permanent:	*Permanent; non-transitory impacts that cannot be mitigated by man or natural processes.*

INTENSITY/SEVERITY

This is a relative evaluation of all activities that describe the degree of destructiveness of an impact; whether it destroys the impacted environment or alters it's functioning.

No effect	*No effect; neither systems nor parties not affected or may not be possible to determine,*
Low:	*impact alters the environment in such a way that the natural processes or functions are not affected,*
Medium:	*affected environment is altered but function and process continue albeit in a modified way*
High:	*High; function or process of the affected environment is disturbed to the extent that it temporarily or permanently ceases or constitutes a safety hazard.*

PROBABILITY

This is the subjective assessment of the likelihood of an impact but can be based on precedents from similar mining methods.

Unlikely	*Uncertainty or slight risk of impact occurring (<40% sure of the likelihood).*
Possible/Anticipated	*reasonable expectancy of an impact based on similar operations or sensitivity of the environment (only 40% sure),*
Probable:	*strong likelihood or risk of a specific impact given the environmental context (over 70% sure of a particular fact),*
Definite;	*impact will occur if the mining method is implemented (90% sure of a particular fact),*

SIGNIFICANCE

This is a subjective indication of the importance of the unmitigated impact in terms of physical extent and time scale and indicates the level of mitigation required. This can be applied as a qualifier to both negative and beneficial impact.

Low:	*a short duration, site-specific impact of low intensity would be of low severity,*
Medium:	*a medium-term impact or site-specific impact and high intensity may have a medium severity in the unmitigated state,*
High:	*Long-term or permanent impacts, those with regional influence or high intensity would create highly significant impacts.*

Status

Positive:	*Impact will be beneficial to the environment*
Negative:	*Impact will not be beneficial to the environment*
Neutral:	*No positive or negative impact is expected*

4.1 GEOLOGY

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar as to the operational phase since this phase has already been completed.					
Operational	site	permanent	high	definite	medium	negative
Decommissioning (rehabilitation)	site	short	low	definite	low	neutral

The potential impact identified includes the permanent alteration of the geology on site. The removal of the mineral deposit will result in the loss the mined gabbro norite from the environment. This is a direct impact of the dimension stone mining industry on the environment.

During decommissioning there is a high probability that the intensity of the impact on the geology will be low since removal of the granite will no longer be occurring. The status is regarded as being neutral since quarry operations will no longer be active.

Given that material is removed from the site, a negative impact of medium significance is expected from the quarry activities.

Many other dimension stone mining operations exist in the Brits – Marikana – Rustenburg vicinity. Gabbro norite (Rustenburg Grey Material) is a non renewable resource and will have a permanent negative impact on the geology of the area if not managed responsibly. Dimensional stone mining on a regional basis will have a high, permanent significant cumulative impact on the geology of the area. The utilization of waste rock will ultimately determine the future cumulative impact of dimension stone mining on the regional environment. The true cumulative impact of dimension stone mining or mining as a whole can only be determined through an extensive regional study.

4.2 TOPOGRAPHY

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar as to the operational phase since this phase has already been completed.					
Operational	site	Long	Medium	definite	Medium	negative
Decommissioning (rehabilitation)	site	Long	low	definite	low	neutral

The potential impacts on the site topography that have been identified include the following:

- The continual construction of waste rock dumps
- Surface quarrying where depressions or benches are created (surface quarrying)
- Stockpiling of growth medium (soils)

The topography is divided into areas of natural hillocks, undulating planes and rocky outcrops; quarry highwalls; borrow pits and waste rock dumps (small, medium, large). Much of the mining to date has been conducted within the norite koppies with the removal of boulders and solid formation mining, resulting in a permanent impact on the topography.

Quarry activities will result in stepped quarry faces with highwalls of approximately 3 - 6 meters. Waste material will be stockpiled at designated areas as indicated on the layout plan. These waste rock dumps will alter the topography permanently, although efforts will be made to blend the waste rock dumps with the surrounding natural topography. In general, the lowering of the landscape is through the generation of quarry depressions and the raising of the landscape is through the formation of waste rock dumps.

Although the topography will be affected by mining practices the mitigation measures in the EMP must ensure that the impact on the hydrology of the area is kept to an absolute minimum and that suitable management practices to facilitate this potential impact are implemented. These are, however, likely to be of low significance and the impact should current methodologies be maintained.

The impact of the opencast operation is of a direct negative, medium significance nature

The mining operation is located in the immediate vicinity of a number of similar operations that already have a significant impact on the surrounding topography through the development of quarries and construction of waste rock dumps. The cumulative impact will thus be classified as high if not mitigated properly.

The potential cumulative impact is of a negative permanent nature in the Rustenburg – Marikana – Brits area. The reason for this statement is because dimension stone mining involves the permanent removal of rock on hillside and surface quarries. Ultimately, hillocks/formations offering a yield or recovery rate of more that 10 % will be fully exploited, leading to a general lower landscape of mining sites. The cumulative impact is however not confined to dimension stone mining, but also other

mining sectors that produces many millions of cubic metres of mine residue deposits, which will ultimately lead to a significant impact on the landscape.

The cumulative negative impact of dimension stone mining on the environment is significant when taken into account the number of abandoned, dormant and operational quarries in the Brits – Marikana – Rustenburg region. The true cumulative impact can only be established once a regional assessment are conducted since other forms of mining and development of urban areas also impacts on the regional topography.

4.3 SOIL

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	site	long	medium	definite	medium	negative
Decommissioning (rehabilitation)	site	short	low	definite	low	positive

The potential impacts on soil that have been identified include the following:

- Reduction in the physical structure of the soil;
- A potential loss of nutrients from the soil;
- A potential loss of soil due to erosional processes;
- Potential soil pollution through petrochemical spills on road surfaces and within the quarry area;
- Restoration of the soil during the decommissioning phase of the mine which includes volume, cleanliness, fertility and location of the original soil status on site.

During the operational phase soil is to be removed and stockpiled. The impacts associated with this include a loss in the soils physical structure. Loss of nutrients may also occur as disturbance of the soil usually results in a pulse of nutrients from soil biota. The significance is regarded as medium due to the area of the mine residue disposal site and quarry areas. As indicated, many of the mine residue deposit sites are already constructed. Consolidation of the existing mine residue disposal sites internalises the impact and will serve to minimise any additional disturbance of the soil (and vegetation). It is also possible that soil erosion may also occur if the stockpiles are not managed correctly.

The movement of vehicles may also cause a potential pollution problem through petrochemical spills from the vehicles. The diesel tanks at the workshop area are

bunded by a brick bund wall to contain the contents of the tank should the tank burst. The oil storage facility is on a concrete floor to prevent petrochemical substances coming into contact with the soil. Should an oil hose rupture and oil spills onto the soil, standard operating procedures are in place at to manage the oil spill. This involves the use of petrochemical absorbents and microbes. The procedure is described in **Appendix L.** A direct, negative, highly probable "low significant" impact is expected from the removal of the soils due to mining operations.

Cumulative impacts may occur due to the loss of fertile soil which will have an impact on the land capability to produce crops, which will have an impact on the available land to be utilised as a potential food resource. Due to the scale of this operation and agricultural potential of the site, no major cumulative impacts regarding soil fertility, availability, structure or loss thereof are foreseen.

On a national level the cumulative impact on soil as result of human activities is already very significant since all human activities linked to development, impacts on soil. The activities include urban development of residential, commercial and industrial sectors in addition to activities related to agricultural processes. The contribution of this operation in terms of cumulative impact on soils is unlikely.

4.4 NATURAL VEGETATION

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	**Impact will be similar to the operational phase**					
Operational	site	long	medium	definite	medium	negative
Decommissioning (rehabilitation)	site	short	low	definite	low	positive

The potential impacts associated with natural vegetation include the following:

- Loss of vegetation from within the mine residue and quarry footprint areas (as result of the removal of soils and vegetation as part of mining development);
- Loss of vegetation cover (habitat) from the mine residue deposits and quarry areas;
- Potential invasion from weedy or invasive plant species, due to the impact on the natural veld;
- Creation of alternative habitats and restoration of vegetation during the operational and decommissioning phase.

The impact of mining on natural vegetation will have a medium significance of long duration with a medium intensity. Since the quarry has been in operation for some time, historical disturbance to the vegetation has resulted in a disturbed environment within the active and dormant quarry areas. As operations proceed very little additional disturbance to the vegetation will occur as most of the overburden has already been removed. Very little natural vegetation will thus be lost from within the existing mining site. The most significant impact on the surrounding vegetation will mainly be through the dumping of waste rock which extends into the natural veld over time. These waste rock dumps encroach into the undisturbed areas during operational activities.

Since the quarry has been in operation since the late 1980's many dormant and decommissioned mine residue deposit sites have been rehabilitated naturally and natural vegetation has returned these areas. Disturbed areas increase the possibility that alien or weedy species may establish. This is particularly so on roadsides, topsoil stockpile sites and newly placed soil on the mine residue deposits that form part of the concurrent rehabilitation methods.

Within the context of the area in which the proposed site is found, the loss of vegetation is not regarded as highly significant. This is because no protected, rare or endangered plants occur within the zone of active quarrying and waste rock dump footprints. Many indigenous species will become established once rehabilitation is complete providing that alien plant species are controlled. It is known that the vegetation forms part of a biome, which is very well conserved throughout the North West and Limpopo Province. A direct, negative, medium significant impact is expected from the impact on the natural vegetation due to mining operations.

A larger threat to the vegetation within the mine area is through the collection of firewood and overgrazing by the local communities. This is however an extremely difficult aspect to enforce. Signs are erected indicating that wood collection may not occur within the mine's boundaries. Employees are informed and trained, but the enforcement of policies on neighbouring communities is a huge challenge, especially as the land does not belong to the applicant. Sustainable utilisation of wood is possible, but recent observations indicate that trees are felled and wood is sold as an income generator.

An estimated 70% of disturbed areas are suitable (or partly suitable) for revegetation. Observations at abandoned quarries showed that decommissioned waste rock dumps, access roads, stock and dressing yards, as well as certain quarry areas have naturally revegetated successfully over periods less than 10 years. The greatest challenge surrounding vegetation at disturbed dimension stone mining sites is to establish vegetation on hillside benched excavations and waste rock dump slopes.

The cumulative impacts on vegetation are once again linked to the loss of soils on a regional basis. The loss of vegetation is directly linked to the loss of soils, discussed under 4.3. The true cumulative impact on vegetation on a regional basis can only be mitigated through the alleviation of poverty where less wood is used as an energy resource and intensive focussed establishment of indigenous plants in urban and rural areas as well as the management of invasive exotic plant species. The cumulative impact of this operation on vegetation is insignificant.

4.5 ANIMAL LIFE

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	local	long	medium	definite	medium	negative
Decommissioning (rehabilitation)	site	short	low	definite	low	positive

The potential impacts associated with animal life include:

- The loss of habitat and food sources for animal species;
- Poaching by local communities of animal species (e.g. snakes, small antelope); Please note that this impact is not connected to mining.
- Restoration of potential habitats during the decommissioning phase.

As mentioned the operation occurs within an area already disturbed through human presence and previous mining activities. Species found are mainly small in size e.g. members of the rodent family and reptiles and usually associated with the rocky outcrops of the general area. The impacts of the operation results in a loss of habitat with animals moving away from the active quarry areas. Remaining rocky outcrops that can accommodate most species for the duration of the mine activities and it is proven that waste rock dumps replaces natural habitats destroyed by dimension stone activities.

Rehabilitation of mine residue deposits present additional habitats for species found within the area. However, poaching and destruction of animals that are used as an alternative food resource (e.g. small antelope) or wild animals that present threats to livestock and human life (e.g. snakes) are often destroyed by people of the local communities. Since larger animals are likely to roam greater distances over land (greater than the size of the quarry and mine residue area), controlling the poaching is very difficult. Once rehabilitation is complete, the mine residue disposal sites will simulate the habitat that natural rocky outcrops provide. Rehabilitated water rock dumps and certain rehabilitated quarried sections will provide a habitat to which

animal species can return. A direct, negative, medium impact is expected on the fauna of the site.

The cumulative impact of this operation on animal life is difficult to determine, since the area if disturbance by the operation is small in comparison to local population growth and related township growth and establishments. The cumulative impact on animal life is predominantly caused by the extent of human activities in general.

4.6 SURFACE WATER

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	local	long	low	high	low	neutral
Decommissioning (rehabilitation)	site	short	low	high	low	positive

The potential impacts associated with surface water include:

- An increase in suspended solids during rainfall events;
- Potential surface water runoff pollution through petrochemical spills on road surfaces and within the quarry area;
- Restoration of the soil during the decommissioning phase of the mine which includes volumes, cleanliness, fertility and location of the original soil status on site, which will reduce the impact of the surface water runoff.

In terms of surface water quality, gabbro norite is an inert substance and will not react with water and/or air. The impact that may be experienced on surface water quality is through an increase in suspended solids from dirty water flowing from the quarry and the residue disposal site. The suspended solids will be from normal natural erosion processes associated with rain events and also some solids produced from quarry operations. These can be successfully managed through the appropriate use of storm water control berms. Any suspended solids should be trapped by the storm water control berms, which will allow water to filter through the berm, while trapping the solids.

Shallow depressions are situated north of both Wonderkop 1 and Wonderkop 2 sections. Most surface and storm water from current disturbed areas drains into this depression, preventing potentially polluted or storm water from reaching tributaries. This water is used for mining purposes such as dust suppression when available.

There will be no significant impact on the surface water quantity. Also chemical toilets are to be used and if correctly maintained they are highly unlikely to allow any form of sewerage into the natural environment. Impacts on surface water during the various phases can thus be seen to be minimal.

Bund walls and the use of concrete floors around hazardous substances, such as fuel and oil also serve to prevent any petrochemical substances presenting a potential pollution source. A direct, low impact is expected on the quality of the surface water of the non perennial Maretlwane Spruit on the property that flows 2. Kilometers west of the nearest quarry activities. An indirect negative insignificant impact may be expected on surface water quantity when taken into account that small volumes of storm water is trapped in depressions such as gravel borrow pits. The largest gravel pit totals approximatelly 5000 cubic metres in volume.

The cumulative impact on the quantity and quality of the surface water flow on site as result of the operation is negligible. Any additional pollution (e.g. diesel & oil) caused to the surface water will however increase the chances of a cumulative impact on site when taken into account surface water quality. The cumulative impact on surface water quality and quantity as result of general and every day human activities is much more significant.

4.7 GROUND WATER

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	Local	long	low	probable	low	negative
Decommissioning (rehabilitation)	Local	short	low	low	low	Neutral - positive

As previously outlined it is unlikely that the Wonderkop operation will impact on the groundwater resource through either polluting the groundwater resource or causing a significant reduction is groundwater volume. The results of the borehole sample at the Minaco Operation indicate that the water is suitable for human consumption.

Water quality tests indicate that the mining activities have very little to no impact on the groundwater resource. An indirect negative, low impact is expected on ground water quality or quantity due to size of the operation.

The cumulative impact on the quality and quantity of the ground water on site is negligible due to the nature of the product being mined since only 5.5 m^3 of ground

water is used per month for human consumption. The cumulative impact of mining (as an economic sector) on ground water is significant on a national level.

4.8 AIR QUALITY

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	local	long	low	Probable	medium	negative
Decommissioning (rehabilitation)	site	short	low	Probable	low	positive

Potential direct and indirect impacts identified with regards to air quality involve the following:

- Vehicle entrained dust;
- Potential increase in air pollution from the exhaust fumes of vehicles during operations;
- Wind erosion off exposed surfaces;
- Dust generated from drilling and blasting operations and
- Reduction in dust levels through using a water truck during the decommissioning phase.

Traffic on the roads serving the mine may result in an increase in dust levels. The fallout is often within a minimal distance of the roadside, depending on the wind strength and direction. The dust pollution can be easily controlled through the use of a water cart to suppress dust. Other Dust generated during the actual quarrying process usually falls out within the quarry or mining area. The use of water during the quarry process serves to minimise dust generated during the quarry process. During the decommissioning phase these impacts will no longer be experienced.

Overall, a direct negative, Low – medium significant impact is expected from the mining activities. As indicated within the surveyed report within **Appendix F**, the highest level of airborne pollutant within the general quarry area is 1.1mg/m³ lower that the OEL (Occupational Exposure Limit) of 3mg/m³ However, the significance of this impact can be reduced through effective management, such as watering the roads, which will depend on the availability of the area's water resources.

A cumulative impact will be expected by the use of gravel roads on and off site on a regular basis. These roads are predominantly used by various mining houses, agricultural equipment and local residents which will cause a cumulative effect of dust pollution locally if not mitigated. Once again, the cumulative impact of

Wonderkop operation on the surrounding environment is unlikely when taken into account its operational size.

4.9 NOISE

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	Site - local	long	medium	definite	low	negative
Decommissioning (rehabilitation)	site	short	low	high	low	positive

Impacts with regards to noise will potentially involve the following:

- Potential increase in ambient noise levels from jack hammers;
- Potential increase in ambient noise levels from vehicular traffic;
- Potential increase in ambient noise levels from black powder blasting (low intensity blasting used for block cutting or dressing);
- Potential increase in ambient noise levels from the dumping of waste rock material.

Due to the rural nature of the surroundings, noise generated by the mine will more than likely be audible from neighbouring properties. Examples of noise levels associated with some equipment commonly utilized in opencast mining operations are as stipulated in 3.10. During the operational phase the use of jackhammers will increase the noise level within a quarry but will be significantly lower on the outskirts of the mining site. A drop in noise levels over 1 kilometre is indicated in **Figure 27**. Blasting (for block dressing/squaring or splitting) may occur, which sounds similar to the sound of a large calibre rifle shot. It is unlikely that this noise will have a significant impact on the surrounding environment outside of that which is currently experienced. Once the mine reaches a decommissioning stage vehicular traffic and mining activities will cease and thus impacts will no longer be experienced. Table 11 indicates typical everyday noise levels in relation to sound pressure levels as result of mining activities.

Figure 25 shows a typical decline curve for noise levels with distance from the source. Note: the curves are based on the assumption that topography and vegetation will not lower ambient noise levels. The aspects are are to be taken into account at Wonderkop Quarry. A direct negative, low impact on ambient noise levels is expected from the mining activities. The cumulative effect on a larger scale is insignificant. This is due to the distance of each quarry from one another. A cumulative impact of noise pollution is expected on a much smaller scale (site) as

blasting; reverse hooters and drilling ext. contributes to an increase in ambient noise levels within the vicinity of the operational quarry.

TYPICAL EVERYDAY NOISE LEVELS

DECIBELS (dB)	COMMON SOUNDS	PERCEPTION
10 dB - 30dB	Whisper or a quiet conversation	Barely audible
30dB - 50dB	Rainfall, quiet office, refrigerator or a computer	Heard faintly
50db - 60db	Dishwasher, normal conversation or a radio	Moderate level
60dB - 70dB	Hairdryer, heavy traffic or a ringing phone	Moderate to loud
70db - 80dB	Noisy office or an alarm clock	Loud
80dB - 90dB	Electric razor, lawnmower or an vacuum cleaner	Loud to very loud
90dB - 100dB	Chain saw, **air compressor or a jackhammer**	Very loud
100dB - 110dB	Rock concert, power saw or a hifi on full	Extremely loud
110dB - 120dB	Jet take off, nightclub or thunder	Extremely loud to painful
120dB - 130dB	Shotgun	Painful

Table 11 City of Cape Town Website (Environmental Health section)

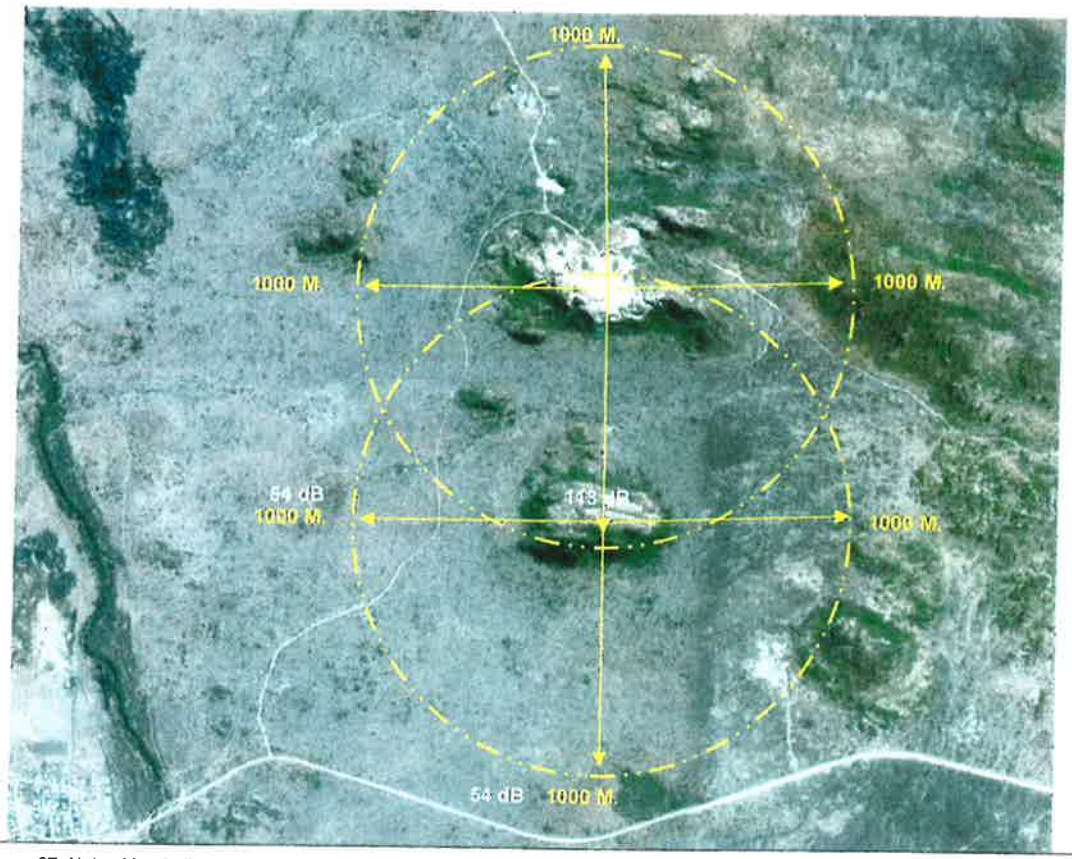


Figure 27: Noise Map indicating noise decline over 1000 metres from 113 dB to 54 dB. When one doubles the distance from a noise source the recorded noise level is reduced by 6 dB. This is also called the *Rule of 6*. This is based on the fact that the equation to calculate noise attenuation at a distance, knowing the SPL at distance is given by, where *D* is the distance. If the distance is doubled, the equation simplifies to which equals 6.02 (or approx. 6) (absolute Astronomy .com) http://www.absoluteastronomy.com/topics/Industrial_noise

4.10 SITES OF ARCHAEOLOGICAL AND CULTURAL INTEREST

Dimension stone mining on the farm Wonderkop 400 JQ started a few decades ago. The most extensive granite mining activities took place at Wonderkop 1 and several sites are thought to be destroyed by past quarrying activities during the late 80' and early 90's.

More recent granite mining operations have commenced at Wonderkop 2, 800 metres south of Wonderkop 1. Modern quarrying activities understand the conservational value of heritage resources and a distinct effort was made conserve these sites as far as possible.

The location of sites that fall within the boundaries of the mining application is indicated in Figure 26. Most sites or sections of sites close to Wonderkop 1 are disturbed by previous mining activities. The hillock at Wonderkop 2 section is surrounded by nine sites of which 1 one site have been disturbed by prospecting activities in the past.

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	Site	Permanent	Low	definite	medium	negative
Decommissioning (rehabilitation)	Site	medium	medium	high	medium	neutral

Sites usually observed and studied in the Brits, Marikana and Rustenburg area are generic in many cases. No site may however be damaged or destroyed without conducting a heritage assessment.

The impact on stone walls on the property is a direct negative, permanent impact (if sites are destroyed during the mining process). The cumulative impact of dimension stone mining on stone walls (usually found around the foot of hillocks or at ridges) may be significant at hillside quarries where waste rock dumps are situated, but true cumulative impact can only be determined by a regional study, where all types of human development are taken into account.

All the sites encountered and listed by Dr. van Schalkwyk are are evaluated to have a Grade III significance, which means these heritage resources is worthy of conservation, on a local authority level. This grading allows for the development to continue through the application of relevant mitigation measures.

4.11 VISUAL IMPACTS

Visual impact = Visual exposure + viewer incidence

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	local	Permanent	low	definite	medium	negative
Decommissioning (rehabilitation)	local	medium	medium	high	medium	Neutral - positive

The mine residue deposits of Wonderkop 1 section as well as the quarry section of Wonderkop 2 is visible from the tarmac road to the south linking Segwaelane and Marikana (Wonderkoppies), but only from certain angles.

The current operations are screened by the general topography and vegetation as can be seen in figure 24 A - D. Little of the physical quarrying activities is currently visible, but it the visual impact might increase as the operation grow. The viewer incidence is low, due to the specific location of the quarry operation. The operation has a direct, permanent negative impact with medium significance on the environment. The visual impact will be mitigated during the decommissioning phases.

Concurrent rehabilitation should thus be implemented by means of terracing and rock shading to soften the visual impact over time. The mine should implement screening techniques to mitigate the visual impact. This means that the southern section of the hillock as Wonderkop 2 must be left natural to screen mining activities on the northern slopes.

The cumulative impact of this operation is insignificant in context of other dimension stone mining operations at the current development stage, but the cumulative visual impact of dimension stone mining on a national level is accepted as significant.

4.12 SOCIAL ECONOMIC STRUCTURE

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	Regional	long	medium	definite	medium	positive
Decommissioning	Regional	short	medium	definite	medium	negative

The Mine is currently providing permanent employment for approximately 25 people, of which an estimate of 95% is hired from the local communities. A direct positive

socio economic impact through increased employment opportunities through the established of the mine has been created. Another positive impact will be through the implementation of the Social and Labour Plan that will be executed on group level (due to the small size of the operation). This document outlines many initiatives to uplift the local communities through establishing sustainable projects and providing them with various skills training programmes.

Many locals will experience a positive cumulative impact through the creation of new jobs and the implementation of a social and labour plan being offered by the surrounding mines. By creating jobs it provides a base for potential economic growth within this regional setting.

The cumulative socio economic impact of mining in the region is positive, but the sustainability of growing local economics will depend on the willingness of communities to sustain themselves through opportunities gained by the implementation of local economic development programmes and as well as the development of small to medium enterprises.

4.13 INTERESTED AND AFFECTED PARTIES

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	regional	long	medium	definite	medium	negative
Decommissioning	Regional	short	low	high	low	positive

Interested and Affected Parties (I&AP) within the vicinity of the mine as well as certain interested parties on a regional basis will experience both positive and negative impacts resulting from mining activities.

Negative impacts will result from:

- Increased noise levels,
- Increased dust generation,
- Loss of communal grazing land,
- Loss of potential eco-tourism destination,
- Visual impact of mined koppies/hillocks.

A direct negative, medium impact is expected during the operational phase on the effected I&AP's of the surrounding area. A negative cumulative impact is expected due to impact to the surrounding natural environment during the mines operational phases and a positive cumulative impact will arise as each mine applies for closure.

During the rehabilitation phases the natural environment will be restored where possible.

Project Stage	Extent	Duration	Intensity	Probability	Significance	Status
Construction	Impact will be similar to the operational phase					
Operational	Regional	long	medium	definite	medium	positive
Decommissioning	Regional	short	medium	definite	high	negative

As indicated in Section 4.11, Positive impacts will result from:

- Job creation and
- Various community upliftment & Skills development initiatives (Social and Labour Plan).

A direct and indirect positive, medium socio economic impact is expected during the operational phase on the effected I&AP's of the surrounding area. A positive cumulative impact is expected due to job creation by the surrounding mines and negative cumulative impacts will occur when these mines close.

SECTION 5: ENVIRONMENTAL MANAGEMENT PROGRAMME

5. INTRODUCTION

The environmental management plan is based on impacts identified within Section 4. Additionally the mitigation measures, and thus management plan has been developed on a point-by-point basis. This ensures that the management plan is clearly understood and easily implemented, which are two of the primary aims of this document. It should also be noted that several of the mitigation measures serve to mitigate several impacts and hence cross-referencing is important between each topic.

Nell Brothers (Pty) Ltd. has adopted the following management philosophy with respect to environmental management at all its current operations:

- To minimise the physical extent of the mining activities;
- To quarry in such manner so as to preserve habitats and biodiversity where possible;
- Restrict activities to designated operational sections limiting vegetation removal to predetermined areas within these zones. This management measure aims to preserve as much vegetation as possible should the quarry and/or mine residue disposal site not reach the final footprint size (i.e. keep the operational zone of disturbance as small as possible);
- To mitigate or rehabilitate disturbed areas, to the extent where it would resemble pre-mining conditions where possible;
- Use indigenous species in the reintroduction of vegetation to mine residue disposal sites and quarry areas, with a focus on reintroducing fast growing species to ameliorate visual impact, and fruit bearing trees which attract birds and baboons which in turn deposit seed of other plants in their droppings, thus increasing the biodiversity;
- Create a post mining environment that could sustain natural environmental processes without long term maintenance responsibilities.
- Internalise as many impacts as possible, through effective planning further minimising impacts and keeping the mining footprint area as small as possible.
- Stockpile as much growth medium as possible for ongoing rehabilitation;
- Stockpile manageable natural boulders to assist with mitigation measures relating to visual impacts for decommissioned areas
- Control of invasive plants in disturbed areas; and
- Conserve sites of cultural interest or value found within the mine area.

As this is an existing mining operation, only the operational phase has been considered in detail. Once approved, the **Part 5** of the EMPR will be legally binding in terms of the MPRDA and its regulations.

5.1 MINE CLOSURE (DECOMMISSIONING PHASE)

5.1.1 General Closure Objectives:

The primary closure objective is to obtain a closure certificate at the end of the life of the mine in accordance with the requirements of the MPRDA, at minimal cost and in as short a time period as possible. At this stage it is envisaged that the Mine will undertake the following in order to achieve this:

- Rehabilitate or mitigate impacts in the quarry area, waste rock dumps, gravel roads and infrastructure areas to the satisfaction of the relevant authorities and affected parties.
- Rehabilitation efforts must ensure that the post-mining site blends with the natural surroundings where possible. This will include the use of Ferric Chloride (rock shading) on the waste rock dumps and certain quarry walls. Designated waste rock dumps will be terraced (See Figure 10) in order to improve rehabilitation and minimise erosional processes.
- Make quarry areas and residue deposits safe for post closure utilisation.

5.1.2 Infrastructure Areas

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

Infrastructure will be dismantled/demolished and removed from the site. Imported road construction materials, which may hamper re-growth of vegetation must be removed prior to rehabilitation and disposed of in an approved manner.

The existing Infrastructure mainly includes the following:

- Site office and diesel tank area,
- Security and parking area,
- The converted containers that serves as stores and office,
- Fuel storage tanks and bunding,
- Fencing,
- Water tanks

All industrial waste material and potentially polluted soils will be removed from the site. Small patches of polluted soil will be rehabilitated through the use of microbes and agricultural fertiliser.

5.1.3 Mine Residue Deposits

The only waste materials that will remain upon closure of the mine are the waste rock dumps (mine residue deposits). These waste rocks cannot be removed as it will be too expensive and time consuming to do so. By removing these rocks it will cause an even more significant impact to the existing environment and to the alternative environment where it will be dumped. These waste rock dumps will be rehabilitated in the following ways:

- Where possible, level surfaces will be covered with any remaining topsoil and sub-soil stockpiled from construction and mining operations. Re-vegetation will occur naturally from the seed bank present in the topsoil.

- All rock dump faces that are not covered by topsoil or sub-soil or vegetation will be treated with Ferric Chloride.

- Certain waste rock dumps/mine residue deposits may be recycled for the production of the production construction materials, tomb stones or other monumental products.

The residue deposits will have been deposited in such a way so as to ensure that no maintenance, related to safety will be necessary after closure of the Mine. Dump slope angles will be deposited at approximatelly 37 degrees, which is the natural angle of repose. Due to the coarse nature of the waste product, the dump is a safe and stable structure.

It should also be noted that the recycling of waste rock dumps will future much more predominantly in the future, since technology are improving, but more significantly to understand is that reserves of dimension stone as a non renewable natural resource are declining.

5.1.4 Quarry areas and Gravel/Borrow Pits

Since certain quarry pits or depressions may represent a safety hazard (in terms of drowning or highwalls) it is proposed that adequate measures be put in place to prevent accidental access. Fencing is prone to being stolen and not considered to be

effective in the long term. Consequently rock berms around quarries should be put in place where possible. Warning signs are also recommended to be erected adjacent to these potential hazards. Safety signs can also be sprayed onto waste blocks. The visual impact of the quarry high walls (which is highly exposed) can be mitigated by spraying it with ferric chloride.

Where possible natural boulders and waste rock should be used between quarry benches to create a more naturally resembling landscape.

In cases where the quarry forms a depression, backfilling with waste rock block and overburden can be used from the designated waste rock dump sites or by using isolated waste rock left by earlier operations.

Shallow borrow pits could be easily profiled or backfilled and finally covered with a mixture of topsoil/overburden or any growth medium layer that will be appropriately ameliorated and seeded with the recommended seed mix. Where possible and if needed the shallower borrow pits should be excavated to deeper levels in order to harvest as much growth medium as possible, which can be used for erosion control structures, waste rock dumps and backfilling purposes. Deeper borrow pits can be backfilled with waste rock blocks and then covered with enough topsoil for vegetation to re-establish. Where backfilling is not possible, pit slopes will be angled to comply with mining regulations.

5.1.5 Invasive and alien control

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

Specific alien invasive plants identified on site and within the region are:

- *Melia azedarach* (Syringa)
- *Pennisetum setaceum* (Fountain Grass)
- *Tagetes minuta* (Kakiebos)
- *Solanaceae* (Common Thorn apple)
- *Ricinus communis* (Castor Oil tree)
- *Nicotania glauca* (Wild Tobacco tree)
- *Gomphocarpus fruticosis* (Milkweed)
- *tecoma stans* (bignoniaceae) Yellow Bell (not to be confused with Wild Tobacco Tree)

5.1.6 Roads and Mine Haul Ramps

The roads will be ripped to a depth of 300mm, when possible. These surfaces will then be seeded with indigenous vegetation. Designated access roads will not be ripped in order to provide access to the site during maintenance periods. The natural undisturbed areas will also serve as a source of seed for these ripped surfaces. The vegetation cover on all disturbed surfaces (excluding the quarry) will serve as erosion and dust control of the site after closure.

Certain access roads might be utilised by the landowner and the appropriate steps for reserving identified access roads from being rehabilitated will be followed during the decommissioning phase.

Haul roads leading to quarry faces and benches are many times constructed on the mined or natural solid rock formation (that cannot naturally erode in our lifetime). The thickness of this temporary gravel/subsoil layer varies between 150 mm. and 350 mm. These roads are of a temporary nature and are either left to erode to lower laying areas on the property, or are removed by an excavator. This management measure is only applicable where haul roads are constructed on rocky formations.

5.1.7 Rehabilitation of General Surface areas

A mixture of topsoil/ overburden (subsoil) and organic material will be used in dedicated areas as growth medium, whereafter it will be analyzed for soil amelioration. If topsoil is available it will also be used to cover and rehabilitate general disturbed areas such as block dressing yards and stock yards.

Seeding of grass seed mixture and planting of woody species:

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

Aristida congesta	Aristida adscecionis
Bothriochloa insculpta	Cenchrus ciliaris (Gayndah)
Cenchrus ciliaris (Malopo)	Chloris virgata
Cymbopogon plurinodes	Cynodon dactylon
Digitaria eriantha	Enneapogon cenchroides
Eragrostis trichophora	Eragrostis lehmanniana
Heteropogon contortus	Melinis repens
Panicum maximum	Themeda triandra
Tragus berteronianus	Urochloa brachyuran

It is also recommended that some indigenous trees and shrubs occurring in the vicinity of the quarries-site be planted on the grass vegetated areas. This will include species such as:

Acacia caffra
Celtis africana
Dichrostachys cinerea
Dombeya rotundifolia
Mimusopis zeyheri
Rhus lancea
Strychnos pungens
Ziziphus mucronata
Acacia karoo
Combretum zeyheri
Diospyros lyceoides
Ehrethia rigida
Pappea capensis
Rhus leptodictya
Vangueria infausta

5.1.8 Maintenance and Monitoring

Post decommissioning maintenance and monitoring will continue until the rehabilitation area is environmentally self sustainable. Maintenance and Monitoring will include the following tasks:

- Re-vegetation process monitoring on waste rock dumps, access and haul roads as well as other disturbed areas.
- Eradication of invasive plant species
- Monitoring of waste rock dumps and quarry highwalls.
- Erosion control at rehabilitated areas
- Monitoring of faunal species migration to decommissioned areas.
- Monitoring of rockshaded areas.

Results from the environmental performance audits and post-decommissioned monitoring results will be made available to the Department of Minerals and Energy (DME).

5.1.9 Date of closure application

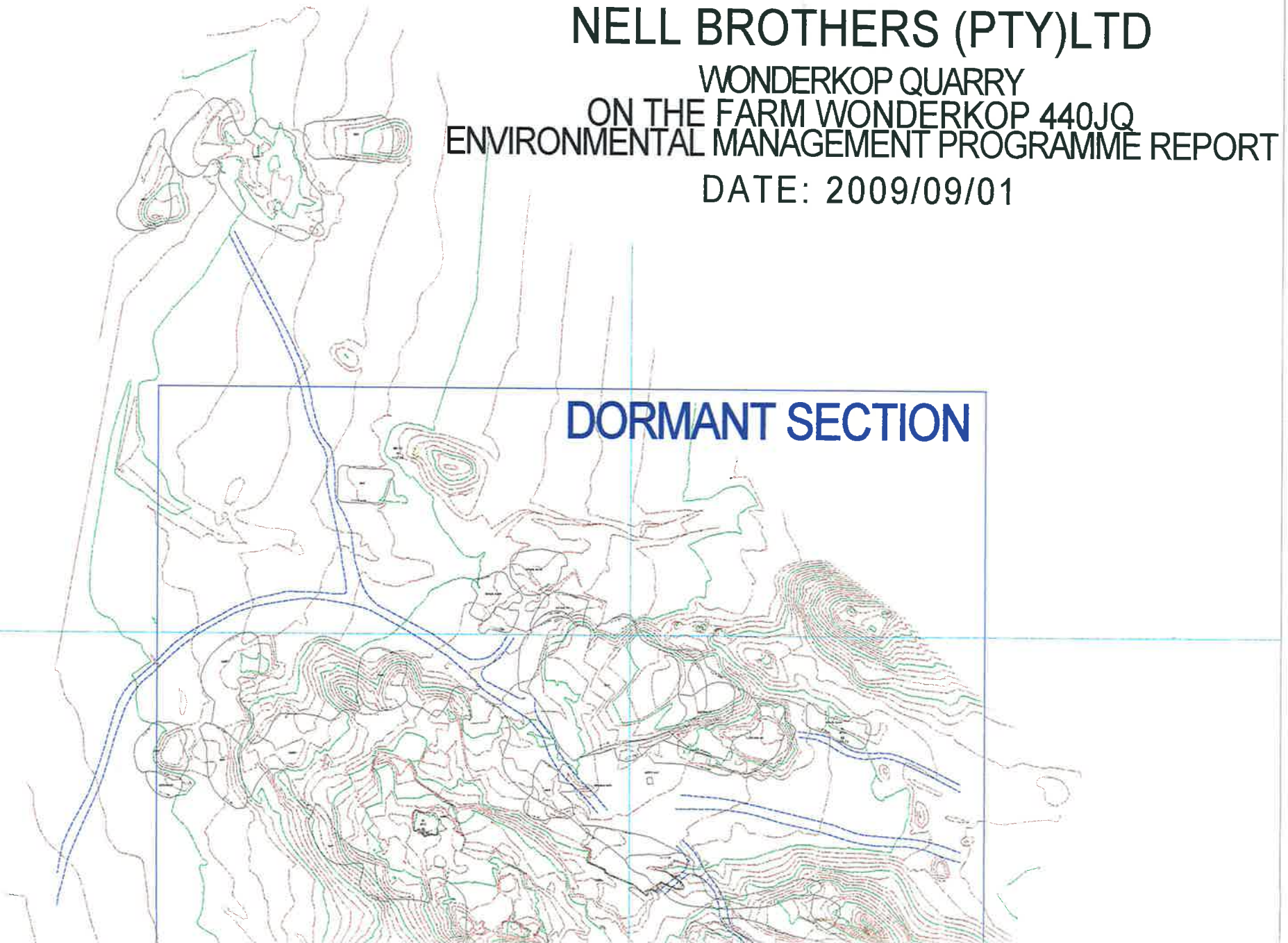
It is estimated that the date for closure will be approximately 26 years starting from 2009. However, this is dependent on a number of factors beyond the control of the Mine, such as market demands for the material and the recovery rate of saleable gabbro-norite material.

5.1.10 Proposed Rehabilitation Time Schedule:

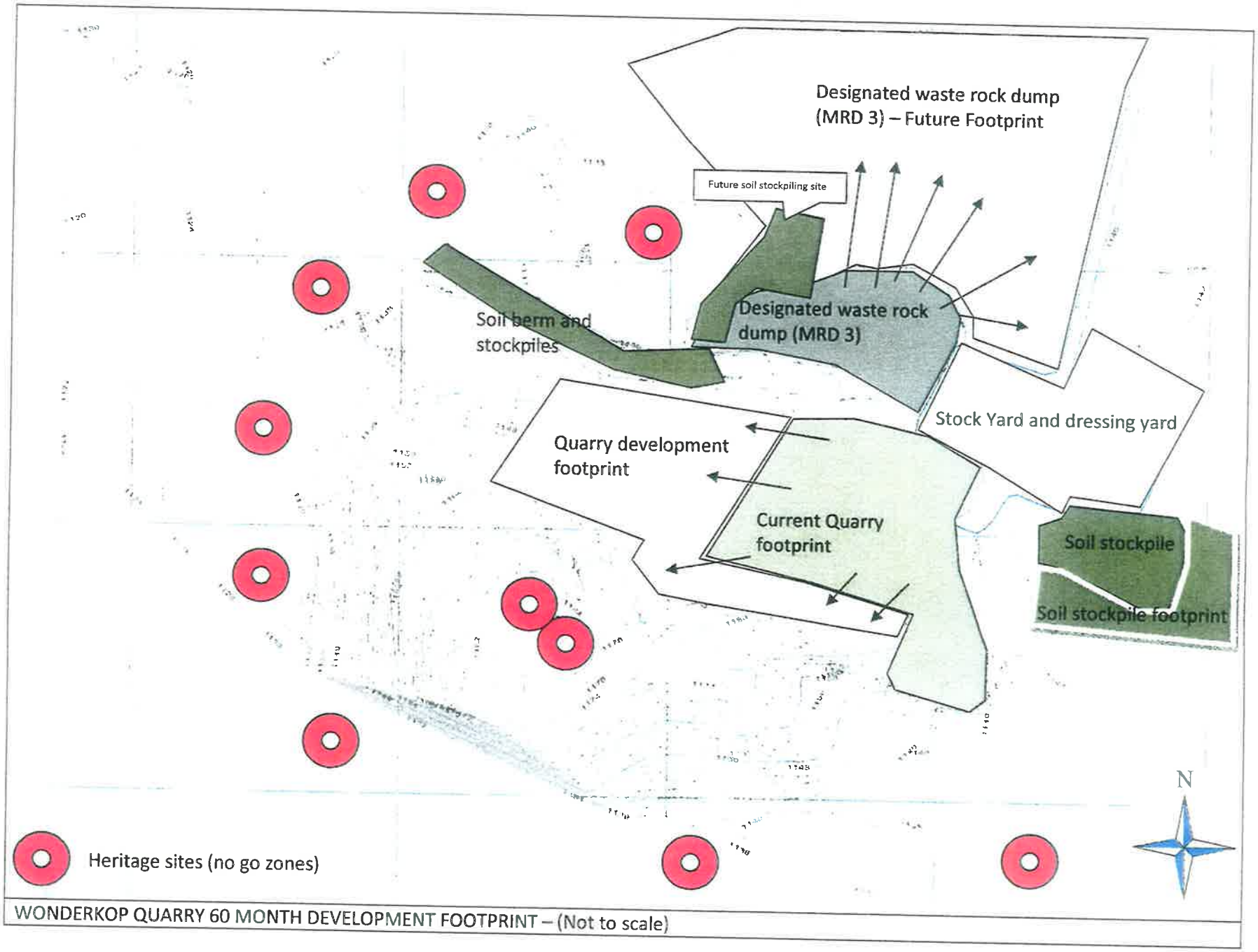
The ultimate objective of any Rehabilitation Programme should be to attain a self-sustaining environmental system of the environment. In some instances rehabilitation programmes have been responsible for the upgrading of the pre-mining land

NELL BROTHERS (PTY)LTD

WONDERKOP QUARRY
ON THE FARM WONDERKOP 440JQ
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT
DATE: 2009/09/01



APPENDIX A: FIGURE 2C
MEDIUM - LONG TERM MINING PLAN FOR ACTIVE WONDERKOP 1 SECTION INCLUDING MINE PLAN EXTRACT



WONDERKOP QUARRY 60 MONTH DEVELOPMENT FOOTPRINT – (Not to scale)

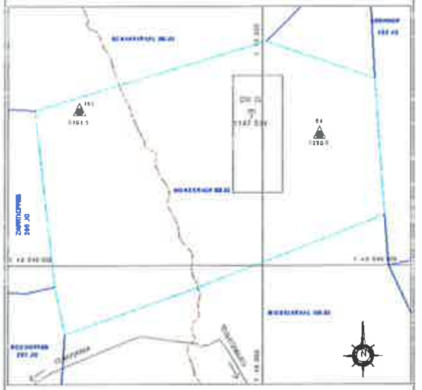
NELL BROTHERS (PTY) LTD.

WONDERKOP QUARRY
on the farm
WONDERKOP 400JQ

GENERAL PLAN OF ACTIVE MINE SECTION

SCALE 1 : 1 000

INSET KEY PLAN



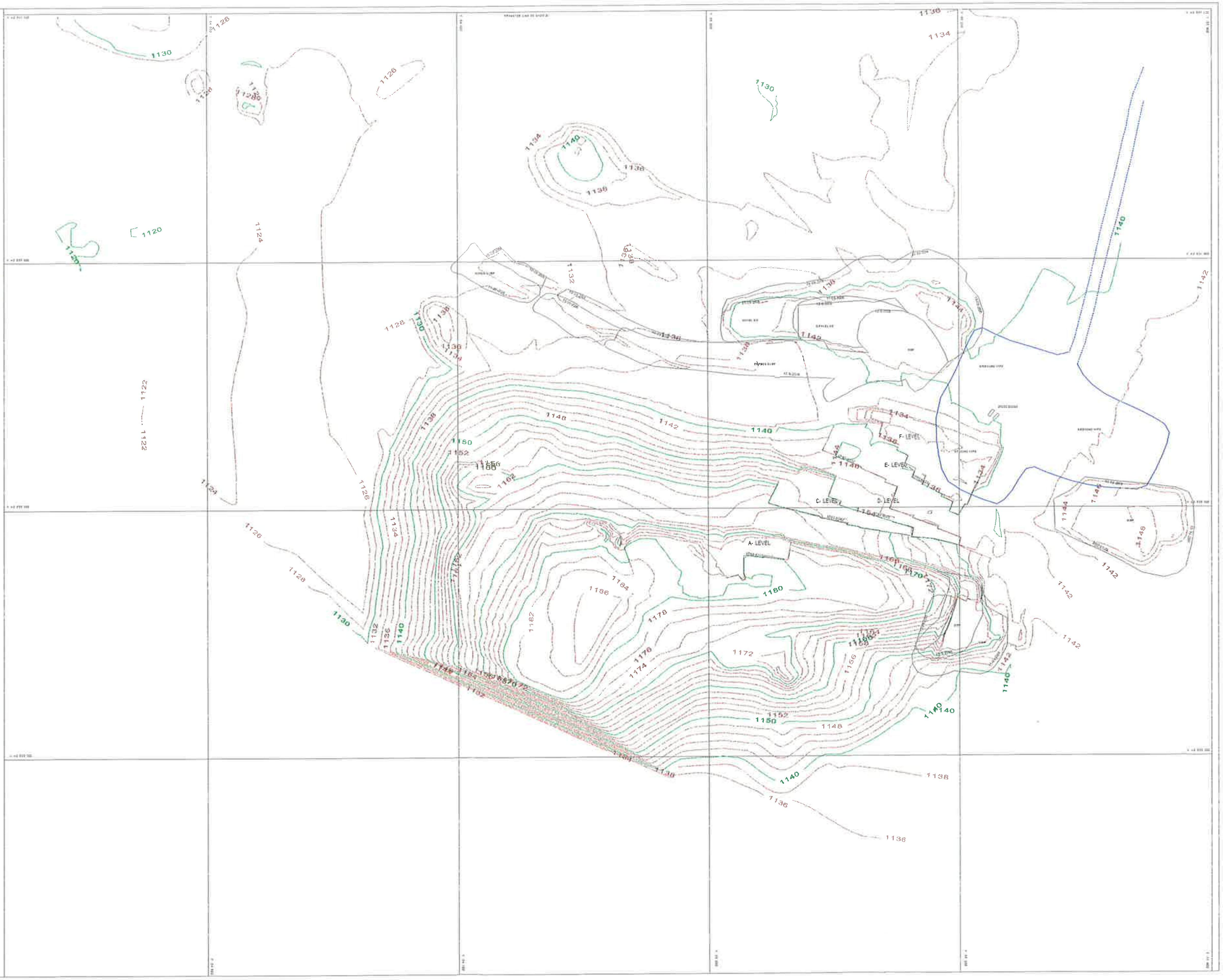
G.M.E. 14/18/2/4987/3G

BENCH MARK

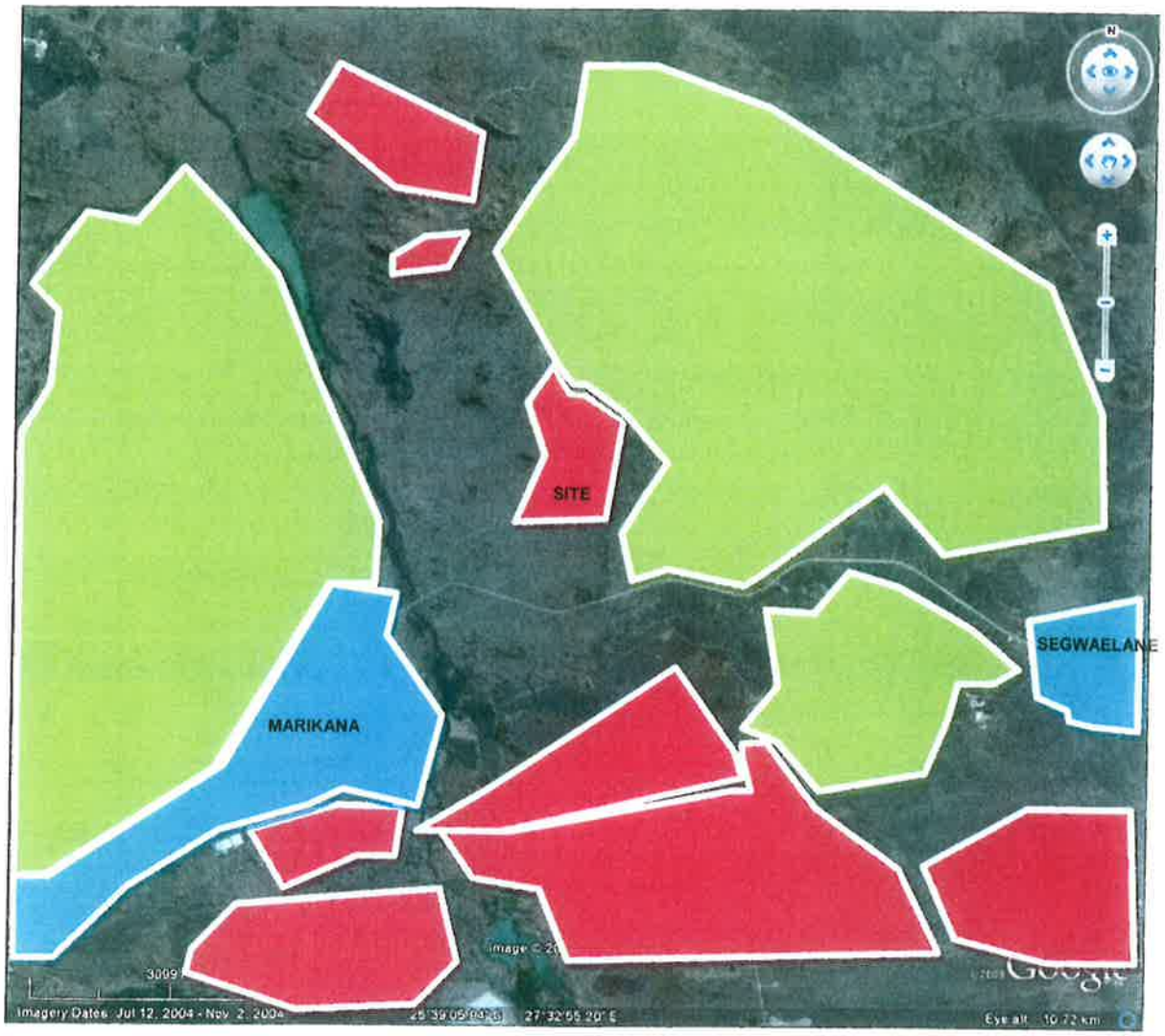
BM 76
SOUTH AFRICAN CO-ORDINATE SYSTEM
R.S.A. WGS 84
CENTRAL MERIDIAN Lo 27°
CO-ORDINATES Y= -54 755.72 X= +2 836 812.41
ELEVATION HEIGHT ABOVE MEAN SEA LEVEL +1 147.534
ELEVATION HEIGHT BELOW DATUM -681.263
DESCRIPTION 75MM GALVANISED PIPE IN CONCRETE
150M NORTH WEST OF MAGAZINE

LEGEND

EXEMPTIONS



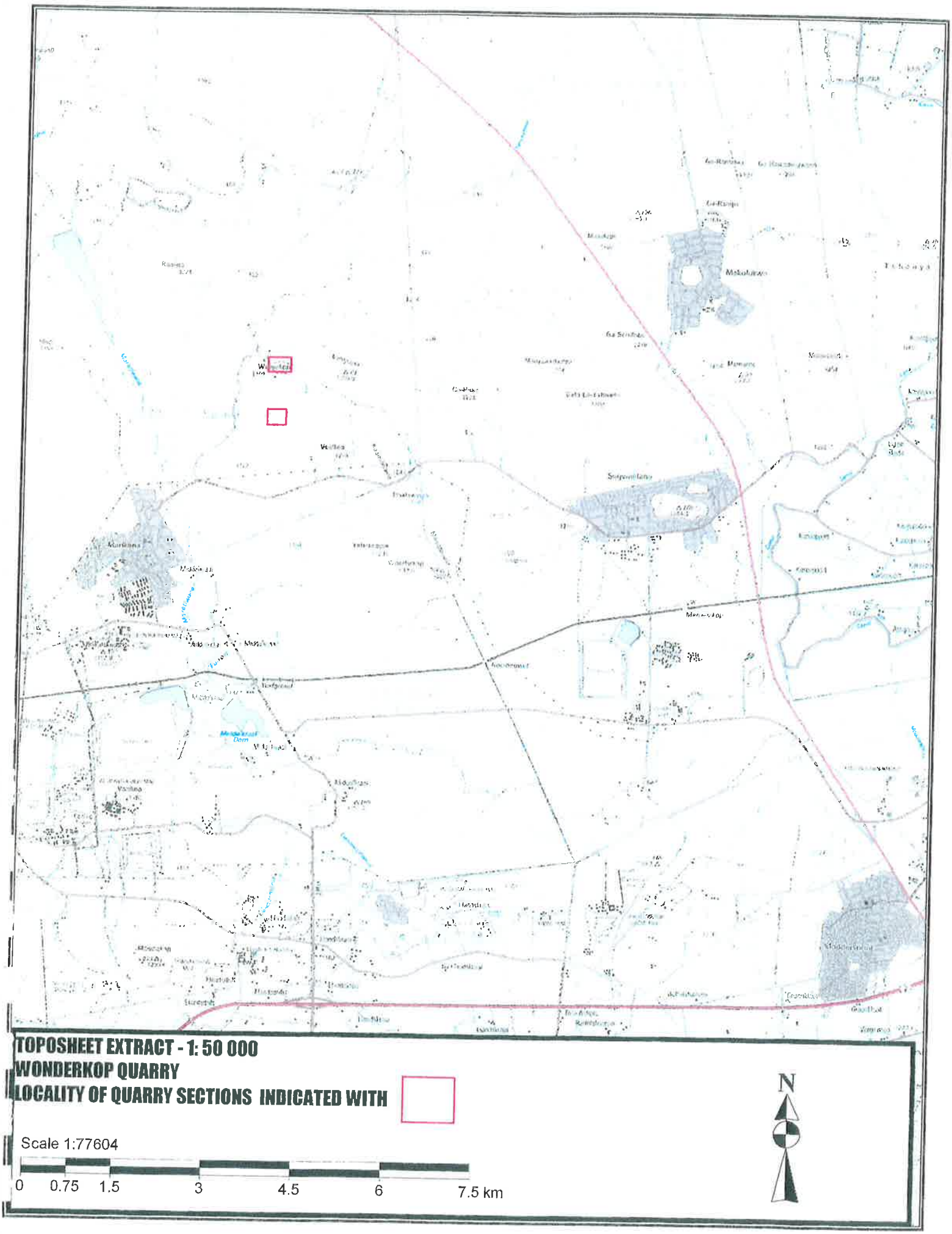
APPENDIX A: FIGURE 2D
SURROUNDING LAND USE



LEGEND:

- TOWNSHIP DEVELOPMENTS
- MINING OR QUARRYING/MINING RELATED
- PREDOMINANTLY NATURAL

APPENDIX B: LOCALITY MAP 1: 50 000 TOPOSHEET EXTRACT


TOPOSHEET EXTRACT - 1: 50 000
WONDERKOP QUARRY
LOCALITY OF QUARRY SECTIONS INDICATED WITH
Scale 1:77604
0 0.75 1.5 3 4.5 6 7.5 km
N

APPENDIX C: FAUNA AND FLORA SPECIALIST UPDATE

GALAGO ENVIRONMENTAL

Flora Scan and Fauna
Habitat Scan

of

Remainder of Portions 1 & 2 of the Wonderkop farm 400 JQ.

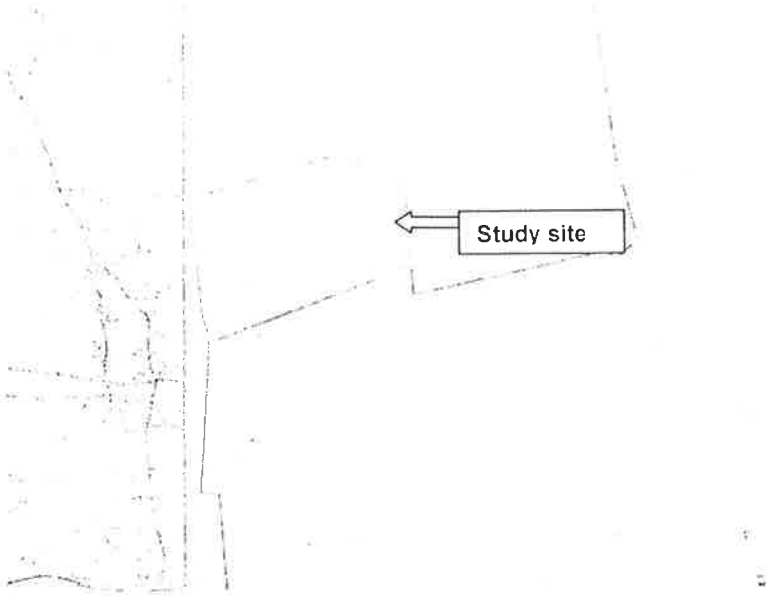
August 2009

Compiled by: **Ms. Madeleen van Schalkwyk** (Nat. Con Dip)

TABLE OF CONTENTS

1. INTRODUCTION

An inspection of the floral and faunal habitat of the granite quarry on remainder of portions 1 & 2 of the farm Wonderkop 400-JQ between Brits and Rustenburg in the North West Province The survey was required to determine the status quo of the granite mine



2. FINDINGS

2.1 Vegetation

2.1.1 Vegetation types

The site was visited on 5 August 2009 and entered from the eastern. Most of the site was burnt and therefore not a lot of grasses could be identified. The study site lies in the quarter degree grid square 2527 DA Mucina & Rutherford (2006) classified the area as Norite Koppies Bushveld and Marikana Thornveld.

Norite Koppies Bushveld;consist of Sourish Mixed Bushveld (82%), Clay Thornveld (87%), Croton grttissimus – Setaria lindenbergiana Woodland according to Acocks (1953),Low & Rebelo (1996) and Van der Meulen 1979). Norite Koppies Bushveld is embedded in Marikana Thornveld; comprising of semi-open to closed woodland up to 5 m tall, Tree and shrub layers are continuous. Many outcrops and koppies appearing as inselbergs above the surrounding plains.
This vegetation unit has a seasonal summer rainfall with dry winters. Incidence of frost are fairly frequent around the base of hills in winter but less so on the hills.

This vegetation unit is considered least threatened according to remote sensing data, but ground truthing suggests that it is susceptible. The conservation target is 24%. None conserved in statutory reserves but 4% conserved in De Onderstepoort Nature Reserve. About 20% of the unit is already transformed by predominantly by mining as well as urban developments and cultivated areas. Weeds, including a

number of declared aliens, are more common in these disturbed areas. Erosion potential is very low to moderate.

Vegetation patterns on norite koppies are primarily determined by the amount of rockiness and aspect, warmer north-facing slopes and cooler south-facing slopes bearing floristically distinct vegetation.

Marikana Thornveld consist of Sourish Mixed Bushveld (46%) Other Turf thornveld (34%) Clay Thorn Bushveld (60%) according to Low & Rebelo (1996). Marikana Thornveld occurs on plains West of Rustenburg, through Marikana and Brits. Open Acacia karroo woodland, occurring in valleys and slightly undulating plains, and some lowland hills. Shrubs are more dense along drainage lines, on termitaria and rocky outcrops or in other habitat protected from fire.

This vegetation unit has a seasonal summer rainfall with dry winters. Frost are fairly common in winter.

This vegetation unit is considered endangered. The conservation target is 19%. Less than 1% statutorily conseved in, for example, Magaliesberg Nature Area. Considerably impacted, with 48% transformed, mainly cultivated, and urban areas. Erosion is very low to moderate. Alien invasive plants occur localised in high densities, especially along the drainage lines.

The Norite Koppies was dominated by *Croton gratissimus* var *subgratissimus* and *Dombeya rotundifolia* var *rotundifolia*. Other species observed on and around the koppies were, amongst others, *Vitex zeyheri, Pappea capensis, Acacia caffra, Grewia monticola, Sclerocarya birrea* subsp *caffra, Berchemia zeyheri, Ficus abutilifolia, Mundulea sericea, Pouzolzia mixta, Ehretia rigida* subsp *nervifolia, Strychnos pungens, Euclea crispa* subsp *crispa, Lannaea discolor* and *Searsia pyroides* var *pyroides*.

Various shrubs, herbs, geophytes and grasses were observed on and around the granite koppies. In the areas surrounding the koppies *Heteropogon contortus and Bothriochloa insculpta* were the dominant grasses.

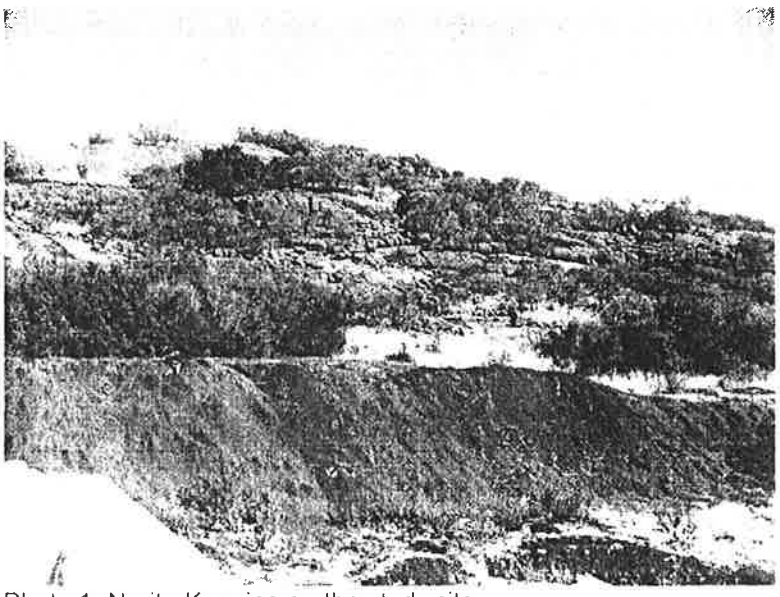


Photo 1: Norite Koppies on the study site.

The herbaceous plants, geophytes and grasses of the savannah were not examined in detail. Most of the eleven Red Data plant species known to occur in the North West Province favour gravelly, sandy soil in natural primary grassland and savannah.

The savannah between the koppies comprisedwith *Dichrostachys cinerea* subsp *africana* and *Acacia caffra* and *Acacia karoo* dominating the woody layer of the site.

Photo 2: Savannah areas and disturbed mining rubble heaps.

The site has obviously been quarried for a period of time, and rubble heaps mark several quarrying sites whereas granite blocks ready for shipment are stored at several locations on the valley floor. The valley floor carry bushveld shrub on heavy black turf, with little or no large mature trees in evidence. However, vegetation typical of mountainous terrain is visibly in good ecological repair in areas thus far not quarried.

Photo 3: Waste rubble heaps.

2.1.2 Alien or Invader plants

Although the vegetation unit on a relatively does not appear to be infested with alien plants, a few alien invader and exotic species are known to occur in the area.

- *Melia azedarach* (syringa)
- *Pennisetum setaceum* (Fountain grass)
- *Tagetes minuta* (kakiebos)
- *Solanaceae* (common thorn apple)
- *Ricinus communis* (castor oil tree)
- *Nicotania glauca* (wild tobacco tree)
- *Gomphocarpus fruticosis* (Milkweed)

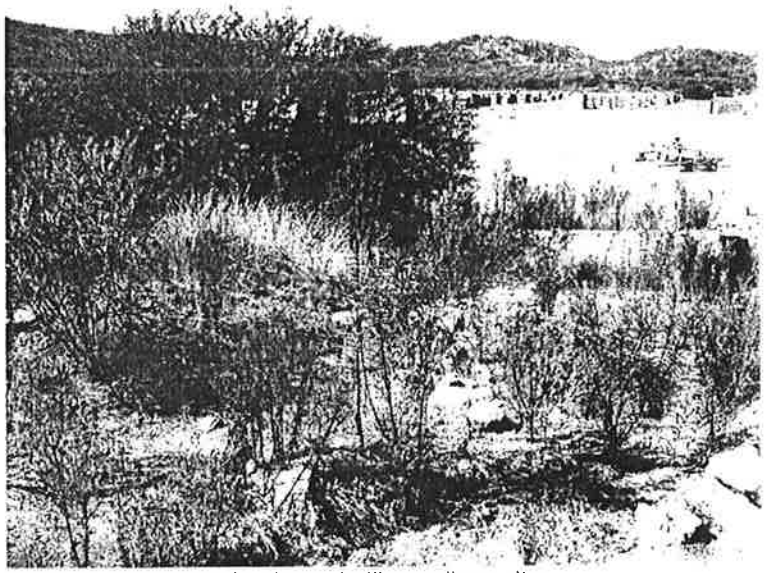


Photo 4: Some exotic plants (milkweed) on site

2.2 Mammals

Without a doubt, the site still supports a considerable variety of mammals, particularly medium-sized mammals with retiring habits (viz. duiker and steenbok), and other smaller mammals. The greatest number of these is not deemed to be Red Data species. Nevertheless, considering the size of the study area, and particularly taking into account the rural nature of the surrounding lands, it is likely that a number of medium and larger rare and endangered mammal species can be found on the site at times, in particular aardwolf, brown hyena, leopard, honey badger and the African weasel. All the Red Data mammals deemed to be at least at times part of the faunal diversity of the site are terrestrial mammals with a predilection to valley floors. A number of mammals will be found in the koppies, including some bats finding daytime refuges in the many nooks and crannies formed by the boulders; but none are considered to be Rare or Endangered

2.3 Birds

The undisturbed koppies and ridges and the trees and shrubs growing between these rocks will provide food in the form of seeds and fruits to various bird species and will also provide shelter and nest building sites for many birds especially passerines. The rocky outcrops will favour birds associated with rocky habitats such as chats, wheatears, rock thrushes, pipits, buntings and cisticolas that will favour the rocky nature of the area for breeding and to perch from when hunting for insects and to scan surroundings for predators.

The Mixed Bushveld will favour species typically associated with *Acacia* savanna habitat and more specifically mixed *Acacia* savanna woodland. The bird species within this habitat generally include a great variety of arboreal passerines such as drongos, warblers, flycatchers, shrikes, sunbirds, waxbills and weavers as well as arboreal non-passerines such as doves, cuckoos and woodpeckers. Many of these species make use of the thorny nature of these trees to build their nests. *Acacia* trees generally attract many insects and in turn attract a good diversity of typical *Acacia* savanna bird species. All of these above mentioned species have been seen on site.

2.4 Reptiles and amphibians

The herpetofauna of the site can be expected to be that typical of the savanna biome. However, considering the hard, uncompromising nature of the dry clay substrate, it is most unlikely to find burrowing or sand-swimming reptiles. Furthermore, the shrubs does not have specific advantages for amphibians and reptiles as the trunks of these plants do not provide retreats under loose bark and hollows. The fact that no exceptionally large trees are present reduces the possibility of tree agamas being present as they need loose bark and holes in the trunks as shelter. The same applies to the larger geckos as well as other larger arboreal species such as the Boomslang and Spotted Bush Snake. However, the denser shrub clumps provide excellent habitat for smaller arboreal species.

It is obvious that active quarrying will disturb and annihilate reptiles and amphibians which may occur in the operational areas. Since this is a very localised effect, some re-colonisation of suitable areas would take place when disturbing activities cease. Un-rehabilitated dumps have little attraction for rock-living species but, if they are covered with soil and a vegetation cover develops, the local herpetofauna will gradually move back into these areas. This could even involve terrestrial reptile species, since the previously predominantly rocky habitat has been altered

The absence of disused termitaria is another factor mitigating against the species richness of reptiles and amphibians, as these structures are favourite retreats for a number of species.

The rocky outcrops or koppies offer ample habitat for rupiculous reptiles.

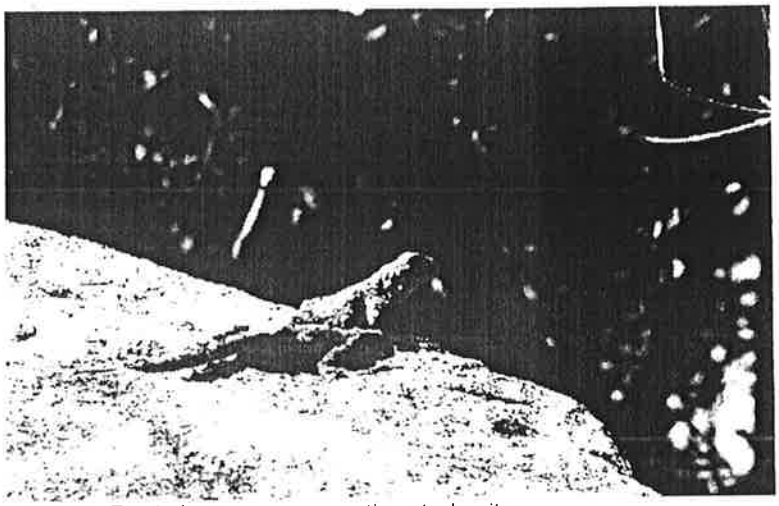


Photo 5: Rock Agama seen on the study site.

2.5 Rare or Endangered Species

No rare or endangered plant species were found within the proposed boundary However Maroela (*Sclerocarya birrea)* and Leadwood (*Combretum imberbe*) is listed as a protected species.

Cape Vultures have been observed to wander over the area and its probable that a vagrant may move over the area from the Magaliesberg Mountain range to the south of the site. It is unlikely that they will make use of the site on a permanent basis. There are no suitable cliffs for Cape Vultures to breed on and it is possible they will feed on dead cattle or other fauna that might die on site.

Yellow Sandgrouse also occur in the area, and will occur on the valley floor.

The Rock Python (*Python natalensis*) can occur on the study site and will be mainly seen in the rocky areas.

3. MITIGATING MEASURES

- All alien plants, especially the *Pennisetum setaceum* (Fountain grass) and the *Nicotiniana glauca* (Wild tobacco) that occurred in the vicinity of the existing quarries should be eradicated to preclude their spreading into the pristine koppies, savannah and grassland areas.

- Grazing by cattle from the local community should be minimized to preclude further encroachment of undesirable woody species such as Sickle bush (*Dichrostachys cinerea subsp africana*) into the grassland areas. There is an obvious need to attend to the intensity of grazing, especially as it is exasperated by veld burning. It is recommended that a **fire management plan** be compiled for the site and that the site be **managed** to ensure that overgrazing does not impact on biodiversity on the site

- The continuation of covering rock stockpiles with soil, possibly associated with reseeding is encouraged, especially if conducted on an as-you-go basis.

- Rock crevices and cliffs should be created (as simulated by exposed waste rock dumps) during the rehabilitation process which will create breeding and roosting areas for cliff living bird species and reptiles.

- It is important to keep a series of undisturbed granite koppies and ridges as natural as possible to ensure future bird diversity on site. The natural areas should where possible not be mined in future to conserve biodiversity in those areas.

- Rock Dassie (*Procavia capensis*), Jameson's Red Rock Rabbit (*Pronolagus randensis*) and various bats and insects occur and live within the rock crevices of the natural and undisturbed granite koppies and ridges. These animals are an important food source for birds of prey species, insect eating species and carnivores that are likely to occur on site emphasising the importance of protecting some of the natural granite koppies and ridges.

- Fruit bearing trees that grow within these natural granite koppies and ridges are also an important source of food for many bird species that feed on these fruits.

- Areas that are to be rehabilitated should be planted with trees and vegetation natural to the areas on site.

- The rehabilitation is a long process but in time the more common bird species and species that are able to adapt to change will return to these areas to breed and forage.

- The artificial water depressions will increase the bird diversity on site that has in the past not occurred on site. The edges of certain areas surrounding these depressions should have shallow areas for waders to forage in and must be contoured to make it assessable for small mammals, reptiles and amphibians.

- Islands can also be created in the larger depression with a beach area surrounding the island and natural rock and dead tree stumps placed on the islands for birds to sit and roost on. Indigenous aquatic and semi-aquatic plants such as bulrush should be planted on the edges of these depressions.

- The depressions should be stocked with small indigenous fish species (available at Hartebeespoort fisheries) and frogs as food for various aquatic bird species. Suitable breeding and hiding places should be created (by planting reeds, *Cyperacea* sp. and other water plants on the edge of the shore inside the water) for the fish and frogs to ensure sustainable food supply for birds that feed on them.

- Dams with shallow banks could be created on the black turf clay soils within the flat arid thornveld habitat on site and the vegetation should be removed within a radius of 50 meters surrounding these dams. This will create suitable habitat for Yellow-throated Sandgrouse, a Red Data bird

species that will come to drink at these dams and help to expand their home range. A water license must however be obtained from DWAF before the construction of such dams.

- The integrity of remaining wildlife should be upheld, and no trapping or hunting by the local community should be allowed. Caught animals should be relocated to the undisturbed areas in the vicinity. This should also be implemented through the management plan for the site.

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APPENDIX D: HERITAGE IMPACT ASSESSMENT

Heritage impact assessment for the PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

THE PROJECT:
Expansion of existing quarrying facilities

THIS REPORT:
HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

Report No: 2009/JvS/057
Status: Final
Revision No: 0
Date: September 2009

Prepared for:
EIM Environmental Services
Representative: Mr J van der Linde

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EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

Nell Brothers (Pty) Ltd, Kudu Granite (Wonderkop), propose to expand their existing quarrying activities on the farm Wonderkop 400JQ. As this is a type of granite that is of particular quality and colour, it is quarried only when ordered in large quantities. Operations therefore are very slow and unpredictable and the quarry expands at an unpredictable rate.

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to expand old quarrying activities.

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600.**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

Some of the sites would eventually be impacted on by the expansion of the quarry. The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established.

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that the approach outlined above should be implemented and as soon as an area where sites occur is approached by the quarrying activities, an archaeologist should be called in to implement appropriate mitigation measures, i.e. documentation ad test excavation of each site.

J A van Schalkwyk
Heritage Consultant
September 2009

TECHNICAL SUMMARY

Property details						
Province	North West					
Magisterial district	Bafokeng					
Topo-cadastral map	2527DA					
Closest town	Brits					
Farm name	Wonderkop 400JQ					
Portions/Holdings						
Coordinates	Centre point					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.64975	E 27.54731			

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	
Construction of bridge or similar structure exceeding 50m in length	
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	
Development involving three or more erven or divisions that have been consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	
Any other development category, public open space, squares, parks, recreation grounds	

Development	
Description	Expansion of granite quarrying activities
Project name	Wonderkop

Land use	
Previous land use	Farming
Current land use	Quarrying/farming

Heritage sites assessment		
Site type	*Site significance*	*Site grading (Section 7 of NHRA)*
Late Iron Age	Medium on regional level	III
Impact assessment		
Impact	*Mitigation*	*Permits required*
Destruction	Documentation & excavation	SAHRA

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Study area: Refers to the entire study area as indicated by the client in the accompanying Fig. 1 - 2.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Late Iron Age	AD 1300 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

ABBREVIATIONS

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
CS-G	Chief Surveyor-General
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Later Stone Age
HIA	Heritage Impact Assessment
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

1. INTRODUCTION

Nell Brothers (Pty) Ltd, Kudu Granite (Wonderkop), propose to expand their existing quarrying activities on the farm Wonderkop 400JQ. As this is a type of granite that is of particular quality and colour, it is quarried only when ordered in large quantities. Operations therefore are very slow and unpredictable and the quarry expands at an unpredictable rate. Prior quarrying activities took place in the 1950s and for many years the quarry has been dormant. These early quarrying activities did no consider the heritage sites in the region and some were compromised as a result.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **EIM Environmental** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the bus and taxi facility.

2. TERMS OF REFERENCE

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied;
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

3. HERITAGE RESOURCES

3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
    - ancestral graves;
    - royal graves and graves of traditional leaders;
    - graves of victims of conflict;
    - graves of individuals designated by the Minister by notice in the Gazette;
    - historical graves and cemeteries; and
    - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
    - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
    - objects to which oral traditions are attached or which are associated with living heritage;
    - ethnographic art and objects;
    - military objects;
    - objects of decorative or fine art;
    - objects of scientific or technological interest; and
    - books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 **Cultural significance**

In the NHRA, Section 2 (vi), it is stated that "cultural significance" means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature's uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- sites of significance relating to the history of slavery in South Africa.

4. STUDY APPROACH AND METHODOLOGY

4.1 **Extent of the Study**

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 - 2.

4.2 **Methodology**

4.2.1 *Preliminary investigation*

4.2.1.1 Survey of the literature
A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted.

- A few publications deal with the region and none with the study area specifically. Some information was obtained on the mining in the region, e.g. Coetzee (1976) as well as the currant inhabitants (Breutz 1953) and the Late Iron Age (Pistorius & Steyn 1995). An earlier heritage impact assessment report has been done for a section of the farm (Van Schalkwyk 2004).

4.2.1.2 Data bases
The *Heritage Atlas Database,* the *Environmental Potential Atlas*, the *Chief Surveyor General* and the *National Archives of South Africa* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development.
- A copy of the original Title Deed was found in the records of the Chief Surveyor-General, and a few general references were traced in the National Archives of South Africa.

4.2.1.3 Other sources
Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources

4.2.2 *Field survey*

The area that had to be investigated was identified by **EIM Environmental** by means of maps. The site was surveyed by not only walking around the two hills, but also across them.

4.2 **Limitations**

None at present.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 **Site location and description**

The site is located on two small hills on the eastern section of the farm Wonderkop. Both sites have been quarried in the past. For more information, please see the Technical Summary presented above.

The geology is made up of gabbro, which manifest in the study area as two low hills. The original vegetation is classified as Clay Thorn Bushveld.

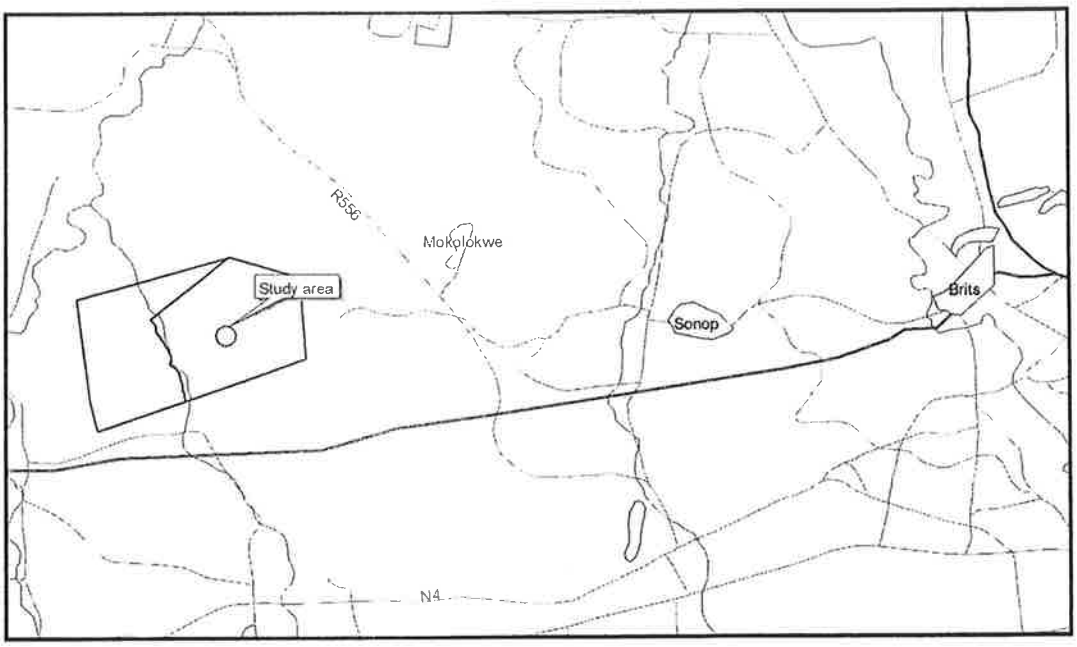


Fig. 1. Location of the study area (blue outline) in regional context.

5.2 Regional overview

5.2.1 *Stone Age*

Stone tools were noticed all over the survey area. These mostly date to the Middle Stone Age and include typical points, blades and rectangular flakes. However, all these objects were found on the surface and are therefore out of their original context. As result, they are viewed to have low significance.

5.2.2 *Iron Age*

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. However, the occupation of the larger geographical area (including the study area) did not start much before the 1500s. This does not detract from the scale of the settlements found and the number of potential inhabitants. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for

firewood and water. In this particular area, because of the turf soil, which is not suitable for settling on, they preferred to settle close to the gabbro outcrops, using the abundance of stone to create their complex village layouts.

Iron Age sites dating to the Late Iron Age abound in the study area. These are linked to Tswana occupation of the area and date in all probability to the period from 1600 and later. They are all stonewalled and each site probably made up one individual settlement unit.

The layout of these settlements usually consists of a group of large primary stone walled enclosures, with associated bilobial dwellings linked to it. The latter usually occur in groups of four to five units, facing the associated livestock pens to the centre of the settlement.

The plains to the west of the hills were mostly used for agriculture and herding of cattle, as well as for hunting, collecting of firewood, etc.

5.2.3 *Historical period*

According to Breutz (1953:176) this farm used to be occupied by the BaPo ba Mogale, a Tswana-speaking group originally of Ndebele origin. It is therefore deduced that they are responsible for these sites.

According to the Title Deed the farm Wonderkop 835 (400JQ) was originally surveyed in 1893. Apart from a few tracks (roads) across it, it shows no signs of human activities. In 1926 the farm was bought by the Bapo tribe (Reference n2/10/3(24)).

5.3 **Identified sites**

The following cultural heritage resources were identified in the study area:

5.3.1 *Stone Age*

- **Some Middle Stone Age tools were noticed to occur in sporadic manner all over. As it is surface material, it is viewed to have no significance.**

5.3 2 *Iron Age*

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600 (Fig. 2).**

5.3.3 *Historic period*

- **No sites, features or objects dating to the historic period were identified in the study area.**

6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 **Heritage assessment criteria and grading**

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I**: Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II**: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III**: Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

6.2 **Statement of significance**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a

- **Grade III significance.**

6.3 **Impact assessment**

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the development.

- **Sites date to the Late Iron Age would eventually be impacted on by the expansion of the quarry.**

The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established (Fig. 3).

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

7. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

7.1 **Objectives**

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during quarrying.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during quarrying activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the quarrying work.
- Should any heritage artefacts be exposed during quarrying, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

7.2 **Control**

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off.

8. CONCLUSIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to expand old quarrying activities.

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600.**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

Some of the sites would eventually be impacted on by the expansion of the quarry. The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established.

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that the approach outlined above should be implemented and as soon as an area where sites occur is approached by the quarrying activities, an

archaeologist should be called in to implement appropriate mitigation measures, i.e. documentation ad test excavation of each site.

9. REFERENCES

9.1 **Data bases**

Chief Surveyor General

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

Heritage Atlas Database, Pretoria.

National Archives of South Africa

9.2 **Literature**

Acocks, J.P.H. 1975. *Veld Types of South Africa.* Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

Breutz, P-L. 1953.*The Tribes of Rustenburg and Pilanesberg Districts.* Ethnological Publications. Pretoria: Government Printer.

Coetzee, C.B. (ed.) 1976. Mineral resources of the Republic of South Africa. Handbook 7, Geological Survey. Pretoria: Government Printer.

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology.* Pretoria: J.L. van Schaik.

Pistorius, J.C.C. & Steyn, M. 1995. Iron working and burial practises amongst the Kgatla-Kwena of the Mabyanamatshwaana complex. *Southern African Field Archaeology* 4(2):68-77.

Van Schalkwyk, J.A. 2004. *Heritage impact assessment for the new Wonderkop Platinum Mine development, Bafokeng district, North West Province.* Unpublished report 2004KH049. Pretoria: National Cultural History Museum.

9.3 **Archival sources**

Depot TAB; **Source** KRB; **Type** leer; **Volume no** 16; **System** 01; **Reference** n2/10/3(24); **Part** 1
Description Native-owned and trust land. Purchase of remaining extent of "Wonderkop" No. 835. Rustenburg district by Bapo tribe
Starting 1924; **Ending** 1926

9.4 **Maps and aerial photographs**

1: 50 000 Topocadastral maps:

Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

Significance
According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Historic value			
Is it important in the community, or pattern of history			
Does it have strong or special association with the life or work of a person, group or organisation of importance in history			
Does it have significance relating to the history of slavery			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			
3. Scientific value			
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.			
7. Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			
1. Low			
2. Medium			
3. High			

Significance of impact:

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a "no-go" implication on the project regardless of any mitigation

Certainty of prediction:

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

Recommended management action:

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

1 = no further investigation/action necessary
2 = controlled sampling and/or mapping of the site necessary
3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
4 = preserve site at all costs
5 = retain graves

Legal requirements:

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority-

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

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

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

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

APPENDIX 3: SURVEY RESULTS

See Appendix 1 for an explanation of the conventions used in assessing the significance of the cultural remains.

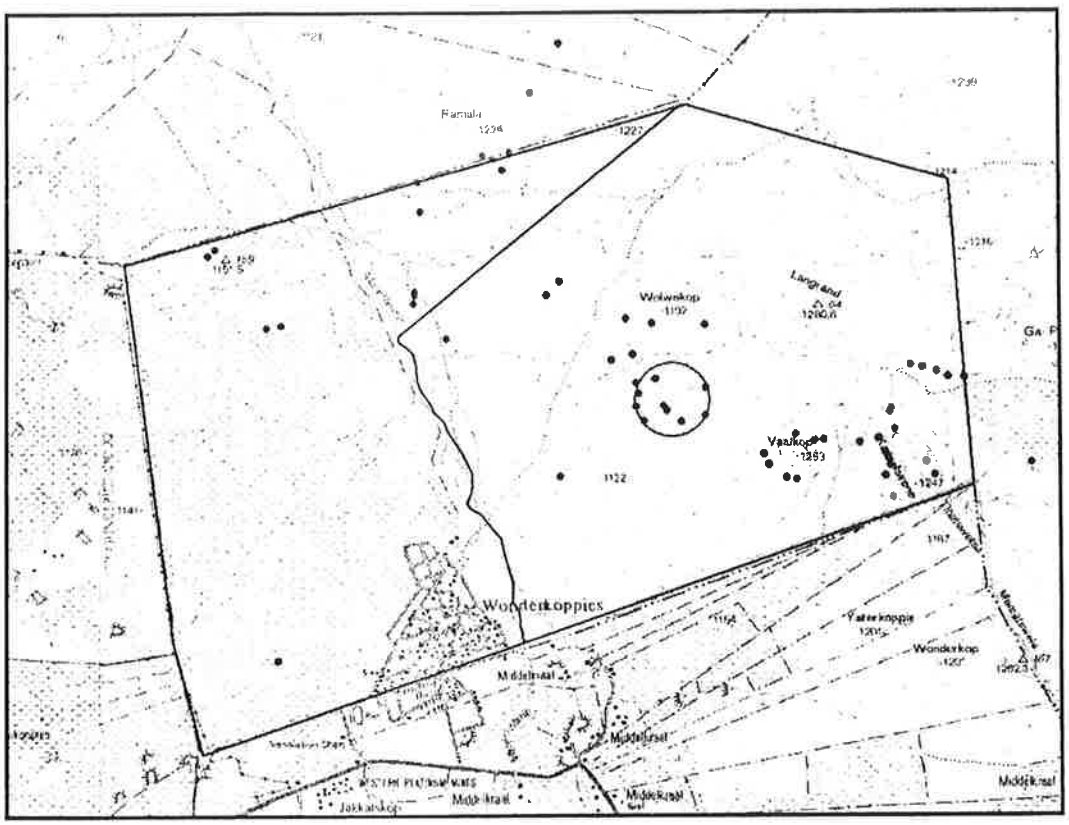


Fig. 2. Location of the study area (purple circle) with known heritage sites indicated. (Map 2527DA: Chief Surveyor-General).

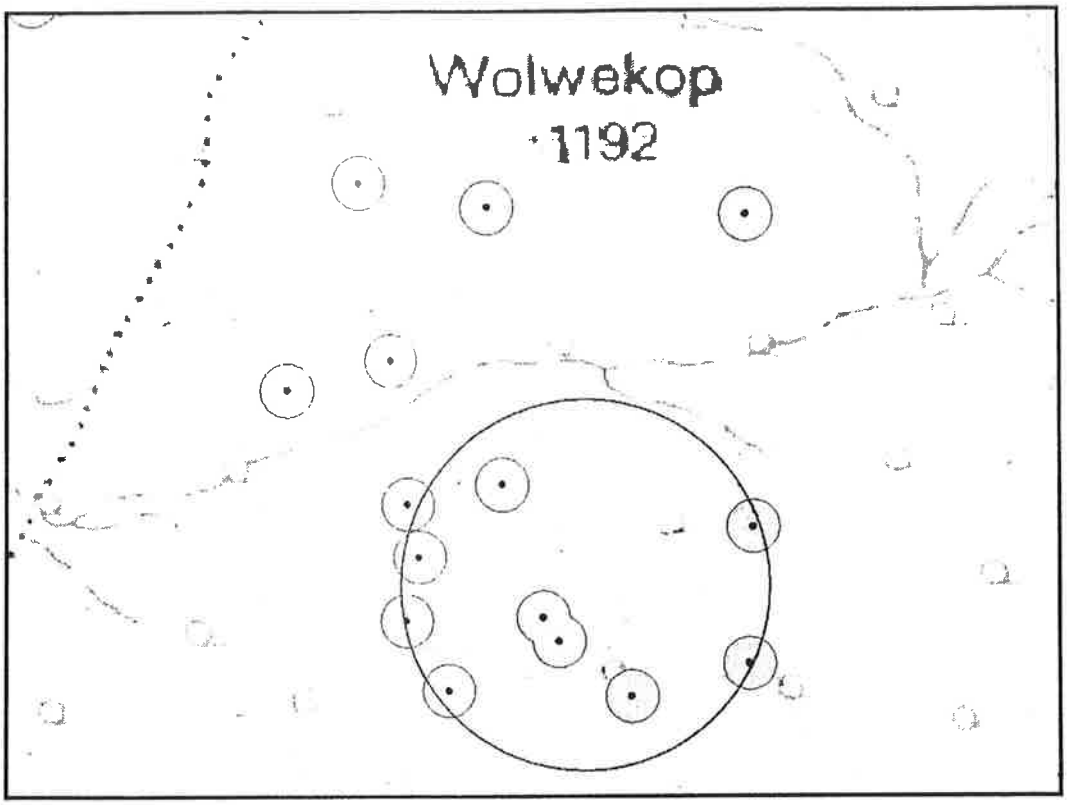


Fig. 3. Identified sites with a buffer of 50m radius surrounding each.

APPENDIX 4: ILLUSTRATIONS

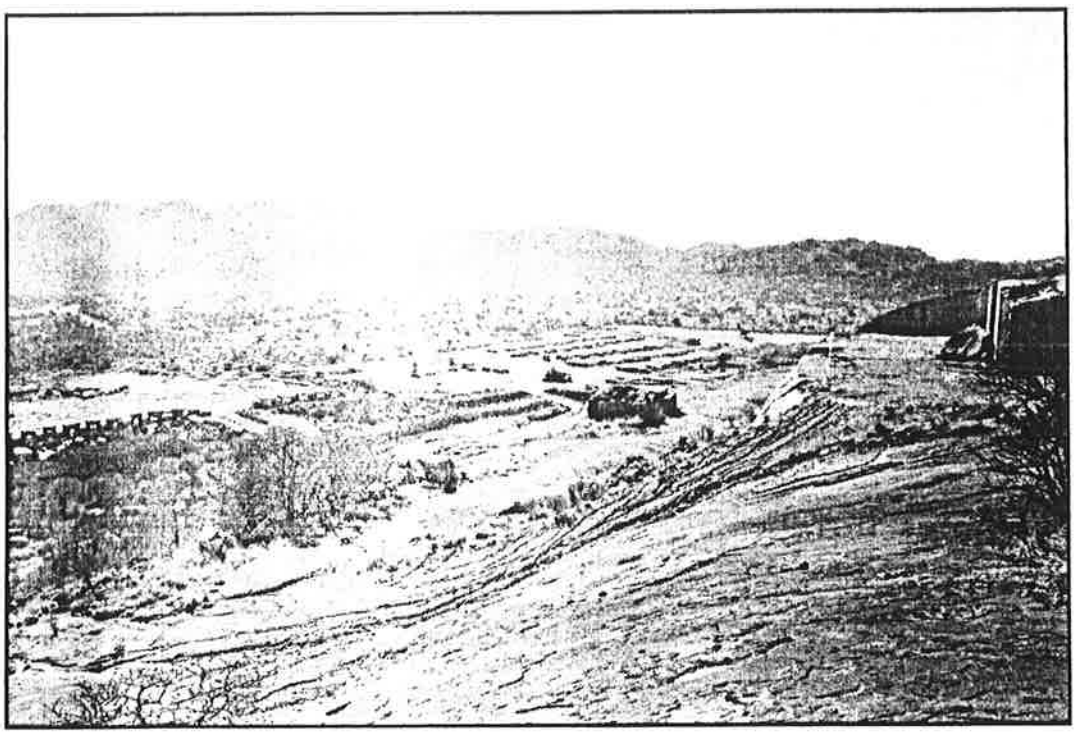


Fig. 4. View over the quarrying operations.

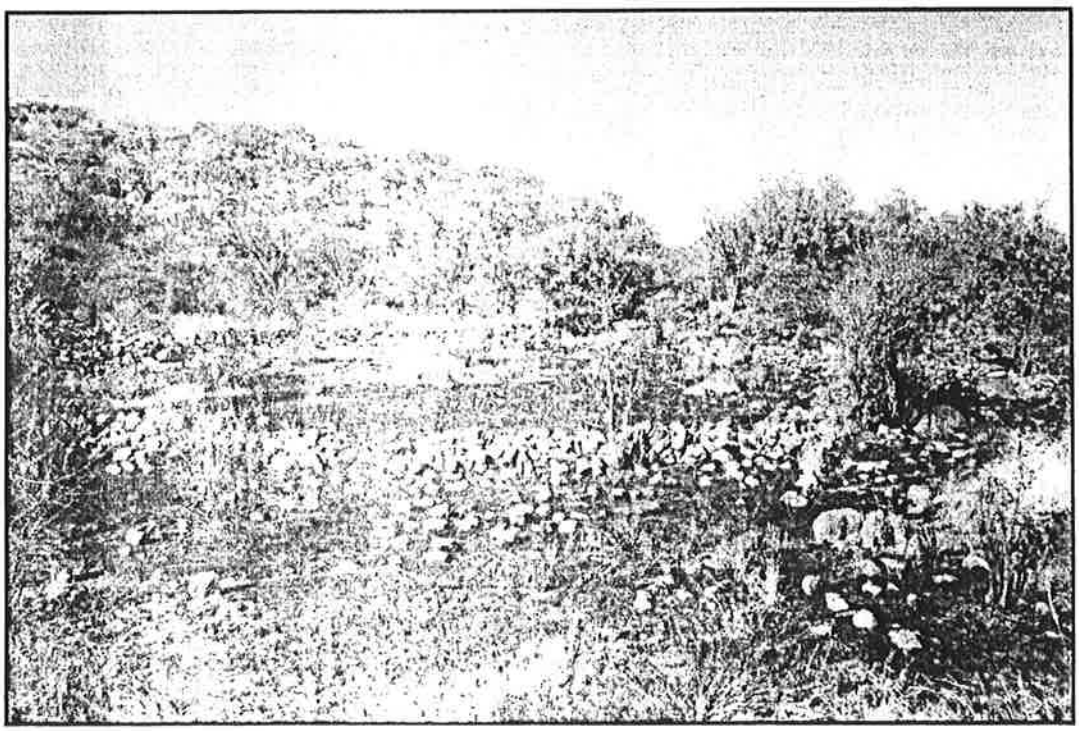


Fig. 5. One of the typical Late Iron Age stonewalled sites.

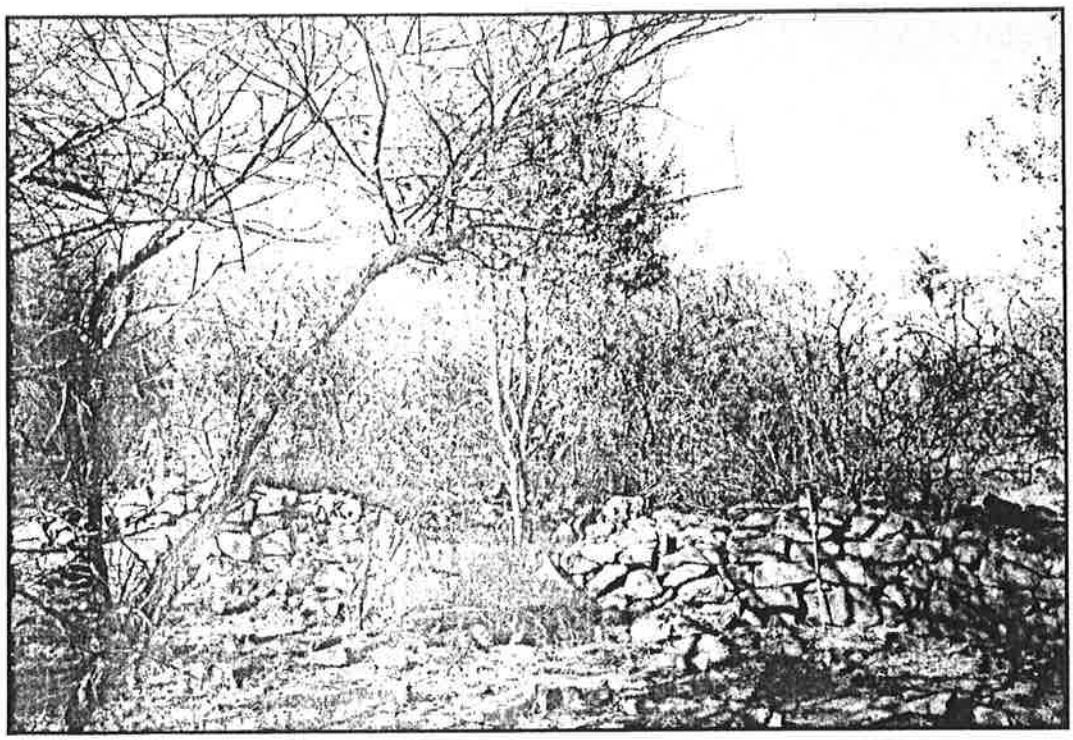


Fig. 6. Stone walling on one of the sites, indicating its undisturbed status.

Fig. 7. Stone walling on top of the hill.

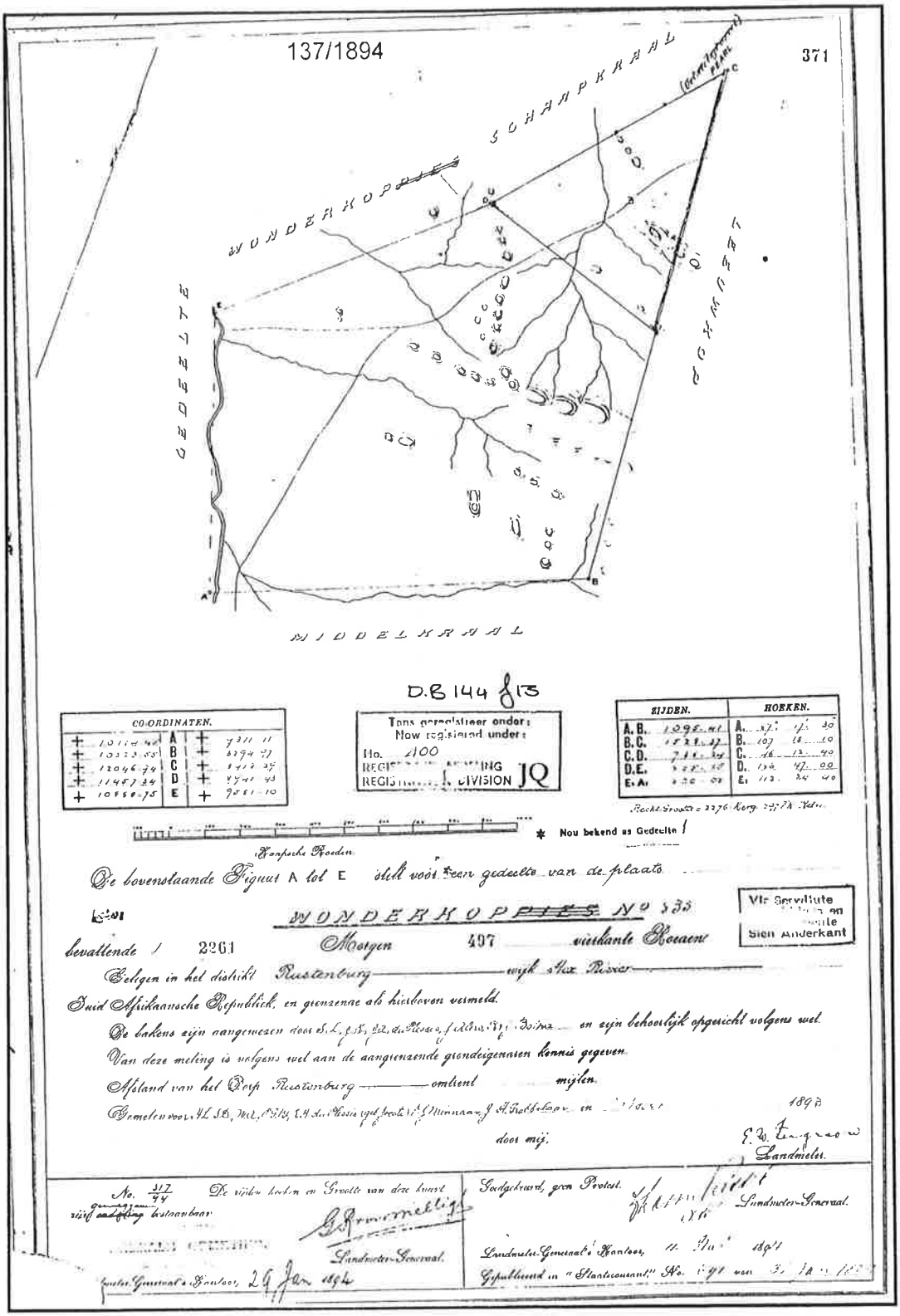


Fig. 8. Copy of the original Title Deed to the farm Wonderkop, dated 1893.
(Courtesy Chief Surveyor-General)

APPENDIX E:
WATER USE REGISTRATIONS

stomer No.: 10097646
Document No.: 90617575
Document Date: 31.07.2006
Payment Terms: 30 Days Pmt Terms
Due Date: 30.08.2006
Customer VAT Reg. no:

TAX INVOICE

DWAF VAT Reg. no 4040112361

Bill To:

MINACO GRANITE (RUSTENBURG) (PTY) L
PO BOX 56
MARIKANA
0284

YOUR CONTACT OFFICE
Regional Director
North West
PBAG X352
Hartbeespoort
0216

Hartbeespoort Dam, Rustenburg Road

Hartbeespoort

CONTACT PERSON
Mr Chris Hattingh

PHONE :012 2531093
FAX :012 2531905

DEPARTMENT: WATER AFFAIRS AND FORESTRY

Water Use Description	Tariff Category	Quantity m3 Registered/Consumed	Unit Price c/m3	Amount R (excl. VAT)
gister No.:	10097646: MINACO GRANITE (RUSTENBURG) (PTY) L			
. . operty Details:	Property Name: SCHAAPKRAAL; Property number: 292; Registration division: JQ; Portion number: 12; Title deed number: T76366/1994			
Water Use No.:	1			
ater Use Period:	From 01.06.2006 to 30.06.2006			
ise Details:	WMA: CROCODILE (W), MARICO; Section 21(a) Taking water from a water resource.; Water Use Sector: WATER SUPPLY SERVICE; Water Source Type: RIVER/STREAM			
Contract No.:	10606			
ater Use Period:	From 01.06.2006 to 30.06.2006			
	WRM Charges	1,732.500	1.01	17.50
	Subtotal			17.50
ater Use No.:	2			
ater Use Period:	From 01.06.2006 to 30.06.2006			
ater Use Details:	WMA: CROCODILE (W), MARICO; Section 21(a) Taking water from a water resource.; Water Use Sector: WATER SUPPLY SERVICE; Water Source Type: BOREHOLE			
Contract No.:	20606			
ater Use Period:	From 01.06.2006 to 30.06.2006			
	WRM Charges	134.750	1.01	1.36
	Subtotal			1.36

Net Amount (Excl. VAT)	18.86
VAT	2.64
Total	21.50

DEPARTMENT OF WATER AFFAIRS AND FORESTRY

Taking water from a water resource in terms of Section 21(a) of the National Water Act

Water resource: STERKSTROOM RIVER

Source: Rivers

Total volume taken per year: 20790.00 **cubic metres**

Date registered: 2001-09-24

Water Use No: 1

Water resource: NO NAME

Source: Borehole

Total volume taken per year: 1617.00 **cubic metres**

Date registered: 2001-09-24

Water Use No: 2

IMER :

ertificate is :-

not an acknowledgement of an entitlement to the registered water use;

issued without alterations or erasures and is invalid if it contains alterations not

epartment's official copy; and

G.P.-S. 03/04

Z 1512 (82/12323)

RECEIPT AD 496254

REPUBLIC OF SOUTH AFRICA

GEBIEDSKANTOOR: AREA OFFICE: KANTORO YA BEDIKA: **BRITS**
DEPARTMENT OF WATER AFFAIRS AND FORESTRY
Official Date Stamp
2006 -12- 08
LAPADHA LA MEHERO YA METSI LE DIKGWA
DEPARTEMENT VAN WATERWESE EN BOSBOU
PRIVAATSAK/ PRIVATE BAG/ KOETSANAPOSO: X394 HARTBEESPOORT 0216

Received from

Name: EIM Environmental.
Address: Box 7775
Birchleigh.
code: 1621

Description: Lisensie aansoek - Kudu Granite (Mankwena) Minaco WATER HOUSE

R	Millions	Thousands		
A	One	Hundred	Ten	One
N				
D				

Hundred			Cent	
Hundred	Ten	One	Ten	One
Eer	Eer	Eer	0	0

Drawer: EIM Environment
Cheque no. 0186
Cheque Date 8-12-06
Amount R 114-00

Payment method
Cash
Cheque X
Postal Orders
Other(specify)

Issued By

Issued without prejudice

APPENDIX F: NOISE, DUST AND WATER QUALITY REPORTS

KUDU GRANITE MINE- WONDERKOP (Inspection Date 05/12/2006)

1 Airborne Pollutants.

Area	HEG	Filter	Locality	TWA mg/m^3	Concentration	TWA-Con mg/m^3	Poll	OEL mg/m^3	PI	Date	Occ. Code	Occup	Wearer	Coy No.
1	1	6/D/06	Quarry	0.0379	100.00%	0.0379	PNOC	3.00	0.0126	05-Dec	20402	Loader dr	Charles	???
1	2	7/D/06	Roving	1.9697	100.00%	1.9697	PNOC	3.00	0.6566	05-Dec	21104	Jackhammer oper	Daniel	711

2 Inspection.

Locality	Findings	Action taken	Compl date	Resp Person
Pieter	Temp: Wb_t 21.0°C/Db_t 31.5°C (Vel.: 2.5 m/s) Loader: SPL: 94.2 dB (A) (OEL 85 dB) Jackhammer: SPL: 116.9 dB (A) (OEL 85 dB) Dust: >20 mg/m^3 (OEL 3 mg/m^3)	In Order Employees must wear dual hearing protection whilst operating jackhammer.		

JR Bruwer

Locality	Findings	Action taken	Compl date	Resp Person
		Dust suppression must be used.		

J&R Graves

ERWAT
Laboratory Services
P.O.Box 13106
Norkem Park
1631

sanas
T0082

Tel: (011) 929-7014
(011) 929-7000
Fax: (011) 929-7065
(011) 929-7031

Certificate of analysis

Client: EIM Environmental Services, Joon Van de Linde
Address: P.O. Box 7775, Birchleigh 1621

Cert. No: 2009/08/104
Tel No: (011) 979-2846

Date sample(s) received: 06 August 2009

Date Analysed: 06-13/08/2009
Date certificate generated: 18 Aug 2009

	Sample #	1	2
	Sample Name:	Minaco Quarry-Water filled Quarry Pit	Nells Quarry-Water filled Quarry Pit
	Sample Date/Time:	Unknown	Unknown
	Lab Number:	09EX08/06/023	09EX08/06/024
	Sample Description:	Water Quality	Water Quality
	Sample Container:	1L Plastic Bottle + 500ml Sterilized Glass Bottle	1L Plastic Bottle + 500ml Sterilized Glass Bottle
DETERMINAND(units)		**CHEMICAL ANALYSIS**	
	Conductivity(mS/m @ 25°C)	37	43
	Ammonia Nitrogen(mg/L N)	0.8	1.1
	Nitrate and Nitrite Nitrogen(mg/L N)	0.6	0.4
	pH	6.9	7.1
		MICROBIOLOGICAL ANALYSIS	
	Heterotrophic Plate Count(cfu/1ml)	2010	1010
	Colisure E.Coli(MPN/100mL)	0	19
	Colisure Total Coliform(MPN/100mL)	96	143

Signed Date
Alison Chapman, Laboratory Manager

*Tests marked "Not SANAS Accredited" in this report are not included in the SANAS Accreditation Schedule for our laboratory. All results and information relating will be treated in a confidential manner. The results relate only to samples tested according to the customer's request and are subject to an estimated measurement of uncertainty at 95% confidence level, values of which are available on request. This certificate shall not be reproduced except in full without the approval of the Executive Manager, Erwat Laboratory Services.

ERWAT
INNOVATIVE WASTEWATER SOLUTIONS

sanas

Laboratory Services
P.O.Box 13106
Norkem Park
1631

T0082

Tel: (011) 929-7014
(011) 929-7000

Fax: (011) 929-7065
(011) 929-7031

Certificate of analysis

Client: EIM Environmental Services, Joon Van de Linde
Address: P.O. Box 7775, Birchleigh 1621

Cert. No: 2009/11/195
Tel No: (011) 979-2846

Date sample(s) received: 04 November 2009

Date Analysed: 06-17/11/2009
Date certificate generated: 19 Nov 2009

	Sample #	1	2	
	Sample Name:	**Minaco Borehole**	**Elandsfontein**	**SANS 241 Drinking Water Recommended limit. Chemical Edition 6. Micro Edition 5**
	Sample Date/Time:	03/11/2009	03/11/2009	
	Lab Number:	09EX11/05/068	09EX11/05/069	
	Sample Description:	Water	Water	
	Sample Container:	1L Plastic Bottle	1L Plastic Bottle	
DETERMINAND(units)		**CHEMICAL ANALYSIS**		
Conductivity(mS/m @ 25°C)		70		<150
* Turbidity(FTU)			<1	<1
Chloride(mg/L Cl)		14		<200
Fluoride(mg/L F)		0.1	0.1	<1.0
Nitrate and Nitrite Nitrogen(mg/L N)		4.7	6.3	<10
pH		6.7	7.2	5.0 - 9.5
Sulphate(mg/L SO4)		37	32	<400
Phenols(mg/L)			<0.03	<0.01
* Total Dissolved Solids Calculated(mg/l)		448	531	<1000
Mercury(ICP)(mg/L Hg)			<0.1	<0.001
Vanadium(ICP)(mg/L V)			0.05	<0.2
Calcium(ICP)(mg/L Ca)		53.1		<150
Magnesium(ICP)(mg/L Mg)		37.2	46.6	<70
Potassium(ICP)(mg/L K)		0.4	0.4	<50
Sodium(ICP)(mg/L Na)		36.4	41.6	<200
Cadmium(ICP)(mg/L Cd)			<0.02	<0.005
Chromium(ICP)(mg/L Cr)			<0.07	<0.1
Cobalt(ICP)(mg/L Co)			<0.04	<0.5
Copper(ICP)(mg/L Cu)		<0.01	<0.01	<1.0
Iron(ICP)(mg/L Fe)		0.03	0.03	<0.2
Lead(ICP)(mg/L Pb)		<0.01	<0.01	<0.02
Manganese(ICP)(mg/L Mn)		<0.01		<0.1
Nickel(ICP)(mg/L Ni)			<0.01	<0.15
Zinc(ICP)(mg/L Zn)		<0.07	<0.07	<5.0
Aluminium(ICP)(mg/L Al)		<0.07	<0.07	<0.3
			MICROBIOLOGICAL ANALYSIS	
Total Coliforms(cfu/100ml)		1	0	0
Heterotrophic Plate Count(cfu/1ml)		800	380	100
E.coli(cfu/100ml)		0	0	0

Signed ..... Date : .....
Alison Chapman, Laboratory Manager

Signed ..... Date : .....
Debbie Hlabioa/Marx Matlhare, Control Chemist

*Tests marked "Not SANAS Accredited" in this report are not included in the SANAS Accreditation Schedule for our laboratory. All results and information relating will be treated in a confidential manner. The results relate only to samples tested according to the customer's request and are subject to an estimated measurement of uncertainty at 95% confidence level, values of which are available on request. This certificate shall not be reproduced except in full without the approval of the Executive Manager, Erwat Laboratory Services.

ERWAT
INNOVATIVE WASTEWATER SOLUTIONS

sanas
testing laboratory

Laboratory Services

P.O.Box 13106
Norkem Park
1631

T0082

Tel: **(011) 929-7014**
(011) 929-7000

Fax: **(011) 929-7065**
(011) 929-7031

Certificate of analysis

Client: EIM Environmental Services, Joon Van de Linde
Address: P.O. Box 7775, Birchleigh 1621

Cert. No: 2009/08/104
Tel No: (011) 979-2846

Date sample(s) received: 06 August 2009

Date Analysed: 06-13/08/2009
Date certificate generated: 18 Aug 2009

Sample #	1	2			
Sample Name:	**Minaco Quarry-Water filled Quarry Pit**	**Nells Quarry-Water filled Quarry Pit**			
Sample Date/Time:	Unknown	Unknown			
Lab Number:	09EX08/06/023	09EX08/06/024			
Sample Description:	Water Quality	Water Quality			
Sample Container:	1L Plastic Bottle + 500ml Sterilized Glass Bottle	1L Plastic Bottle + 500ml Sterilized Glass Bottle			
DETERMINAND(units)	**CHEMICAL ANALYSIS**				
Conductivity(mS/m @ 25°C)	37	43			
Ammonia Nitrogen(mg/L N)	0.8	1.1			
Nitrate and Nitrite Nitrogen(mg/L N)	0.6	0.4			
pH	6.9	7.1			
		MICROBIOLOGICAL ANALYSIS			
Heterotrophic Plate Count(cfu/1ml)	2010	1010			
Colisure E.Coli(MPN/100mL)	0	19			
Colisure Total Coliform(MPN/100mL)	96	143			

Signed : ..... Date : .....

Alison Chapman, Laboratory Manager

*Tests marked "Not SANAS Accredited" in this report are not included in the SANAS Accreditation Schedule for our laboratory. All results and information relating will be treated in a confidential manner. The results relate only to samples tested according to the customer's request and are subject to an estimated measurement of uncertainty at 95% confidence level, values of which are available on request. This certificate shall not be reproduced except in full without the approval of the Executive Manager, Erwat Laboratory Services.

APPENDIX G: COMPARATIVE EFFECT OF GRANITE QUARRIES ON GROUNDWATER

GEO Pollution Technologies

Consulting Environmental Scientists

PO Box 38384
Garsfontein East
0060

Tel : (012) 348 0680
Fax: (012) 348 9928

January 31, 2002

Mr J. de Klerk,
Cleanstream Environmental Services,
P O Box 32201,
Glenstantia.
0010

Dear Sir,

COMPARITIVE EFFECT OF GRANITE QUARRIES ON GROUNDWATER

The negative effect of mining on the groundwater regime groundwater can be broadly subdivided in two categories, namely 1) chemical pollution of the groundwater and 2) lowering of the groundwater table. In the following paragraphs, the negative effects of granite mining will be compared to other mining operations like coal and gold mining, in terms of these two above-mentioned categories.

1. Chemical Pollution

The term *GRANITE* is scientifically reserved for a silica-rich rock, consisting mainly of quarts and potash feldspar, with some sodic plagioclase and ferromagnesian minerals as minor constituents. Accessory minerals might include muscovite, sodic amphiboles, sodic pyroxenes, magnetite, ilmenite, pyrite, zircon and apatite (Jackson, 1970).

All the major and minor constituents mentioned above are very resistant to weathering, making granite both an attractive and durable building material. Even in the event of weathering granite weathers to relative harmless chemical components. Quarts will normally not weather at all. The feldspars might weather to kaolinite, soluble alkali carbonates and a little calcium carbonate, while the ferromagnesian biotite weathers to clay, carbonates, silica, chloride and iron oxides (Lurie, 1994). None of the above normally occurs in granitic groundwater in concentrations that exceed the recommended levels for domestic use, and are also not expected during or after the mining of granite.

Weathering of some of the accessory minerals can lead to groundwater pollution. However, since they occur in minute quantities in granite, and quarries are furthermore developed only on very good quality granite, very little if any groundwater pollution can be expected from the weathering of these minerals.

In practice, the term *GRANITE* is also used in the industry for rocks such as gneiss, syenite, granodiorite, anorthosite, gabbro, norite, diorite and even dolerite (Wilson, 1998). Although the weathering products of these rocks may differ somewhat from the ideal situation above, the rocks mined for dimension stone invariably must be a very hard and durable rock, thus precluding the use of rock containing minerals with high weatherability, like pyrite. It can thus be argued that very little if any groundwater pollution can be expected from all industrial granite mining despite the incorrect use of the term granite in some instances.

Probably the most serious groundwater pollution in granite quarries is the result of the mining activity itself. For instance, explosives contain nitrates that can enter the groundwater regime, while hydrocarbons in the form of oil, diesel and petrol can be spilled if not controlled adequately. These risks are inherent in all mining activities and can only be controlled by good management. Monitoring for these pollutants is essential during all mining activities.

In contrast, the mining of gold and especially coal expose sulphite minerals in quantities that can be as high as a few percent. Pyrite weathers to iron oxides and sulphuric acid, both which can and do lead to severe groundwater pollution on a number of mines.

2. Lowering of the Groundwater Table.

Wherever mining is taking place below the groundwater level, dewatering is essential for the normal mining operations. This dewatering will lower the groundwater level, which can affect the yield of boreholes and the flow of springs in the immediate vicinity and are therefore seen as a negative effect on the groundwater regime.

The cone of dewatering does not normally extend to more than 700m from the mining area, but areas of high hydraulic conductivity like faults and dykes can increase this distance considerably. Experience has shown that the influence of such features can extend the impact on the groundwater level to the order of 2km.

While the mining of coal and gold very often takes place below the groundwater level, granite quarries are normally situated on hill slopes above the groundwater level. The reason for this is that good quality granite is more resistant against weathering and thus forms hilly outcrops in the countryside. The supply of granite in these hills is normally adequate, and mining seldom extends below the water table, rendering the effect of granite quarries on groundwater level negligible. Should mining of granite be conducted below the groundwater level, it will obviously influence the groundwater table as any other mine.

Another factor that renders the effect of granite mining on groundwater less severe than other types of mining is the fact that only very good quality granite is an economically viable mining proposition. Granite is mainly used as dimension stone in the building industry and only very hard and unweathered blocks can be used. This excludes the mining of granite in (or even close to) faults and intrusions that could extend the zone of dewatering, and by definition also define the mining environment as a solid rock devoid of meaningful amounts of groundwater. The conclusion can thus be made that even in the event of granite mining below the groundwater level, the effect of dewatering can be expected to be of limited extent compared to normal mining operations.

3. Conclusion

It is thus clear that the negative effects of granite mining on the groundwater regime are on average far less severe than mining operations involving coal or gold. The risk of groundwater pollution resulting from the mining of granite is orders of magnitude less than that resulting of the mining of gold or coal, and cannot be considered a major mining risk. Furthermore, the effect on the groundwater level can also be expected to be considerably less severe in the normal situation.

Nevertheless, exceptions to this generalised situation can and will occur, and must be guarded against. It will always be advisable to execute at least a limited site inspection to verify site-specific conditions, as well as to institute a limited monitoring program. Such a monitoring program should involve at least one borehole very close downstream of the quarry, while an upstream borehole to monitor background water quality is optional.

Sincerely,

Giep du Toit (D.Sc., Pr.Sci.Nat)
Consulting Geohydrologist: Geo Pollution Technologies.

References:

Jackson C. K., 1970: Textbook of Lithology, McGraw-Hill Book Company.

Lurie L., 1994: South African Geology for Mining, Metallurgical, Hydrological and Civil Engineering, Lupon Publishing.

Wilson M. G. C., Anhaeusser C. R., 1998: The Mineral Resources of South Africa, Sixth Edition. Council for Geoscience, South Africa.

APPENDIX H: PUBLIC PARTICIPATION

BACKGROUND INFORMATION DOCUMENT:

EXISTING QUARRY OPERATION ON THE FARM WONDERKOP 400 JQ, REMAINDER OF PORTION 1 AND PORTION 2 – NELL BROTHERS (PTY) LTD

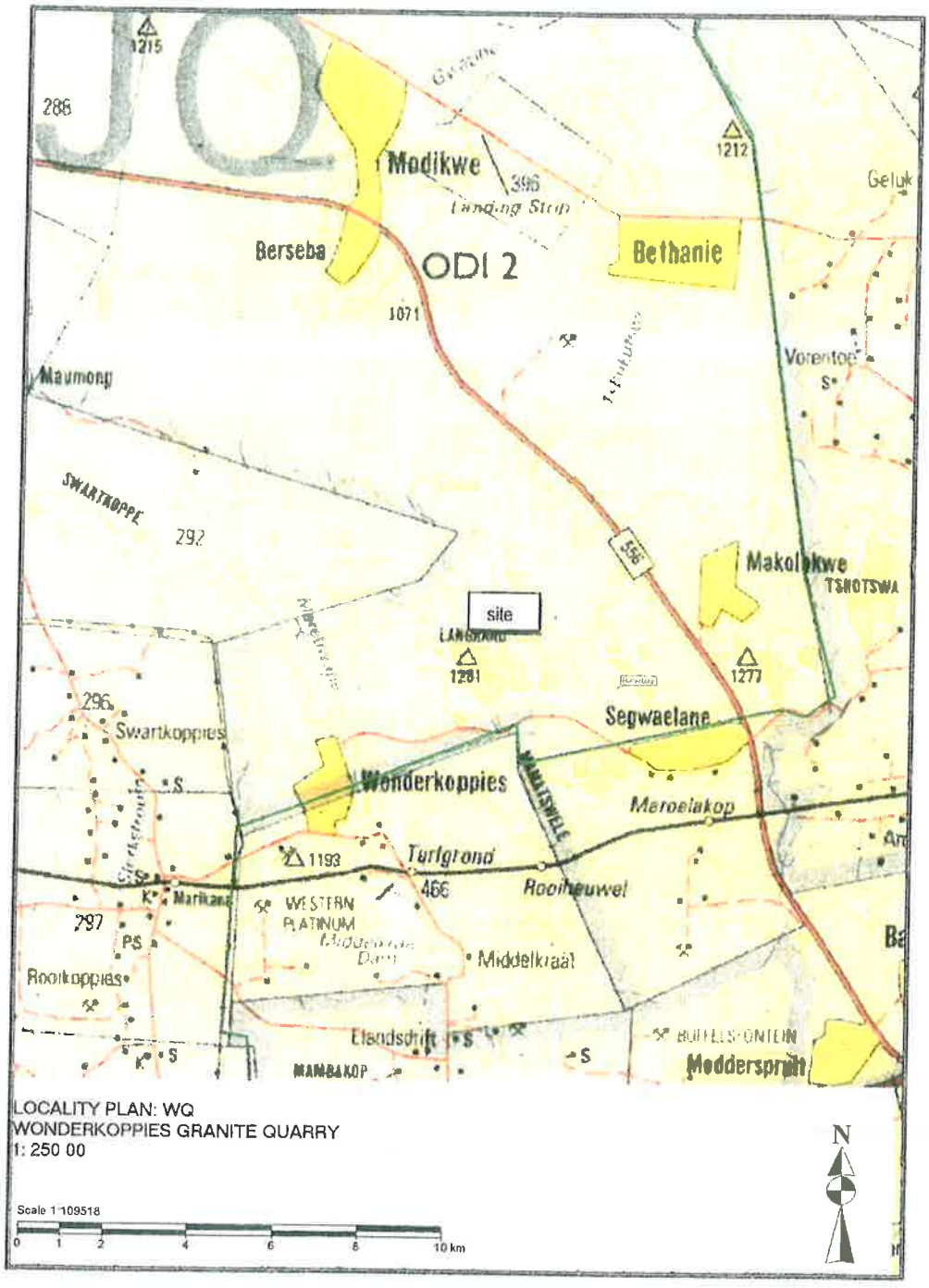
PURPOSE OF THE DOCUMENT:

The purpose of this document to inform Interested or Affected parties about the project and to provide the reader with basic and background information of the existing project, which is at this occasion an existing dimension stone quarry operation. The information package should provide adequate information to the reader in order to determine whether the existing quarry known as Wonderkop Quarry might have possible negative impacts on identified individuals, communities or any other party.

LOCATION AND PROPERTY DESCRIPTION: Rem of ptn 1 and 2 of the farm Wonderkop 400 JQ: The location of the mine is at coordinates **25°38'40.29"S and 27°32'56.21"E.**

SOURCE: DIGITAL MAPPING

1: 250 000 TOPO SHEET EXTRACT



PRODUCT:

Dimension Stone (Granite) Blocks

TYPE AND NUMBER OF EARTHMOVING MACHINES DURING PRODUCTIVE CYCLES:

One Komatsu WA 600 Front- End Loader.
One 30 Ton CAT Excavator.
One Bell B 25 Dumper Truck.

EXTENT OF CURRENT OPERATIONS: The extent of current operations totals approximatelly 7 hectares.

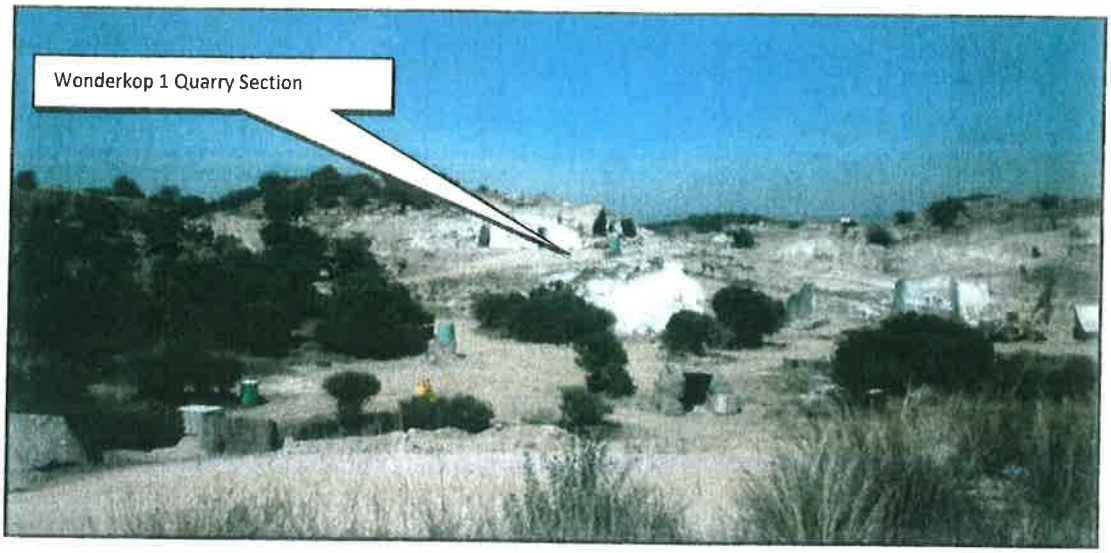
EXTENT OF TOTAL DISTURBANCES (INCLUDING DORMANT AREAS) RELATED TO DIMENSION STONE MINING:

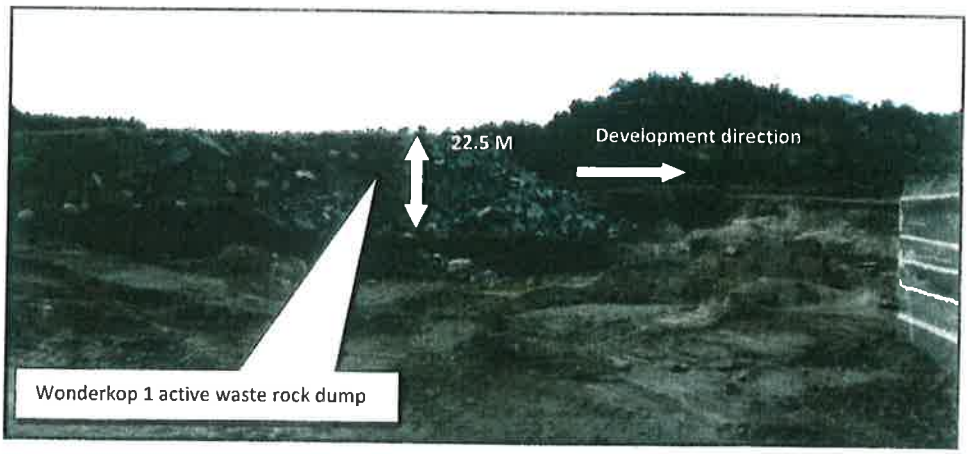
Total disturbances of which many areas have rehabilitated naturally totals approximatelly 23.5 ha, comprised of 2 quarry sections (of which only one is active), waste rock dumps of 70 000 m^2, dressing yards of 6000 m^2, gravel borrow pits of approximatelly 17000 m^2, access roads, haul roads as well as a site office and equipment containers.

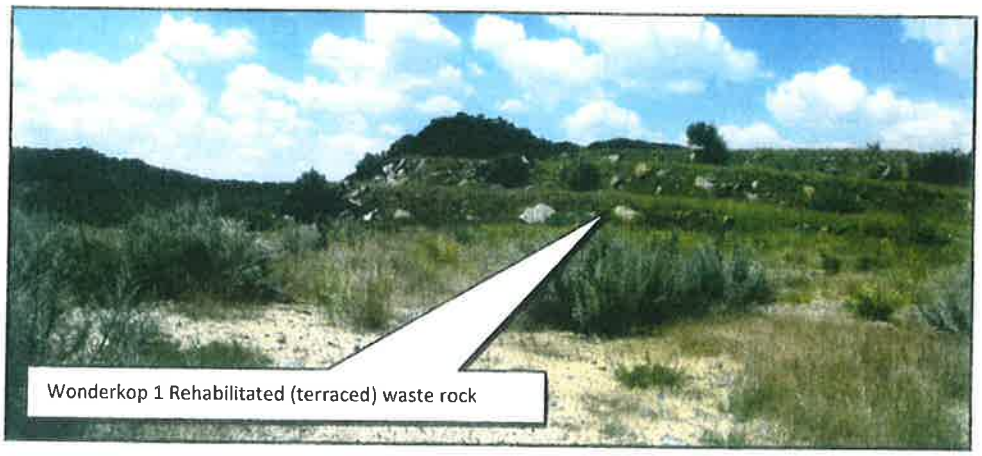
POSSIBLE FUTURE EXTENT OF DISTURBANCES RELATED TO DIMENSION STONE MINING: Future disturbances related to dimension stone mining will not exceed 120 hectares.

NUMBER OF EMPLOYEES DURING PRODUCTIVE CYCLES: Approximatelly 32

VISUAL PRESENTATION OF EXISTING OPERATIONS:


Wonderkop 1 Quarry Section


22.5 M
Development direction
Wonderkop 1 active waste rock dump


Wonderkop 1 Rehabilitated (terraced) waste rock

Environmental Services cc
CK 2000 / 027652 / 23

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joon@eim.co.za

9 June 2009

The Municipal Manager
Bojanala District Municipality
P.O Box 1993
Rustenburg,
0300

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ –ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ -Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ - ptn. 52 (Elandsfontein Quarry).

Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

Name of Contact/ Consultant:

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

A public meeting will be held only on request of registered interested and/or affected parties. A background information document for each existing quarry have been prepared for your convenience.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

Environmental Services cc
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joon@eim.co.za

9 June 2009

Brits Bankeveld Bewarings Forum
Mr. A. Loubser

Delivered by hand

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

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Location:

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Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

- Name of Contact/ Consultant:

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

Comments for consideration by the decision-making authorities must be received within 14 days of receipt of this notice and Annexes. A public meeting will be held only on request of registered interested and/or affected parties. A background information document for each existing quarry have been prepared for your convenience. See Annexure A.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

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9 June 2009

The Provincial Manager (Mr. K. Mokgophe)
The South African Heritage Resources Agency
P.O. Box 3054,
Mmbatho,
2735

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ –ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ -Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ - ptn. 52 (Elandsfontein Quarry).

Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

Name of Contact/ Consultant:

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

Comments for consideration by the decision-making authorities must be received within 14 days of receipt of this notice and Annexes. A public meeting will be held only on request of registered interested and/or affected parties. A background information document for each existing quarry have been prepared for your convenience. See Annexure A. Please note that a Phase 1 Heritage Assessment has been conducted at Nells Quarry and Elandsfontein Quarry. At Wonderkop Quarry a field survey by Clean Stream Environmental Services did not uncover any sites that could be disturbed by mining activities, but no Phase 1 Assessment was conducted here. Please inform EIM should a Phase 1 Assessment is required.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

Environmental Services CC
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17 June 2009

Head of Department
Department of Land Affairs
Private Bag X833,
Pretoria,
0001

Tel:0123128911
Fax:0123128066

(The Department of land Affairs acting on behalf of the Schaapkraal Communal Property Association that owns the remainder of Portion 5 of the farm Schaapkraal 292 JQ as well as the Mare- Mamagale Tribe that is the land owner of Leeuwkop 402 JQ. Both these farms borders the mining boundaries)

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT - Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2 (Bapo ba – Mogale Tribal Authority)

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendment of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farm Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2. The Quarry is known as Wonderkop Quarry.

Name of Applicant:

Nell Brothers (Pty) Ltd.

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

A background information document for the existing quarry has been prepared for your convenience.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

Environmental Services CC
CK 2000 / 027652 / 23

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17 June 2009

The Director
Western Platinum (Pty) Ltd
PO BOX 98811
Sloane Park
2152

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT - Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2 (Land belonging to the Bapo ba – Mogale Tribal Authority)

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendment of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farm **Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2**. The Quarry is known as Wonderkop Quarry.

Name of Applicant:

Nell Brothers (Pty) Ltd.

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

A background information document for the existing quarry has been prepared for your convenience.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde **Email:** joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

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joon@eim.co.za

17 June 2009

The Director
Amirana Trading
PO Box 33
Marikana
0284

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT - Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2 (Land belonging to the Bapo ba – Mogale Tribal Authority)

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendment of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farm **Wonderkop 400 JQ, the remaining extent of Portion 1 and Portion 2**. The Quarry is known as Wonderkop Quarry.

Name of Applicant:

Nell Brothers (Pty) Ltd.

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

A background information document for the existing quarry has been prepared for your convenience.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
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10 June 2009

The Bapo Ba Mogale Traditional Council
Private bag X 0001,
Bapong
0269
bapotc@telkomsa.net
Tel: 012 254 1204
Fax:012 254 1803

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT – WONDERKOP QUARRY AS OPERATED UNDER A MARLIN GROUP SUBSIDIARY (NELL BROTHERS)

DME REF: NW 30/5/1/2/3/2/1/390 MR

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves amendments to the Environmental Management Programme for the existing quarry operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining right under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002). The Environmental Management Programme was approved in 2003.

Location:

Wonderkop 400 JQ -Remainder portion. 1 & 2 (Wonderkop Quarry)

Name of Applicant:

Nell Brothers (Pty) Ltd.

Comments for consideration by the decision-making authorities must be received within 20 days of receipt of this notice and Annexes. A public meeting will be held only on request of registered interested and/or affected parties. A background information document had been prepared for your convenience. A mine plan extract, indicating the quarry areas is also attached. In addition to these documents, a copy of the originally approved EMP is also at your disposal for comment, in order to improve the new amended EMP.

Please note that any environmental concerns will be addressed, but we will need it in writing. Also important is to state the Bapo Ba- Mogale's policy on hunting and trapping as well as tree felling on its properties, as it is required to be documented.

Name of Contact/ Consultant:

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

Environmental Services CC
CK 2000 / 027652 / 23

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17 June 2009

ESKOM
The Environmental Department
PO Box 1091
Johannesburg
2001

SUBJECT: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT – ESKOM SERVITUDE ON THE FARM WONDERKOP 400 JQ (REMAINDER OF PORTION 1 AND 2)

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry site is situated on the farm Wonderkop 400 JQ – ptn. 1 and 2 (Remainder).

Name of Applicant:

Nell Brothers (Pty) Ltd. the quarry is known as Wonderkop Quarry

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of receipt of this notice.

A background information document for the existing quarry has been prepared for your convenience.

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

Regards

Joon van der Linde
EIM ENVIRONMENTAL SERVICES

REGISTERED LETTERS

Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender:

EIM Environmental Services cc
Reg No: CK 2000/027652/23
P.O. Box 8483
Bonaero Park
1622
Tel: (011) 979-2846
Fax: (011) 979-3788

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif
1	THE DIRECTOR, WESTERN PLATINUM (PTY) LTD, P.O. BOX 98811, SLOANE PARK, 2152					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.z RD 966 046 342 ZA CUSTOMER COPY 301028R
2	HOD., DEPARTMENT OF LAND AFFAIRS, PRIVATE BAG X833, PRETORIA, 0001					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.z RD 966 046 339 ZA CUSTOMER COPY 301028R
3	THE MUNICIPAL MANAGER, MADIBENG LOCAL MUNICIPALITY, P.O. BOX 106, BRITS, 0250					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 966 046 325 ZA CUSTOMER COPY 301028R
4	THE DIRECTOR, AMIRANA TRADING, P.O. BOX 33, MARIKANA, 0284					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 966 046 311 ZA CUSTOMER COPY 301028R
5	ESKOM, THE ENVIRONMENTAL DEPARTMENT, P.O. BOX 1091, JOHANNESBURG, 2001					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 966 046 308 ZA CUSTOMER COPY 301028R
6						
7						
8						
9						
10						
	Total Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos: 5

Signature of client
Handtekening van kliënt:

Signature of accepting officer
Handtekening van aanneembeampte:

Date stamp
BONAERO PARK
19 JUN 2009
Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

POSDAL

701248

EIM Environmental Services cc
CK 2000/027652/23

EIM
PO Box 8483
Bonaero Park
1622
Tel: (011) 979 2846
Fax:(011) 979 3788
Cell:083 680 1032
joon@eim.co.za

DELIVERY NOTE

From:
EIM Environmental Services

To: BAPO -ba- MOGALE TRADITIONAL Council

Date: 11/06/2009

Document Title and Ref No: NW 30/5/1/2/3/2/1 390 MR

- NOTICE - Elandsfontein
- Background information Document - Elandsfontein
- Mine Plan - Elandsfontein
- 2003 Approved EMPR - Elandsfontein

Received by: (Administrator) P. Mogale

Contact Number: 083 2788 393.

Time: 12:30

Signature: [signature]

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following:

Activities:

The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002).

Location:

The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ –ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ -Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ - ptn 52 (Elandsfontein Quarry).

Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bonaero Park, 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of erection of this notice (11 June 2009).

Comments for consideration by the decision-making authorities must be received within 14 days of erection of this notice. A public meeting will be held only on request of registered interested and/or affected parties.


ing'shaya
ngaphakathi
LUCKY STAR
PILCHARDS
TOMATO
12 06 2009 13:08


PILCHARDS
TOMATO
12 06 2009 13:09


12 06 2009 12:44

12 06 2009 12:44

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

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Activities:

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Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Boncaeo Park, 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joan@eim.co.za

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Comments for consideration by the decision-making authorities must be received within 14 days of erection of this notice. A public meeting will be held only on request of registered interested and/or affected parties.

12 06 2009 12:44

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

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Locations:

The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ -ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ -Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ - ptn 52 (Elandsfontein Quarry).

Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Neil Brothers (Pty) Ltd. for Wonderkop Quarry .

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Boroseo Park, 1622

Contact Details: tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joan@eim.co.za

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of erection of this notice (11 June 2009).

Comments for consideration by the decision-making authorities must be received within 14 days of erection of this notice. A public meeting will be held only on request of registered interested and/or affected parties.

12 06 2009 13:08

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT

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Name of Applicants:

Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry and Nell Brothers (Pty) Ltd. for Wonderkop Quarry .

Submit your written comments, contact details and/or queries to:

EIM Environmental Services: PO Box 8483, Bondero Park, 1622

Contact Details: Tel: 011 979 2846 Fax: 011 979 3788/086 658 0637

J. van der Linde Email: joon@eim.co.za

In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 14 calendar days of erection of this notice (11 June 2009).

Comments for consideration by the decision-making authorities must be received within 14 days of erection of this notice. A public meeting will be held only on request of registered interested and/or affected parties.

Local Municipality of

Madibeng

P O Box 106
BRITS
0250
Tel: (012) 318 9100
Fax: (012) 318 9203
email:
madibeng@icon.co.za

Reference	18/1/2/3/5
Contact	MF SITHOLE

Civic Centre
53 Van Velden Street
BRITS

18 August 2009

EIM ENVIRONMENTAL SERVICES cc
P.O. Box 8483
Bonaero Park
1622

Tel: 011 979 2846
Fax: 086 979 3788

Dear Sir/Madam,

RE: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (EMPR) AMENDMENTS FOR THE CONVERSION FROM AN OLD MINING RIGHT TO A NEW ORDER MINING RIGHT (WONDERKOP QUARRY) ON REMAINDER OF PORTIONS 1 & 2 OF THE FARM WONDERKOP 400 JQ, MADIBENG LOCAL MUNICIPALITY, NORTH WEST PROVINCE.

Your letter of intent for the above mentioned activity dated 15 June 2009 has reference.

This letter serves to inform you that the Department of Community Services has received your notice of intent regarding the above mentioned activity. However the following issues should be taken into consideration.

- Kindly register us as Interested and Affected Party in your database.
- Adjacent landowners to the proposed site must be informed.
- All records pertaining public participation meetings and reports must be submitted to the Department of Community Services.

Thanking you in advance.

Yours faithfully

for **Municipal Manager**
MFS/mfs

BOEDELKENNISGEWING In die Boedel van wyle GENE GROEBELAAR, gebore 10 FEBRUARIE 1953, Identiteitsnommer 530210 5087 08 9. Wie woonagtig was te Plot 101, Corsaak, Kroondal, Rustenburg. Datum van afsterwe 7 APRIL 2008. Boedelnommer 9995/08. Krediteure en Debiteure in bogemelde boedel word hiermee versoek om hul vorderings in te lewer en hul skuldo te betaal by die ondergskende binne 'n tydperk van 30 dae vanaf datum van publikasie hiervan. CLAASSEN DE WET PROKUREURS, POSBUS 55 RUSTENBURG 0300 Tel no.: 014-592 0361 (Verw. NL CLAASSEN/RB/CH10060)

—EH022066 (K1W24)

KENNISGEWING GROBLER, LEVIN & SOONIUS KREDITEURE EN DEBITEURE IN DIE BOEDEL VAN WYLE GR MMUTLANE. BOEDELNOMMER 585/09 Krediteure en debiteure in bogemelde boedel word hiermee versoek om hul vorderinge in te lewer en hulle skulde te betaal by die kantoor van die ondergetekende binne dertig (30) dae vanaf datum van publikasie hiervan. GROBLER, LEVIN & SOONIUS POSBUS 6610 RUSTENBURG 0300 TEL: (014) 5973730 VERW. H TERBLANCHE/mv

—EH022063 (K3W24)

KENNISGEWING GROBLER, LEVIN & SOONIUS KREDITEURE EN DEBITEURE IN DIE BOEDEL VAN WYLE SO PHIRI. BOEDELNOMMER 2230/09 Krediteure en debiteure in bogemelde boedel word hiermee versoek om hul vorderinge in te lewer en hulle skulde te betaal by die kantoor van die ondergetekende binne dertig (30) dae vanaf datum van publikasie hiervan. GROBLER, LEVIN & SOONIUS POSBUS 6610 RUSTENBURG 0300 TEL: (014) 5973730 VERW. H TERBLANCHE/mv

—EH022064 (K4W24)

KENNISGEWING IN DIE BOEDEL VAN WYLE ABRAHAM JOHANNES VAN BREDA, Identiteitsnommer 150103 5092 087, woonagtig te Rustenburg Ruscord, RUSTENBURG. BOEDELNOMMER: 8013/2006. Kennis geskied hiermee dat die Eerste en Finale Likwidasie en Distribusierekening in bogemelde boedel ter insae sal lê vir 'n periode van een en twintig dae, gereken vanaf 17 April 2009 ten kantore van die Meester van die Hooggeregshof te Bloemfontein en die Landdros te Rustenburg. WJ BOTHA PROKUREUR VIR DIE EKSEKUTEUR DU RANDT & LOUW INGELYF POSBUS 26 KROONSTAD

—EH022162 (K10W24)

KENNISGEWING RAKENDE N LISENSIE AANSOEK VOLGENS DIE PETROLEUM PRODUKTE WET, 1977 (ACT NO 120 OF 1977). HIERDIE KENNISGEWING IS TEN DOEL OM BETROKKE PARTYE IN TE LIG WAT BELANGSTEL OF GERAAK WORD WAAR BUSINESS HARMONY 35CC HIERNA VERWYS AS "DIE APPLIKANT" SE AANSOEK VERWERK IS VIR N "RETAIL" LISENSIE. AANSOEK NOMMER 1/2009/05/07/0002 SPOORSTRAAT 9, SANNIESHOF. DIE DOEL VAN DIE AANSOEK IS VIR DIE APPLIKANT OM N LISENSIE TE BEKOM OM HANDEL TE DRYF IN PETROLEUM PRODUKTE SOOS AANGEDUI IN DIE AANSOEK. REELINGS TEN OPSIGTE VAN DIE BESIGTIGING VAN DIE DOKUMENTASIE VAN DIE AANSOEK KAN GEDOEN WORD OM DIE VOLGENDE TE KONTAK: THE CONTROLLER OF PETROLEUM PRODUCTS BY: TELEFOON 012-317-8982: FAKS 012-322-8570 OF E-POS: PETROLEUM.CONTROLLER@DME.GOV.ZA. ENIGE BESWARE TEN OPSIGTE VAN DIE UITREIKING VAN DIE LISENSIE VIR HIERDIE AANSOEK, DUIDELIK GEMERK WORD MET DIE APPLIKANT SE NOMMER SOOS BOGENOEM, MOET BY DIE CONTROLLER OF PETROLEUM PRODUCTS INGEDIEN WORD BINNE N PERIODE VAN TWINTIG (20) WERKSDAE VANAF DIE BEKENDMAKING VAN DIE KENNISGEWING SULKE BESWARE MOET INGEDIEN WORD BY DIE VOLGENDE FISIESE ADRES: THE CONTROLLER OF PETROLEUM PRODUCTS, DEPARTEMENT VAN MINERALE EN ENERGIE, MINERALIA CENTRE, 234 VISAGIESTRAAT, PRETORIA. POSADRES: THE CONTROLLER OF PETROLEUM PRODUCTS, DEPARTEMENT VAN MINERALE EN ENERGIE, PRIVAATSAK X59 PERTORIA, 0001.

—VS039577 (K16W24)

KENNISGEWING VAN VERKOPING. In die aangeleentheid van Pieter Lodewyk Engelbrecht, word die volgende onroerende eiendom bekend as ERF 86/39 WATERVAL EAST X1, REGISTRASIE AFDELING JQ NOORDWES PROVINSIE, GROOTTE ERF: 480m² (VIER HONDERD EN TAGTIG VIERKANTE METER), GROOTE HUIS: 128M², GEHOU KRAGTENS AKTE VAN TRANSPORT: T164533/2005, FISIESE ADRES: ANGELFISH 2, WATERVALOOS, RUSTENBURG, 0300. Deur Van Velden-Duffy Ingelyf, Rustenburg op 12 Junie 2009 om 10h00 per openbare veiling verkoop, onderworpe aan die verkoopsvoorwaardes van toepassing by die Landdroshof Rustenburg, h/v Nelson Mandela -en Kloppersstrate, Rustenburg. GEREGISTREER TE RUSTENBURG HIERDIE 9 DE DAG VAN

NOTICE OF DEBTORS & CREDITORS IN THE ESTATE OF THE LATE KATHIJA BI ISMAIL, ID 320401 0091 085, A WIDOW, IN LIFE RESIDING AT ATEN 37A BENEDEN STREET, RUSTENBURG AND WHO DIED ON 7 NOVEMBER 2008 (MASTERS REFERENCE 2247/2009 - MAFIKENG) DEBTORS AND CREDITORS ARE HEREBY CALLED UPON TO SUBMIT THEIR CLAIMS AND TO PAY THEIR DEBTS WITHIN 30 (THIRTY) DAYS FROM THE DATE OF THIS ADVERTISEMENT COMBRINK KGATSHE INC Agents for Executor: MS ALLIBHAI 2ND FLOOR LAND BANK BUILDING 159 FATIMA BHAYAT DRIVE RUSTENBURG, 0299 014 5920311 REF: A HENNING /Linda/HGI 032

—EH022067 (K2W24)

NOTICE IN THE MAGISTRATE COURT FOR THE DISTRICT OF RUSTENBURG HELD AT RUSTENBURG. Case Number: 26191 /08. In the case between: F WIESEKERK FAMILIEMAATSKAPPY, PLAINTIFF and J ELIZABETH GROENEWALD, DEFENDANT. IN PURSUANT of judgement in the magistrate court of Rustenburg and the warrant of execution dated 15 DECEMBER 2008 the goods listed hereunder will be sold in the execution to the highest bidder at 117 Thabo Mbeki (keyhole) Rustenburg on the 24 JUNE 2009 by the sheriff of Magistrate court at 10:00 namely: SAMSUNG CP. COMPUTER STAND. WASHING MACHINE. KIC FRIDGE. DIAMOND MICROWAVE. Tel: 014-597-0406. Fax: 014-597-0517. SHERIFF MAGISTRATE'S COURT. P.O. BOX 801, RUSTENBURG 0300, 26 NELSON MANDELA DRIVE.

—VS039592 (K19W24)

NOTICE OF DEBTORS AND CREDITORS In the estate of the late HESTER JOHANNA ADRIANA SCHOEMAN, Identity Number 480404 0114 085, a female person, residing in her lifetime at 19 FLAMINK AVENUE, SAFARITUINE, RUSTENBURG and who died on 5 OCTOBER 2008. Master reference number: 116/2007 (MAFIKENG). Creditors and debtors are hereby called upon to submit their claims and to pay their debts within 30 (thirty) days as from date of this advertisement. Combrink Kgatshe Inc P O Box 334 RUSTENBURG 0300 014 5920311 Agent for Executrix S Schoeman) Antonie Henning (HGS 027)

—EH022164 (K7W24)

NOTICE OF AN ENVIRONMENTAL PROCESS FOR THE BASIC ASSESSMENT FOR THE CONSTRUCTION OF A TELECOMMUNICATIONS MAST Ref: NWP/EIA/34/2009 Notice is given in terms of Section 22 of the Regulations in Terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998 as amended) that the Environmental Assessment Practitioner is conducting a public participation process on behalf of MTN for the submittal of a Basic Assessment Report to the Department of Agriculture Conservation and Environment, North West Provincial Government for the following proposed project: Name of Project: MTN Site T7255 Paardekraal Anglo Platinum Project Description: The erection of a base station for MTN. The site is to accommodate three service providers. Location of site: Remaining Extent of Portion 25 of The Farm Paardekraal 279 JQ (Anglo Platinum, off the R104 towards Rustenburg) Alternatives positions proposed: Preferred Option: The erection of a 54m red and white lattice mast with a support container adjacent the buildings situated on the south western border of the property. Alternative 1: The erection of a 54m red and white lattice mast with a support container adjacent the dirt road on the south western border of the property. Date of Notice: 11 June 2009 Queries regarding this matter should be referred to Lokisa Environmental Consulting CC, for attention: Lynn van Vuuren at P.O. Box 219, Groenkloof, 0027, Tel (012) 346 7655 and Fax (012) 346 5074. Parties wishing to formally object to this project must forward their objections (with reasons) to the contact given above no later than 30 days after the publication of this notice (Date of Notice: 11 June 2009)

—EH022163 (K9W24)

NOTICE IN RESPECT OF A LICENCE APPLICATION IN TERMS OF THE PETROLEUM PRODUCTS ACT, 1977 (ACT NO 120 OF 1977). THE NOTICE SERVICES TO INFORM PARTIES THAT MAY BE INTERESTED OR AFFECTED THAT BUSINESS HARMONY 35 CC HEREINAFTER REFERRED TO AS "THE APPLICATION", HAS SUBMITTED AN APPLICATION FOR A "RETAIL" LICENCE APPLICATION NUMBER 1/2009/05/07/0002. SPOORSTRAAT 9, SANNIESHOF. THE PURPOSE OF THE APPLICATION IS FOR THE APPLICANT TO BE GRANTED A LICENCE TO UNDERTAKE PETROLEUM RETAILING ACTIVITIES AS DETAILED IN THE APPLICATION. ARRANGEMENTS FOR VIEWING THE APPLICATION DOCUMENTATION CAN BE MADE BY CONTACTING THE CONTROLLER OF PETROLEUM PRODUCTS BY: TELEPHONE: 012-317-8982. FAX: 012-322-8570 OR E-MAIL: PETROLEUM.CONTROLLER@DME.GOV.ZA. ANY OBJECTIONS TO THE ISSUING OF A LICENCE IN RESPECT OF THIS APPLICATION, WHICH MUST CLEARLY QUOTE THE

NOTICE. ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT. Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following. Activities: The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the new Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002). Location: The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ-ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ-Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ-ptn. 52 (Elandsfontein Quarry). Name of Applicants: Aurora Granite (Pty) Ltd. for Nooitgedact Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry, Nell Brothers (Pty) Ltd. for Wonderkop Quarry. Name of Contact/Consultant: In order to ensure that your are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 30 calendar days of placement this notice. Comments for consideration by the decision-making authorities must be received on or before 8 July 2009. A public meeting will be held only on request of registered interested and/or affected parties. Submit your written comments, contact details and/or queries to: EIM Environmental Services: PO Box 8483, Bonaero Park 1622.

—RC019950 (K12W24)

TENDER vir die bedryf van Kafeteria/Koffiekroeg en Boekwinkel - NG Kerk Proteapark. Die Kerkraad ontvang graag tenders vir die bedryf (individueel of as kombinasie) van: 'n Koffiekroeg/Kafeteria en Boekwinkel as lopende saak op die perseel van NG Kerk Proteapark om saam te val met die opening van die nuwe fasiliteite op die perseel vanaf ongeveer 20 Julie 2009. Die tenderdokument is beskikbaar by die kerkkantoor en tenders sluit op 26 Junie 2009. Vir meer inligting kan u die kerkkantoor kontak op 014-533-1648.

—SR010803 (NC)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

A - Gold. I buy and pawn broken gold, Kruger rands, gold teeth + platinum. Best prices in Town. El 082-860-6631.

—SR010788 (45571)

A A Aanbod dromdienste. Vir net R55 per maand voorsien ons u van 'n netjiese drom vir huisvullis of tuinvullis wat ons weekliks leegmaak. Sluit aan by 'n gevestigde dromdiens wat meer as 1000 kliënte het en jare lank al lewalitelt diens lewer. 082 361 4513 of 014 596 6566.

—SR010568 (9311)

BEGIN jou eie internasionale internetbesigheid en verdien dollars. Opleiding via Intëernet. Kontak my asb. vir 'n demonstrasie. Kontak 082-653-5965.

—YD035958 (20835)

BONSMARABUL 2006 kalf te koop. R20000 en onderhandelbaar. Kontak Carel 076-921-3839.

—YD036007 (42739)

BORDER Kollies. Registreer met sertifikaat (as paar) vir R4000. Black & white (beef), brown & white (reun). 072-461-7986.

—RC019980 (45976)

CALL Centre Agent with or without experience, training provided. Earn +R6000 p.m

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

LOVERMASTER powdercoating roof, open-close 6m x 4m incl. installation. R18000. 072-815-2923.

—YD036094 (47011)

LOWBED weer beskikbaar SLEEPWA - 24 uur verhurings ook 'n lowbed, Pull-trek. Mopanielaan 11. Tel. 014-533-3383/Sel 082-925-6977.

—AK003976 (33028ACTC)

MEUBELS koop & pand alle nuwe + 2de handse artikels, hangkaste, laaikaste, yskaste, tools etc. Callie/Tjokkies 082-860-6631.

—SR010786 (45572)

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—SR010572 (9389)

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—RC019982 (45977)

MEUBELSI Ek soek tweedehandse meubels vir goeie kontant, tools, tuinware. Skakel 014-596-5788.

—SR010794 (45579)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

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—DV021552 (45760)

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—RC019981 (47010)

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13 Coetzer Str 13
RUSTENBURG
0299
REG. NO: 1965/006412/07

DRUKSKRIF ASSEBLIEF - PLEASE PRINT 0045684

Kennisgewing

Plasingsdatum:
Insertion dates: _____ **Handtekening:** _____

Naam: .....
Adres: .....
.....
.....
VAT No.: .....

Kontant | Direkte dep. | Tjek | K/Kaart

Aantal woorde:	
Koste	
BTW	
TOTAAL:	
Plasings X	
Grootlotaal:	

BOEDELKENNISGEWING. In die Boedel van wyle GENE GROBBELAAR, gebore 10 FEBRUARIE 1953, Identiteitsnommer 530210 5087 08 9 Wie woonagtig was te Plot 101, Oorsaak, Kroondal, Rustenburg. Datum van afsterwe 7 APRIL 2009. Boedelnommer 890/09. Krediteure en Debiteure in bogemelde boedel word hiermee versoek om hul vorderings in te lewer en hul skulde te betaal by die ondertekende binne 'n tydperk van 30 dae vanaf datum van publikasie hiervan. CLAASSEN DE WET PROKUREURS, POSBUS 55 RUSTENBURG 0300 Tel no: 014-592 0351 (Verw: NL CLAASSEN/RB/CH2009)
——EH022066 (K1W24)

KENNISGEWING GROBLER, LEVIN & SOONIUS KREDITEURE EN DEBITEURE IN DIE BOEDEL VAN WYLE GR MMUTLANE. BOEDELNOMMER 585/09 Krediteure en debiteure in bogemelde boedel word hiermee versoek om hul vorderings in te lewer en hulle skulde te betaal by die kantoor van die ondergetekende binne dertig (30) dae vanaf datum van publikasie hiervan. GROBLER, LEVIN & SOONIUS POSBUS 6610 RUSTENBURG 0300 TEL (014) 5973730 VERW. H TERBLANCHE/mv
——EH022063 (K3W24)

KENNISGEWING GROBLER, LEVIN & SOONIUS KREDITEURE EN DEBITEURE IN DIE BOEDEL VAN WYLE SO PHIRI BOEDELNOMMER 2230/08 Krediteure en debiteure in bogemelde boedel word hiermee versoek om hul vorderings in te lewer en hulle skulde te betaal by die kantoor van die ondergetekende binne dertig (30) dae vanaf datum van publikasie hiervan. GROBLER, LEVIN & SOONIUS POSBUS 6610 RUSTENBURG 0300 TEL (014) 5973730 VERW. H TERBLANCHE/mv
——EH022064 (K4W24)

KENNISGEWING IN DIE BOEDEL VAN WYLE ABRAHAM JOHANNES VAN BREDA, Identiteitsnommer 150103 5092 007, woonagtig te Rustenburg Rusoord, RUSTENBURG. BOEDELNOMMER: 6013/2006. Hiermee gegee dat die Eerste en Finale Likwidasie en Distribusierekening in bogemelde boedel ter insae sal lê vir 'n periode van een en twintig dae, gereken vanaf 17 April 2009 ten kantore van die Meester van die Hooggeregshof te Bloemfontein en die Landdros te Rustenburg. WJ BOTHA PROKUREUR VIR DIE EKSEKUTEUR DU RANDT & LOUW INGELYF POSBUS 26 KROONSTAD
——EH022162 (K10W24)

KENNISGEWING RAKENDE N LISENSIE AANSOEK VOLGENS DIE PETROLEUM PRODUKTE WET, 1977 (ACT NO 120 OF 1977). HIERDIE KENNISGEWING IS TEN DOEL OM BETROKKE PARTYE IN TE LIG WAT BELANGSTEL OF GERAAK WORD WAAR BUSINESS HARMONY 35CC HIERNA VERWYS AS "DIE APPLIKANT" SE AANSOEK VERWERK IS VIR N "RETAIL" LISENSIE. AANSOEK NOMMER 1/2009/05/07/0002 SPOORSTRAAT 9, SANNIESHOF. DIE DOEL VAN DIE AANSOEK IS VIR DIE APPLIKANT OM N LISENSIE TE BEKOM OM HANDEL TE DRYF IN PETROLEUM PRODUKTE SOOS AANGEDUI IN DIE AANSOEK. REELINGS TEN OPSIGTE VAN DIE BESIGTIGING VAN DIE DOKUMENTASIE VAN DIE AANSOEK KAN GEDOEN WORD OM DIE VOLGENDE TE KONTAK: THE CONTROLLER OF PETROLEUM PRODUCTS BY: TELEFOON 012-317-8982; FAKS 012-322-8570 OF E-POS: PETROLEUM.CONTROLLER@DME.GOV.ZA. ENIGE BESWARE TEN OPSIGTE VAN DIE UITREIKING VAN DIE LISENSIE VIR HIERDIE AANSOEK, DUIDELIK GEMERK WORD MET DIE APPLIKANT SE NOMMER SOOS BOGENOEM, MOET BY DIE CONTROLLER OF PETROLEUM PRODUCTS INGEDIEN WORD BINNE N PERIODE VAN TWINTIG (20) WERKSDAE VANAF DIE BEKENDMAKING VAN DIE KENNISGEWING SULKE BESWARE MOET INGEDIEN WORD BY DIE VOLGENDE FISIESE ADRES: THE CONTROLLER OF PETROLEUM PRODUCTS, DEPARTEMENT VAN MINERALE EN ENERGIE, MINERALIA CENTRE, 234 VISAGIESTRAAT, PRETORIA. POSADRES: THE CONTROLLER OF PETROLEUM PRODUCTS, DEPARTEMENT VAN MINERALE EN ENERGIE, PRIVAATSAK X59 PERTORIA, 0001.
——VS039577 (K16W24)

KENNISGEWING VAN VERKOPING. In die aangeleentheid van Pieter Lodewyk Engelbrecht, word die volgende onroerende eiendom bekend as ERF 88/39 WATERVAL EAST X1, REGISTRASIE AFDELING JQ NOORDWES PROVINSIE, GROOTTE ERF: 450m² (VIER HONDERD EN TAGTIG VIERKANTE METER), GROOTE HUIS: 178m², GEHOU KRAGTENS AKTE VAN TRANSPORT: T161533/2005, FISIESE ADRES: ANGELFISH 2, WATERVAL OOS, RUSTENBURG, 0300. Deur Van Velden-Duffy Ingelyf, Rustenburg op 12 Junie 2009 om 10:00 per openbare veiling verkoop, onderworpe aan die verkoopsvoorwaardes van toepassing by die Landdroshof Rustenburg, h/v Nelson Mandela- en Kloppersstrate, Rustenburg. GEDATEER TE RUSTENBURG HIERDIE 9 DE DAG VAN FEBRUARIE 2009. (get WB VAN HEERDEN), Van Velden-Duffy Ingelyf, Office, Noordblok U4, Brinkstraat 67, Rustenburg. VERW: MNR W VAN HEERDEN.
——VS039578 (K14W24)

KENNISGEWING. IN DIE LANDDROSHOF VIR DIE DISTRIK VAN RUSTENBURG GEHOU TE RUSTENBURG. Saaknommer: 9601/2008. In die saak tussen: SM LEBETHE EKSEKUSIESKULDEISER en DANIEL MOTAMBA EKSEKUSIESKULDENAAR. KENNISGEWING VAN GEREGTELIKE VERKOPING VAN ROERENDE EIENDOM. TEN UITVOERLEGGING van 'n vonnis van die Landdros, RUSTENBURG gedateer 5 Augustus 2008 sal ondervermelde goedere om 10:00 op 26 Junie 2009 per publieke veiling te B.N.D.C. SMALL, IND. NO. 35 deur die BALJU vir die Landdroshof van TLHABANE aan die hoogste bieër vir kontant verkoop word, naamlik: 1 X 1 E20 TAXI REG NO. DYH 297 NW. GETEKEN te RUSTENBURG op die 8ste dag van Junie 2009. BALJU VAN DIE HOF. (GET.) SARAH SJEANETTE ESTERHUYSE. EISER SE PROKUREURS. EDWARD LEONARD NDZABANDZABA ING., BEYERS NAUDE RYLAAN 122, RUSTENBURG, 0299. Tel. 014-592-0424 Docex. 10. Verw: SS ESTERHUYSE/Chamaine /Léerm. LE0190.
——RC019951 (K13W24)

NOTICE ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM A REPEALED ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT. Notice is given in terms of Table 2 of Schedule 8 of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion, of the intent to carry out the following Activities: The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the new Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002). Location: The existing dimension stone (granite) mining sites are situated on the farms Boschpoort 290 JQ - Portion 5, Buschpoort 284 JQ - Portion 6, Tweedepoort 283 JQ - Portion 5 & RE and a portion of Kingel 281 JQ situated within the Rustenburg Local Municipality. Name of Applicant: Kelgran Africa (Pty) Ltd. Name of Contact / Consultant: In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to Environmental Services (EIM) CC, within 30 calendar days of placement of this notice. Comments for consideration by the decision-making authorities must be received on or before 10 July 2009. A public meeting will be held only on request of the registered interested and/or affected parties. Submit your comments, contact details and/or queries to: Kelgran Africa (Pty) Ltd. Phone: 012-252-9720 Fax: 012-252-3565 Contact Details: André Zanoli. Email: andrez@kelgran.co.za
——YD036039 (K6 W24)

NOTICE LIQUIDATION AND DISTRIBUTION ACCOUNTS IN DECEASED ESTATE LYING FOR INSPECTION In terms of section 35(5) of Act 66 of 1965 notice is hereby given that copies of the liquidation and distribution accounts (first and final, unless otherwise stated) in the estates specified below will be open for the inspection of all persons with an interest therein for a period of 21 days (or shorter or longer if specially stated) from the date specified or from the date of publication hereof, whichever may be the later, and at the offices of the Masters and Magistrates as stated. Should no objection thereto be lodged with the Masters concerned during the specified period, the executors will proceed to make payments in accordance with the accounts. 1. Registration number of estate 730/2006. Surname COSSA. First names ALFREDO MARCOS. Identity number 560125 5201 08 4. Last address HOUSE NO. 250 NAKEDI STREET, PAARDEKRAAL EXTENSION 1. First names and surname of surviving spouse DOLLY JACQUALINE COSSA. Identity number 710317 0606 08 8. Magistrate's Office RUSTENBURG. Masters Office MMABATHO. Advertiser, and address GUY GUMBO ATTORNEYS P.O. BOX 2806 RUSTENBURG FRANS VOS BUILDING Date 01ST JUNE 2009 Tel (014) 594 1044
——EH022065 (K5W24)

NOTICE IN THE MAGISTRATE COURT FOR THE DISTRICT OF RUSTENBURG HELD AT RUSTENBURG. Case Number: 22007 /08. In the case between MYSTIC BLUE TRADING 50 (PTY) LTD, PLAINTIFF and JJ SCHERMAN, DEFENDANT. IN PURSUANT of judgement in the magistrate court of Rustenburg and the warrant of execution dated 29 OCTOBER 2008 the goods listed hereunder will be sold in the execution to the highest bidder at 117 Thabo Mbeki (keyhole) Rustenburg on the 24 JUNE 2009 by the sheriff of Magistrate court at 10:00 namely: 3 OFFICE CHAIRS, LEXMARK PRINTER, OFFICE CHAIRS X2, COMPAQ COMPUTER SYSTEM. Tel: 014-597-0406. Fax: 014-597-0517. SHERIFF MAGISTRATE'S COURT. P.O. BOX 901, RUSTENBURG 0300, 26 NELSON MANDELA DRIVE.
——VS039591 (K18W24)

NOTICE OF DEBTORS & CREDITORS IN THE ESTATE OF THE LATE KATHIJA BI ISMAIL, ID 320401 0091 085, A WIDOW, IN LIFE RESIDING AT ATEN 37A BENEDEN STREET, RUSTENBURG AND WHO DIED ON 7 NOVEMBER 2008 (MASTERS REFERENCE 2247/2009 - MAFIKENG) DEBTORS AND CREDITORS ARE HEREBY CALLED UPON TO SUBMIT THEIR CLAIMS AND TO PAY THEIR DEBTS WITHIN 30 (THIRTY) DAYS FROM THE DATE OF THIS ADVERTISEMENT COMBRINK KGATSHE INC Agents for Executor: MS ALLIBHAI 2ND FLOOR LAND BANK BUILDING 169 FATIMA BHAYAT DRIVE RUSTENBURG, 0299 014 5920311 REF: A HENNING A.inda/HGI 032
——EH022067 (K2W24)

NOTICE IN THE MAGISTRATE COURT FOR THE DISTRICT OF RUSTENBURG HELD AT RUSTENBURG. Case Number: 26191 /08. In the case between: F WIESEKERK FAMILIEMAATSKAPPY, PLAINTIFF and J ELIZABETH GROENEWALD, DEFENDANT. IN PURSUANT of judgement in the magistrate court of Rustenburg and the warrant of execution dated 15 DECEMBER 2008 the goods listed hereunder will be sold in the execution to the highest bidder at 117 Thabo Mbeki (keyhole) Rustenburg on the 24 JUNE 2009 by the sheriff of Magistrate court at 10:00 namely: SAMSUNG CP. COMPUTER STAND, WASHING MACHINE, R/C FRIDGE, DIAMOND MICROWAVE. Tel: 014-597-0406 Fax: 014 597-0517. SHERIFF MAGISTRATE'S COURT. P.O. BOX 901, RUSTENBURG 0300, 26 NELSON MANDELA DRIVE.
——VS039592 (K19W24)

NOTICE OF DEBTORS AND CREDITORS in the estate of the late HESTER JOHANNA ADRIANA SCHOEMAN, Identity Number 460404 0114 085, a female person, residing in her lifetime at 19 FLAMINK AVENUE, SAFARITUINE, RUSTENBURG and who died on 5 OCTOBER 2006. Master reference number: 110/2007 (MAFIKENG). Creditors and debtors are hereby called upon to submit their claims and to pay their debts within 30 (thirty) days as from date of this advertisement. Combrink Kgatshe Inc P O Box 334 RUSTENBURG 0300 014 5920311 Agent for Executrix S Schoeman) Antonie Henning (HGS 027)
——EH022164 (K7W24)

NOTICE OF AN ENVIRONMENTAL PROCESS FOR THE BASIC ASSESSMENT FOR THE CONSTRUCTION OF A TELECOMMUNICATIONS MAST Ref: NWP/EIA/34/2009 Notice is given in terms of Section 22 of the Regulations in Terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998 as amended) that the Environmental Assessment Practitioner is conducting a public participation process on behalf of MTN for the submittal of a Basic Assessment Report to the Department of Agriculture Conservation and Environment, North West Provincial Government for the following proposed project: Name of Project: MTN Site T7235 Paardekraal Anglo Platinum Project Description: The erection of a base station for MTN. The site is to accommodate three service providers. Location of site: Remaining Extent of Portion 28 of The Farm Paardekraal 279 JQ (Anglo Platinum, off the R104 towards Rustenburg) Alternatives positions proposed: Preferred Option: The erection of a 54m red and white lattice mast with a support container adjacent the buildings situated on the south western border of the property. Alternative 1: The erection of a 54m red and white lattice mast with a support container adjacent the dirt road on the south western border of the property. Date of Notice: 11 June 2009 Queries regarding this matter should be referred to Lolias Environmental Consulting CC, for attention: Lynn van Vuuren at P.O. Box 219, Groenkloof, 0027, Tel (012) 346 7655 and Fax (012) 346 6074. Parties wishing to formally object to this project must forward their objections (with reasons) to the contact given above no later than 30 days after the publication of this notice (Date of Notice: 11 June 2009)
——EH022163 (K9W24)

NOTICE IN RESPECT OF A LICENCE APPLICATION IN TERMS OF THE PETROLEUM PRODUCTS ACT, 1977 (ACT NO 120 OF 1977). THE NOTICE SERVICES TO INFORM PARTIES THAT MAY BE INTERESTED OR AFFECTED THAT BUSINESS HARMONY 35 CC HEREINAFTER REFERRED TO AS "THE APPLICATION" HAS SUBMITTED AN APPLICATION FOR A "RETAIL" LICENCE APPLICATION NUMBER 1/2009/05/07/0002. SPOORSTRAAT 9, SANNIESHOF. THE PURPOSE OF THE APPLICATION IS FOR THE APPLICANT TO BE GRANTED A LICENCE TO UNDERTAKE PETROLEUM RETAILING ACTIVITIES AS DETAILED IN THE APPLICATION. ARRANGEMENTS FOR VIEWING THE APPLICATION DOCUMENTATION CAN BE MADE BY CONTACTING THE CONTROLLER OF PETROLEUM PRODUCTS BY: TELEPHONE: 012-317-8982. FAX: 012-322-8570 OR E-MAIL: PETROLEUM.CONTROLLER@DME.GOV.ZA. ANY OBJECTIONS TO THE ISSUING OF A LICENCE IN RESPECT OF THIS APPLICATION, WHICH MUST CLEARLY QUOTE THE APPLICATION NUMBER ABOVE, MUST BE LODGED WITH THE CONTROLLER OF PETROLEUM PRODUCTS WITHIN A PERIOD OF TWENTY (20) WORKING DAYS FROM THE DATE OF PUBLICATION OF THIS NOTICE. SUCH OBJECTIONS MUST BE LODGE AT THE FOLLOWING PHYSICAL ADDRESS: PHYSICAL ADDRESS: THE CONTROLLER OF PETROLEUM PRODUCTS DEPARTMENT OF MINERALS AND ENERGY MINERALIA CENTRE, 234 VISAGIE STREET, PRETORIA. POSTAL ADDRESS: THE CONTROLLER OF PETROLEUM PRODUCTS, DEPARTMENT OF MINERALS AND ENERGY, PRIVATE BAG X59 PRETORIA, 0001.
——VS039576 (K15W24)

NOTICE OF DEBTORS AND CREDITORS in the estate of the late SAKE SIETSE FOORD, Identity Number 610412 5039 085, a male person, residing in his lifetime at 23 OLIVER THAMBO DRIVE, RUSTENBURG and who died on 8 MARCH 2009. Master reference number: 2150/2009 (MAFIKENG) Creditors and debtors are hereby called upon to submit their claims and to pay their debts within 30 (thirty) days as from date of this advertisement. Combrink Kgatshe Inc P O Box 334 RUSTENBURG 0300 014 5920311 (Agent for Executrix S R v ZUL) Antonie Henning (HGS 006)
——EH022165 (K8W24)

NOTICE IN THE MAGISTRATE COURT FOR THE DISTRICT OF RUSTENBURG HELD AT RUSTENBURG. Case Number: 12283 /07, 22067/08. In the case between: ADT SECURITY (PTY) LTD, PLAINTIFF and K L LEGOALE, DEFENDANT. IN PURSUANT of judgement in the magistrate court of Rustenburg and the warrant of execution dated 10 DECEMBER 2008 the goods listed hereunder will be sold in the execution to the highest bidder at 117 Thabo Mbeki (keyhole) Rustenburg on the 24 JUNE 2009 by the sheriff of Magistrate court at 10:00 namely: TOYOTA NYD 495 GP, DSTV. Tel: 014-597-0406. Fax: 014-597-0517, SHERIFF MAGISTRATE'S COURT. P.O. BOX 901, RUSTENBURG 0300, 26 NELSON MANDELA DRIVE.
——VS039590 (K17W24)

NOTICE IN THE NORTH GAUTENG HIGH COURT - PRETORIA (REPUBLIC OF SOUTH AFRICA) In the matter between: Case no 32958/2008 FIRSTRAND BANK LIMITED Plaintiff and TEBOGO MESHACK MORALADI First Defendant MAGDELINE GALELEMOGE MORALADI Second Defendant NOTICE OF SALE IN EXECUTION Pursuant to a judgment of the High Court of South Africa (Transvaal Provincial Division) in the above mentioned case dated the 4th day of March 2009 and a warrant of attachment the undermentioned property will be sold in execution on the 26th day of 26th JUNE 2009 at 10.00, by the Sheriff, Rustenburg, to the highest bidder at the Magistrate Court, Cnr Klopper Street and Nelson Mandela Drive, Rustenburg CERTAIN: ERF 15849 BOITEKONG EXTENSION 12 TOWNSHIP, REGISTRATION DIVISION J.Q., PROVINCE OF NORTH WEST, MEASURING: 300 (THREE HUNDRED) SQUARE METRES ZONING: SPECIAL RESIDENTIAL At the time of the preparation of this notice, the following improvements were situated on the property, although in this respect nothing is guaranteed: A house consisting of LOUNGE, KITCHEN, 3 BEDROOMS, BATHROOM, TOILET. The Purchaser shall pay a deposit of 10% of the Purchase Price in cash immediately on conclusion of the sale, the balance against transfer to be secured by a bank or building society guarantee, to be approved by Plaintiff's Attorney, to be furnished to the Sheriff within 30 (thirty) days after the date of sale. The conditions of sale, which will be read immediately prior to the sale, are lying for inspection at the offices of the Sheriff, Rustenburg, North Block 4, 67 Brink Street, Rustenburg. ATTORNEYS FOR PLAINTIFF TJAARD DU PLESSIS INCORPORATED HATFIELD GARDENS, BLOCK E 333 GROSVENOR STREET HATFIELD, PRETORIA (REF: T DU PLESSIS/TF0271 (TEL: (012) 342 9400
——EH022161 (K11W24)

NOTICE RUSTENBURG LAND USE MANAGEMENT SCHEME, 2005. APPLICATION FOR SPECIAL CONSENT SWORN AFFIDAVIT. MUCAVELE RAUL GRACA JONAS (name of applicant) hereby declare under oath that the notice in terms of Clause 403.2 of the Rustenburg Land Use Management Scheme, 2005 in connection with the application for special consent on TUCK SHOP (Property description) to use the property for the purpose of: SELLING GROCERY, MINERALS, VEGETABLES, FRUITS AND PARAFIN (Details of application - nature and extent of intended use or relaxation required) was displayed in conspicuous place on the premises concerned and maintained from 02nd JUNE 2009 to 12th JULY 2009. (SGD) DEPONENT Commissioner of Oath. I certify that the deponent has acknowledged that he/she knows and understands the contents of this affidavit which was sworn to and signed before me at on this 02nd day of JUNE 2009. And that provision of the regulations contained in the Government Notice R1258 of 21 July 1972 and R1648 of 19 August 1977 (as amended) have been complied with. Before me: Name: HM MOLEFI. Address: 94 BEYERS NAUDE. Capacity: INSPECTOR. Area: MARICO.
——YD035974 (K22 W23W24)

NOTICE. ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT. Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No 28 of 2002) for conversion and the intent to carry out the following Activities: The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the new Mineral and Petroleum Resources Development Act of 2002 (Act No. 28 of 2002). Location: The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ-ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ-Rem ptn. 1 & 2 (Wonderkop Quarry) and Elandsfontein 440 JQ-ptn. 62 (Elandsfontein Quarry). Name of Applicants: Aurora Granite (Pty) Ltd. for Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd. for Elandsfontein Quarry, Nel Brothers (Pty) Ltd. for Wonderkop Quarry. Name of Contact/Consultant: In order to ensure that your are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 30 calendar days of placement this notice. Comments for consideration by the decision-making authorities must be received on or before 8 July 2009. A public meeting will be held only on request of registered interested and/or affected parties. Submit your written comments, contact details and/or queries to: EIM Environmental Services. PO Box 6463, Bonaero Park 1622.
——RC019950 (K12W24)

TENDER vir die Bedryf van Kafeteria/Koffiekroeg en Boekwinkel - NG Kerk Proteapark. Die Kerkraad ontvang graag tenders vir die bedryf (individueel of as kombinasie) van 'n Koffiekroeg/Kafeteria en Boekwinkel as lopende saak op die perseel van NG Kerk Proteapark om saam te val met die opening van die nuwe Insitelio op die perseel vanaf ongeveer 20 Julie 2009. Die tenderdokument is beskikbaar by die kerkkantoor en tenders sluit op 26 Junie 2009. Vir meer inligting kan u die kerkkantoor kontak by 014-533-1848.
——SR010603 (NC)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

A - Gold. I buy and pawn broken gold, Kruger rands, gold teeth + platinum. Best prices in Town. El 082-860-6631.
——SR010785 (45571)

A A Asrbod dromdienste. Vir net R55 per maand verwyder ons u van 'n naflose drom vir huisvuil of tuinvullis wat ons weekliks leegmaak. Sluit aan by 'n gevestigde dromdiens wat meer as 1000 kliente het en jare lank al kwaliteit diens lewer. 082 361 4513 of 014 596 6585.
——SR010588 (9311)

BEGIN jou eie Internasionale Internetbesigheid en verdien dollars. Opleiding via Intathol. Kontak my asb vir 'n demonstrasie. Kontak 082-653-5965.
——YD035958 (20635)

BONSMARABUL 2006 kalf te koop. R20000 - on onderhandelbaar. Kontak Carel 078-921-3839.
——YD036007 (42739)

BORDER Kollas. Registreer met sertifikaat (as paar) vir R4000. Black & white (loof), brown & white (roun). 072-461-7986.
——RC019980 (45976)

CALL Centre Agent with or without experience, training provided. Earn ±R6000 p.m. 262 Vermeulen Street, 3rd Floor No. 319, Pretoria. Tel 012-325-2544/012-321-2431. Free job placement, accommodation arranged.
——RC019736 (9005)

CASHAN - R9300 per maand. Groot 5-slaapkamerhuis met dubbelmotorhuis op groot hoekerf. Dringend te huur en dadelik beskikbaar! Pam 082 372 6619.
——YD036093 (47012AC)

DORAH is op soek na enige uitlaaiwerk. 076-158-7280.
——YD036091 (47009)

DSTV Multichoice. Alle DSTV en aerial installasies verkoop van en herstelwerk. Nou op surround sound. Kontak Louis 24 uur, 7 dae 'n week by 082-565-9214.
——DV021550 (45843)

GOUD - Koop én pand heel + gebreekte goud + Krugerrande + goue tande, los steentjies etc. Callie / Tjokkies 082-860-6631.
——SR010790 (45570)

GOUDHANDELAAR - Koop + pand goue juwele/heel of gebroek + Krugerrande. 082-860-6631. Tjokkies Pand.
——SR010784 (45573)

GOUDHANDELAAR. Pand /koop heel/gebroekte goue juwele + Krugerrande. 082-860-6631 Tjokkies Pand.
——SR010792 (45568)

KOOP alle meubels. Gee beste pryse. Sendra 079-269-4492, Tel. 014-596-3760.
——SR010798 (45575)

KOOP goud en pand goud. Gee beste pryse in Rb. Cal 072-075-9651. Tel: 014-596-5768.
——SR010796 (45562)

LENA is op soek na stukwerk vir Maandag, Woensdag en Vrydag 074-185-1884.
——YD036090 (47008)

START your own International business and earn dollars via internet training. Also via internet. Please phone me to arrange a demo. 082-653-5965.
——YD035963 (20834)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

LOVERMASTER powdercoating roof, open-close 6m x 4m incl. installation. R18000. 072-815-2023.
——YD036094 (47011)

LOWBED woer beskikbaar SLEEPWA - 24 uur verhurings ook 'n lowbed. Put-bak. Mopanielaan 11. Tel. 014-500-0383/Sel 082-925-6977.
——AK003976 (33028ACTC)

MEUBELS koop & pand alle nuwe + 2de handse artikels, hangkaste, laaikaste, yskaste, tools etc. Callie/Tjokkies 082-860-6631.
——SR010786 (45572)

4-TON lorie te huur vir die vervoer van alle goedere en lewende hawe. Vrag versekering by prys ingesluit vir die vervoer van lewende hawe. 080-735-3907.
——SR010572 (9389)

TEGNIKUS benodig vir alarms & CCTV kameras, bestuurslisensie is 'n vereiste. Skakel Pieter 074 687 6247.
——RC019982 (45977)

MEUBELS! Ek soek tweedehandse meubels vir goeie kontant, tools, bakware. Skakel 014-596-5788.
——SR010794 (45579)

TOWNHOUSE to let. 3 bedrooms, 2 bathrooms, open plan kitchen, living room, garden with carport, prepaid electricity, near Waterfall Mall. R5300 p.m. Phone Llorel 082-875-0400.
——YD036092 (45978)

NISSAN Skyline 2.0 towbar, mags, CD, aircon. Puik toestand R22,000. Bakkie Colt 85 model, mags, towbar. R18,600 o.n.o.e. 072-502-0116.
——SR010801 (45529)

OOS einde huis te huur - 3 slk, 2 badkamers, groot erf - R5500 pm + sleutel dop onderhandelbaar. Kontak: 078-835-1309. Water en ligte uitgesluit. Motorhuis, afdak. Onmiddellik beskikbaar.
——DV021549 (NC)

PEACOCKS for sale. Poue te koop. Tel 076-026-4141.
——YD036093 (45979)

PRIVAAT te huur. Kloofhuis naby Spar! 3 Slaap huis, 1½ badkamer, mooi erf, afdak. R6 500 per maand. Anneli 082-971-7904.
——SR010783 (45588)

SAT 24/7 Verkoop, herstel en installasies en aerial nou op surround sound ook. Kontak 082-565-9214.
——DV021551 (45843)

SLEEPWAENS. Waarom huur so baie inonce by RENT A TRAIL? Kom gesels en alen waar kry hulle die beste diens ton alle tyd. Joubertstraat 239 Rustenburg - Tel: 014-592-1722 - Cell: 082-892-6575.
——DV021553 (45754)

STAAL Wendy huis 8m x 3m. 2 Vensters met new bout in 10 dele. R3,600. Built-up trailer R900. 072-502-0116.
——SR010802 (45526)

SUZUKI 125cc Scrambler on 1030. Goeie toestand. loopstand R5,600. Opgeboude sleepwa R900. 072-502-0116.
——SR010800 (45530)

2 SWART Pigeneso 6 weke oud. R1000. Skakel Antoinette 076-186-9346.
——YD036096 (47013)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

TRAILERS: for rent only. All sizes at lowest cost. Call: 014-592-1772 / 082-892-6575.
——DV021552 (45760)

2 X Scottish Terrier bekkiboer. Skakel 082-339-7495 om teinurskelling te voorkom.
——RC019981 (47010)

27 TE LAAT VIR KLASSIFIKASIE / TOO LATE FOR/

23. SPESIALE DIENSTE SPECIAL SERVICES

ALGEMENE instandhouding. 45 Jaar in boubedryf. 076 554 5926.
---------- 67476 12/6-19/6

INSTALLEER houtdeure, oprig en giet van betontrappe. 076 554 5926.
---------- 67475 12/6-19/6

LEO Boukonstruksie. Alle bouwerk, palissades, dak herstelwerk, plafonne, verf, plaveisel, plumbing ens. Kontak Leon 082 352 2260.
---------- 67464 12/6-3/7

TJOEF Tjat Deliveries: Aflewerings in Brits en omgewing teen lae tariewe, enigiets. Niks is te groot of te klein. Skakel vir gratis kwotasie 082 851 8383, 079 991 8894.
---------- 67349 12/6

ALBOU, door hanging, water proofing, paint, plumbing. All type of woodwork. 079 154 8654.
---------- 67430 12/6-19/6

TALUTA Lapa's & handyman services. We do all renovations in the home. I.e. Bathrooms, kitchens, tiling etc. We also build new lapa's and do repairs to existing lapa's, build braai's, rockface waterfalls etc. Telephone: Wikus 076 118 7708., 082 213 9119.
---------- 57733 12/6

PALISSADE heinings, enige hek en elektriese heinings en automatisering. Beste pryse. Skakel vir kwotasie. Kontak C J

24. VAKANSIE-OORDE HOLIDAY RESORTS

MARGATE Vakansiewoonstel - Slaap 6 persone, 50m van hoofstrand, billike tariewe. Kontak Lettie 083-632-6227/012-250-3534.
---------- N/C - T/C

SUN City 6-bed eenheid 10-17 Julie 2009. R1500 p/nag. Gratis toegang daagliks tot Valley of Waves. Volle week of gedeeltes daarvan 082 562 3894.
---------- 67323 5/6-12/6

DIKHOLOLO 6-bed eenheid 3-10 Julie 2009. R6500 o.n.a. Johanna 082 562 3894.
---------- 67324 5/6-12/6

VAKANSIEWOONSTEL - Margate. Slaap 6 persone. Volledig toegerus. Op die strand. Tel 012-254-2257
---------- 22131AC/TC

VAKANSIE EENHEID TE HUUR (MANABA BEACH - MARGATE)
- Luukse 3-slaapkamerwoonstel (8 persone).
- Wonderlike see uitsig
- DSTV

NOTICE ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT AMENDMENTS FOR THE CONVERSION FROM AN OLD ORDER MINING RIGHT TO A NEW ORDER MINING RIGHT. Notice is given in terms of Table 2 of Schedule II of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) for conversion and the intent to carry out the following: Activities: The activity involves the amendments of the Environmental Management Programmes for existing quarrying operations approved under the repealed Minerals Act of 1991; which were approved then, to be converted to new order mining rights under the new Mineral and Petroleum Recources Development Act of 2002 (Act No. 28 of 2002). Location: The existing dimension stone quarry sites are situated on the farms Nooitgedacht 287 JQ -ptn. 18 (Nooitgedacht Quarry), Wonderkop 400 JQ -Rem ptn. 1&2 (Wonderkop Quarry) and Elandsfontein 440 JQ -ptn. 52 (Elandsfontein Quarry). Name of Applicants: Aurora Granite (Pty) Ltd for the Nooitgedacht Quarry, Kudu Granite Operations (Pty) Ltd for Elandsfontein Quarry, Nell Brothers (Pty) Ltd for Wonderkop Quarry. Name of Contact /Consultant: In order to ensure that you are identified and registered as an interested or affected party, please submit your name, contact details and the reason for your interest, to EIM Environmental Services, within 30 calender days of placement this notice. Comments for consideration by the decision-making authorities must be received on or before 8 July 2009. A public meeting will be held only on request of registered interested and /or affected parties. Submit your written comments, contact details and /or queries to: EIM Environmental Services: PO Box 8483, Bonaero 1622. Contact details: Tel: 011 979 2846, Fax: 011 979 3788 /086 658 0637 J. van der Linde, Email: joon@eim.co.za.
---------- K4 12/6

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Kontak
083 367 3117

TOP PERSELE TE HUUR WILDEVY SENTRUM
Skakel Gerhard Vermaak
083 653 2220
Email:
gavbk@mweb.co.za

Contract Site Manager

Phambill Rens Security

Requirements:
Registered with Private Security Industry. Grade B.
Valid driver's licence.
At least 5 years Security Supervisory experience.
Experience in the Mine industry essential.
Salary and benefits negotiable.
Please forward CV for attention
CJR Janse van Rensburg to
Fax: 012 252 3039 or 012 252 3456.

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In addition to challenging opportunities, the Company offers a competitive remuneration package and the normal large-company benefits.

- Completing audit records and reports
- Plotting and updating Rock Engineering information on plans
- Assessing the ground conditions using the Q-Rating System.

Interested applicants should forward a concise CV to: The Human Resources Superintendent - Shafts Recruitment, PO Box 5683, Rustenburg 0300, or fax: (014) 569-9535 or e-mail: michael.moalosi@implats.co.za

Closing date: 19 June 2009.

In the event that you do not hear from the Human Resources Department within a period of 30 days after the closing date of applications, your application can be regarded as unsuccessful.

Preference will be given to candidates from the designated groups in line with the provisions of the Employment Equity Act, as well as the Company's recruitment policy and employment equity plan. All short-listed candidates will be subjected to psychometric assessment and a formal interview. CVs must include copies of the relevant qualification(s). Incomplete applications will not be considered.

Company details can be found at http://www.implats.co.za

IMPLATS Distinctly Platinum

Human Communications 57786

ATTENDANCE REGISTER

4TH AUGUST 2009 – RUSTENBURG PUBLIC LIBRARY

No.	Name & Surname	Company	Contact No.	Signature
1.	Joon van der Linde	EIM – Environmental Consultant	011 979 2846	
2.	Andre Zanoli	EIM – Environmental Consultant	(012) 252-8720 0726012432.	
3.	Alan Forrester	Kelgran – Group Geologist	082 808 0268	
4.	Piet Nel	Kelgran – General Mine Manager	014 57 333 87.	
5.	~~Bernard van der Vyver~~ C van Merwe	Marlin –General Mine Manager Springbok II Mine II Manager	014 572 1503 014 5733094	
6.	Erika Wenhold	KWEF	082 783 7004	Ewenhold.
7.	Chris Wenhold	KWEF		
8.	Pogiso Bothomane	RECO	0735016126 014-5921530	
9.	SHIRLEY RALESEGO	RECO	0834725845	
10.	DESMOND MABASO	RUSTENBURG LOCAL MUNICIPALITY	0723446139 0145903433	dm
11.	JOE SETSHEDI	RECO	0837482658	
12.	Hlamalang Come	DEAT-BOJANALA	0823375885	

Reotshepile Royal Bafokeng 0832366013

Note: Holding

EIM – Environmental Services
RECO – Rustenburg Environmental Coalition
KWEF – Kroondal Wards Environmental Forum

hcome@deat.gov.za

dmabaso@rustenburg.gov.za
Fax: 0145902070

MINUTES OF A MEETING

CUSSION WITH REGARDS TO THE EMPR CONVERSIONS OF KELGRAN AFRICA (PTY)LTD , MARLIN HOLDINGS (PTY)LTD WITHIN THE BRITS RUSTENBURG DISTRICT ON TUESDAY THE 04th AUGUST 2009 HELD AT THE RUSTENBURG LIBRARY AT 10:00

Attendance

The attendance register were distributed and signed by the attendees.

AZ - Andre Zanoli – EIM – 072 601 2432

JVDL – Joon van der Linde – EIM – 011 979 2846

AF – Allan Forrester – Kelgran Africa (Pty) Ltd. – 012 252 8720

PN – Piet Nel - Kelgran Africa (Pty) Ltd. – 014 573 3387

CVDM – Callie van de Merwe – Marlin Holdings – 014 573 3094

EW – Erika Wenhold – KWEF – 082 783 7004

PB – Pogiso Bothomane – RECO – 073 501 6126/ 014 592 1530

SR – Shirley Ralesego – RECO – 083 472 5845

HC – Hlamalang Come – DEAT (Bojanala)

DM – Desmond Mabaso – Rustenburg Local Municipality – 072 346 6139

JS – Joe Setshedi – RECO – 083 748 2658

R – Reotshepile – Royal Bafokeng Holdings – 082 337 5885

1. **Welcoming**

Mr. Andre Zanoli from Kelgran Africa (Pty) Ltd. welcomed everyone and gave the various organizations attending an opportunity to introduce themselves.

Introduction & Purpose of meeting

AZ – Opened the meeting by introducing all the parties attending. He explained that the purpose of the meeting was to receive comments from the interested and affected parties on the various topics which will be discussed during the presentation. He discussed the public participation process which were followed by Kelgran and Marlin Holdings and the role which the Department of Minerals and Energy plays as the responsible authority for the approval of the EMPR.

AZ– Briefly explained the contents of the EMPR and emphasized that all the quarries under discussion are existing operations within the Brits Rustenburg District. He indicated on a map where each of the quarries were situated to clarify the locality in relation to each other and the various villages.

Presentation

3a. Topical discussion

JVDL – Indicated that twelve topics will be presented and discussed according to the points stipulated in RECO's letter received by Marlin Holdings and Kelgran Africa dated the 8th July 2009.

Note: The presentation is available on request.

Waste Management

PB – Asked how many waste rock dumps are located on each quarry. **JVDL** – Explained that many dumps can exist on one site depending on the scale of the operation. He also explained that the waste rock dumps are mostly situated around a quarry development to screen the quarry faces and due to the distance which the waste material must be transported. **PN** – Explained that some of the waste rock blocks are for backfilling gravel pits and old quarry depressions.

PB – Asked what measures have been taken to use the waste rock blocks as beneficiation? **PN** – Explained that many ventures have been considered but due to the characteristics and structure of the gabbro-norite it makes it very labour intensive. He also explained that machinery can be utilized but at a high cost, which makes most of the ventures considered very expensive. He also indicated that the volumes of waste which will be absorbed by these ventures will be considerably small.

EW – Asked if the waste cannot be used as building bricks and why are so many blocks scattered across some of the sites? **PN** – Explained that the cost will be too high to crush these stones to a suitable size. **CVDM**- Explained that many small companies operated in the past where they will mine many different places without proper management and experience, which leaves many areas especially in the Brits area un-rehabilitated.

JS – Asked how the petrochemical waste is managed and if hazardous waste is produced on site? **PN** – Indicated that sealed containers are used for all petrochemical waste where the oil filters and oil rags are kept before collection by the company Oil Separation Group. This waste is taken to a hazardous landfill site (Holfontein). He also explained that a Code of Practice is in place, which explains practical and management measures relating to hazardous waste.

JS – Asked why the waste rock dumps are not consistently rehabilitated? **AF** – Indicated that quantum calculation are annually done to determine the cost of rehabilitation when applying for closure. **PN** – Explained that many areas cannot be rehabilitated now as they have the potential to be mined again. Some areas are rehabilitated which will help to reduce the cost of rehabilitation during its closure phase. **AF** – Indicated that large areas like the "Heilige Kop" will never be mined as the geological structure is not suitable to yield a profit by mining it. He is also very concerned that inexperienced miners will start to mine this mountain, which will leave it devastated after they have realized the quality of the Gabbro-norite. He also emphasized that Kelgran and Marlin have a good working relationship with the Bafokeng and that regular meeting are held concerning the general environment in which the mine is operating.

SR – Addressed a question to Reotshepile, asking her what the procedure would be when a child has drown in a water filled quarry pit. She also revered to an incident which occurred in 1998 where an 11 year old child has drown in one of these water filled quarry pits. **R** – Indicated that she was not aware of this particular incident. She explained that the surface owner has to ensure that these areas are kept save through fencing

and the erection of warning signs. **CVDM** – Explained that the water filled quarry pits are backfilled with waste rock block at their operation.

Effluent & Emissions

EW – Asked if any water gets recycled and where the water is sourced from? Callie – Explained that rainwater is used as well as borehole water during dryer seasons. **PN** – Indicated that borehole water is used on Kelgran's operations.

EW – Asked if the waste rock block which are mined could cause pollution to water on site? **AF & JVDL** – Indicated that gabbro-norite is inert, which means that it cannot be readily changed by chemical or biological reactions. Alan also emphasized that dimension stone mining is a very clean type of mining process if compared to other mining operations which utilizes large processing plants producing toxic chemicals.

DM – Explained that according to the APPA, mines should submit their air quality report to DEAT. **PN** – Explained that the reports are only submitted to the DME. The DME is the organization which approves the EMPR.

HC – Indicated that certain information regarding the mines are not explained and exposed to the surrounding villages in a way which they can understand and receive. **R** - Explained that many people from the villages will not understand everything they are told, due to the scientific nature of the document.

PB – Asked about the sanitation on site? **PN**– Explained that portable chemical toilets are provided on site, which is maintained by a contractor on a regular basis. The office makes use of flush toilets. The office personnel consists of approximately 8 people which make the volume of sewerage very low.

Noise Management

PB – Asked if any cases have been reported concerning the loss of hearing caused by activities on the mine? **PN** – Indicated that people are examined on a 6 monthly basis. In some cases reports have shown a negative result. He explained in some cases protective gear (PPE) is not worn as it should. **CVDM** - Said that earplugs and earmuffs should be worn at all times, and is supplied to all employees exploited to noise levels.

Water use and management

HC – Asked what other methods have been considered to control dust suppression as water is such a scares commodity? **JVDL & PN** – Explained that other methods have been considered. **JVDL** – Indicated that alternative methods are usually very expensive as experimented at the Marlin Springbok operation, where smaller operations do not have nearly the capacity to afford it. He said that alternative methods may be considered for the long term protection of water as valuable resource.

Energy Efficiency

PB – Made a comment on the use of solar energy.

Groundwater & Surface water

HC – Asked what the effects of the black powder has on surface or groundwater? **PN** – Indicated that black powder will have no impact on the surface or groundwater as it is non-toxic.

Heritage Resources

PB – Asked how the heritage sites are managed? He also emphasized that if and when these heritage sites are destroyed they will never be able to be rehabilitated. **JVDL** – Indicated that induction training is provided to inform the employees of possible heritage sites.

Fauna & Flora

EW – Made a comment that Aloe trees are taken from their natural state and sold as profit, along road sides.

HC – Said that an alternative resource needs to be identified for cooking food, which would help to stop the illegal tree felling within the mining boundaries.

Social and Labour Plan (Andre Zanoli presented the section on the social and labour plan)

PB – Asked if people which are not employed by Kelgran or Marlin can benefit from the bursary scheme? He also asked in what type of positions does the woman in mining feature? **PN** – Described that all the specific details are explained within the Social and Labour Plan. With regards to the woman, many has already been used as part of an internship programme. This programme helps to indentify suitable woman for various positions within the mining operations.

Further discussions and questions

No further discussions were held or questions asked.

Way Forward

AZ - The EMPR's for both Marlin and Kelgran operations will be placed at the Brits Office, Rustenburg Office and Rustenburg Public Library for comments.

Closure & Site visit

The meeting was adjured. No date has been confirmed for a site visit yet.

Environmental Services cc
CK 2000 / 027652 / 23

EIM
PO Box 8483
Bonaero Park
1622
Tel: (011) 979 2846
Fax:(011) 979 3788
Cell:083 680 1032
joon@eim.co.za

7 October 2009

Rustenburg Environmental Coalition (RECO)
Mr. P. Bothomane
P.O. Box 0300
Rustenburg
0300

Fax: 014 592 15~~30~~ 06

RE: MEETING (MARLIN – KELGRAN CONVERSION EMPS)

Dear Pogiso

Our conversation as per our meeting on 6 October 2009 refers. Andre Zanoli will fax the originally requested water quality tests and dust monitoring tests at the Kelgran Operations. Feel free to comment.

The EMPR for the existing Nell's – Nooitgedacht Quarry (Aurora Granite) has been left for public review at the Rustenburg library and will be available for the next 14 days.

EIM will be jointly involved with another EIA/EMP for a proposed iron ore waste recycling project near Thabazimbi. I believe you mentioned that you have access to specialists that can assist in the EIA/ EMP Process. Please forward a list of specialists if possible, in order for us to start planning.

Regarding the requested office equipment for RECO: I am sorry, EIM Environmental Services cc is not able to contribute.

Regards

J.A van der Linde

BA (Geography and Environmental Studies) – University of the North West
BA Hons (Environmental Management & Analysis) – University of Pretoria

****
***** ACTIVITY REPORT *****
****

START TIME	CONNECTION	ID	NO.	MODE	PGS.	RESULT	
9/09 12:12 *	011		1677	RECEIVE	7	OK	04'14
15:21 *	0152874729		1678	TRANSMIT	11	OK	05'18
'0/09 06:35 *	0866902500		1679	TRANSMIT	1	OK	00'42
06:42 *	0866902500		1680	TRANSMIT	24	OK	23'29
09:20 *	0118266145		1681	TRANSMIT	8	OK	03'22
15:26 *			1682	RECEIVE	4	OK	02'20
.1/09 08:37 *	0866945825		1683	TRANSMIT	7	OK	03'57
08:45 *	0865163157		1684	TRANSMIT	3	OK	02'13
5/09 08:31 *	0164540925		1685	TRANSMIT	11	OK	04'33
10:24 *	0152874729		1686	TRANSMIT	2	OK	01'58
'6/09 10:15	0865163157		1687	TRANSMIT	25	OK	23'51
7/09 10:19	011		1688	RECEIVE	2	OK	01'41
:3/09 10:59	011		1689	RECEIVE	1	OK	00'59
25 9 11:53	011 3551662		1690	RECEIVE	5	OK	03'14
13:24	0114161318		1691	TRANSMIT	2	OK	00'56
:9/09 08:35	0866945825		1692	TRANSMIT	1	OK	00'46
14:19	+27 11 339 2728		1693	RECEIVE	3	OK	01'45
1/10 17:50	0866516111		1694	RECEIVE	2	OK	02'28
5/10 10:58	011355 1492		1695	RECEIVE	1	OK	00'55
17/10 16:37	0145921506	GRCF	1696	TRANSMIT	1	OK	00'40

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P.O. BOX 662
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ELITE OFFICE SYSTEMS (PTY) LTD

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15 July 2009

Attention: Pogiso Bothomane
RUSTENBURG ENVIRONMENTAL COALITION
Cell: 0735016126 / 0837482658
Fax: 014 5921506

We thank you for the opportunity to quote and gladly submit the following:

Description:	*Qty:*	*Excl VAT:*	*Incl VAT:*
1600mm Office desk with 3 fitted drawers, corner link and 1200mm L-extension desk		R 3 078.00	R 3 508.92
	x3	R 9 234.00	R10 526.76
Alpha Reception Unit 2100x2100mm complete with pedestal	x1	R 7 254.00	R 8 269.56
1500mm High systems cabinet with shelves		R 2 307.00	R 2 629.98
	X2	R 4 614.00	R 5 259.96
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	X2	R 1 540.00	R 1 755.60
Pluto hi back swivel chair		R 850.00	R 969.00
	X2	R 1 700.00	R 1 938.00
Pluto visitors arm chair		R 580.00	R 661.20
	X18	R10 440.00	R11 901.60
Uranus wooden frame arm chair		R 778.00	R 886.92
	X8	R 6 224.00	R 7 095.36
Wood 2 tier lettertray		R 230.00	R 292.20
	X4	R 920.00	R 1 048.80
Wood waste paper basket		R 180.00	R 205.20
	X4	R 720.00	R 820.80
Delivery and installation		R 100.00	R 114.00
TOTAL:		***R42 746.00***	***R48 730.44***

Quote valid 30 days.

Deposit of 50% payable on order.

Kind Regards

Beverley Breytenbach

We soar to achieve excellence
DIRECTORS: P.A. BOSMAN & L.L. BOSMAN

EIM Environmental Services cc
CK 2000/027652/23

EIM
PO Box 8483
Bonaero Park
1622
Tel: (011) 979 2846
Fax:(011) 979 3788
Cell:083 680 1032
joon@eim.co.za

DELIVERY NOTE

From:
EIM Environmental Services - Secretary.

To: Bapo - Ba - Mogale Tribal Authority
~~Bakwena Ba Mogopa~~

Date: 04 November 2009

Document Title and Ref No:

EMPR - Wanderlicpo Quarry -
Nell Brothers (Pty) Ltd
NW 30/5/1/2/3/2/1 (390) EM

Received by:	Contact Number:
Suzan Rampaay.	0122611500

Time:

Signature:

Bapo Ba-Mogale
Traditional Council
04 NOV 2009
PRIVATE BAG X 0001, BAPONG 0269
TEL 012 254 1204 FAX 012 254 1803
e-mail: bapotc@telkomsa.net

EIM
PO Box 8483
Bonaero Park
1622
Tel: (011) 979 2846
Fax:(011) 979 3788
Cell:083 680 1032
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Environmental Services cc
CK 2000/027652/23

DELIVERY NOTE

From:
EIM Environmental Services

To: Rust Library

Date: 4 Nov 2009

Document Title and Ref No:

EMPR — Elandsfontein

EMPR — Wonderkop

Received by:	Contact Number:
D Lundstedt	016 5903294/5

Time: 1.15

Signature:

Lundstedt

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DELIVERY NOTE

From:
EIM Environmental Services

To: BAPO -ba- MOGALE TRADITIONAL Council

Date: 11/06/2009

Document Title and Ref No: NW 30/5/1/2/3/2/1 390 MR

- NOTICE - Elandsfontein
- Background information Document - Elandsfontein
- Mine Plan - Elandsfontein
- 2003 Approved EMPR - Elandsfontein

Received by: (Administrator) P. Mogoai | Contact Number: 083 2788 395.

Time: 12:30

Signature: [signature]

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:34 AM
To: 'hcome@deat.gov.za'
Subject: FW: REVIEW: EMPRS FOR CONVERSION

Dear Mr. Come

The public meeting on 4 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440, Portion 52. (Kudu Granite Operations)

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:40 AM
To: Andrie Loubser
Subject: FW: REVIEW: EMPRS FOR CONVERSION : Bankeveld bewarings Forum

Dear Mr Loubser

The public meeting on 4 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Brits Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440, Portion 52. (Kudu Granite Operations)

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Joon van der Linde
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Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:44 AM
To: 'mabeu@vodamail.com'
Subject: FW: REVIEW: EMPRS FOR CONVERSION - KWEF

Dear Mrs. Wenhold.

The public meeting on 4 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287 JQ, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400 JQ, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440 JQ, Portion 52. (Kudu Granite Operations)

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:47 AM
To: 'reco@webmail.co.za'
Subject: FW: REVIEW: EMPRS FOR CONVERSION - RECO

Dear Mr. Bothomane

The public meeting on 4 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287 JQ, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400 JQ, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440 JQ, Portion 52. (Kudu Granite Operations)

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:53 AM
To: 'dianav@lantic.net'
Subject: FW: REVIEW: EMPRS FOR CONVERSION - Mrs Verster

Dear Mrs. Verster

Your email dated 1 July 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Brits Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287 JQ, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400 JQ, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440 JQ, Portion 52. (Kudu Granite Operations)

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Tracking:

Recipient	Read
'dianav@lantic.net'	Read: 2009/11/03 09:32 AM

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 09:24 AM
To: 'renier@stywelyne.co.za'
Subject: FW: REVIEW: EMPRS FOR CONVERSION - RECO

Dear Mr. Breytenbach

My letter to you dated 15 June 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Brits Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287 JQ, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400 JQ, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440 JQ, Portion 52. (Kudu Granite Operations) - 7 km east of Brits

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 10:09 AM
To: 'madibeng@icon.co.za'
Subject: FW: REVIEW: EMPRS FOR CONVERSION - MADIBENG MUNICIPAL MANAGER

Dear Sir

Your letter dated 18 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Brits Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

The EMPR Documents are:

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287 JQ, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400 JQ, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440 JQ, Portion 52. (Kudu Granite Operations) - 7 km east of Brits

Only Elandsfontein falls within the district of Madibeng, therefore only the public participation for this quarry will be forwarded to you. The relevant Ward councillor for the area (Ward 21), Mr. Breytenbach have also been notified. The draft documents will be open for review from 5 November 2009 to 19 November 2009.

Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Joon van der Linde

From: Joon van der Linde [joon@eim.co.za]
Sent: 03 November 2009 08:31 AM
To: 'dmabaso@rustenburg.gov.za'
Subject: REVIEW: EMPRS FOR CONVERSION

Dear Mr. Mabaso

The public meeting on 4 August 2009 refers. The updated Draft EMPRs required for the conversion applications from an old order mining right to a new order mining right will be available for review at the:

- Rustenburg Library
- Kudu Granite Operations Office at the Schaapkraal Operation. The telephone number is (014) 572 1800.

1. Nell's – Nooitgedacht Quarry on the farm Nooitgedacht 287, Portion 18 (Aurora Granite)
2. Wonderkop Quarry on the Farm Wonderkop 400, Remainder of portion 1 and 2 (Nell Brothers)
3. Elandsfontein Quarry on the farm Elandsfontein 440, Portion 52. (Kudu Granite Operations)

The draft documents will be open for review from 5 November 2009 to 19 November 2009.

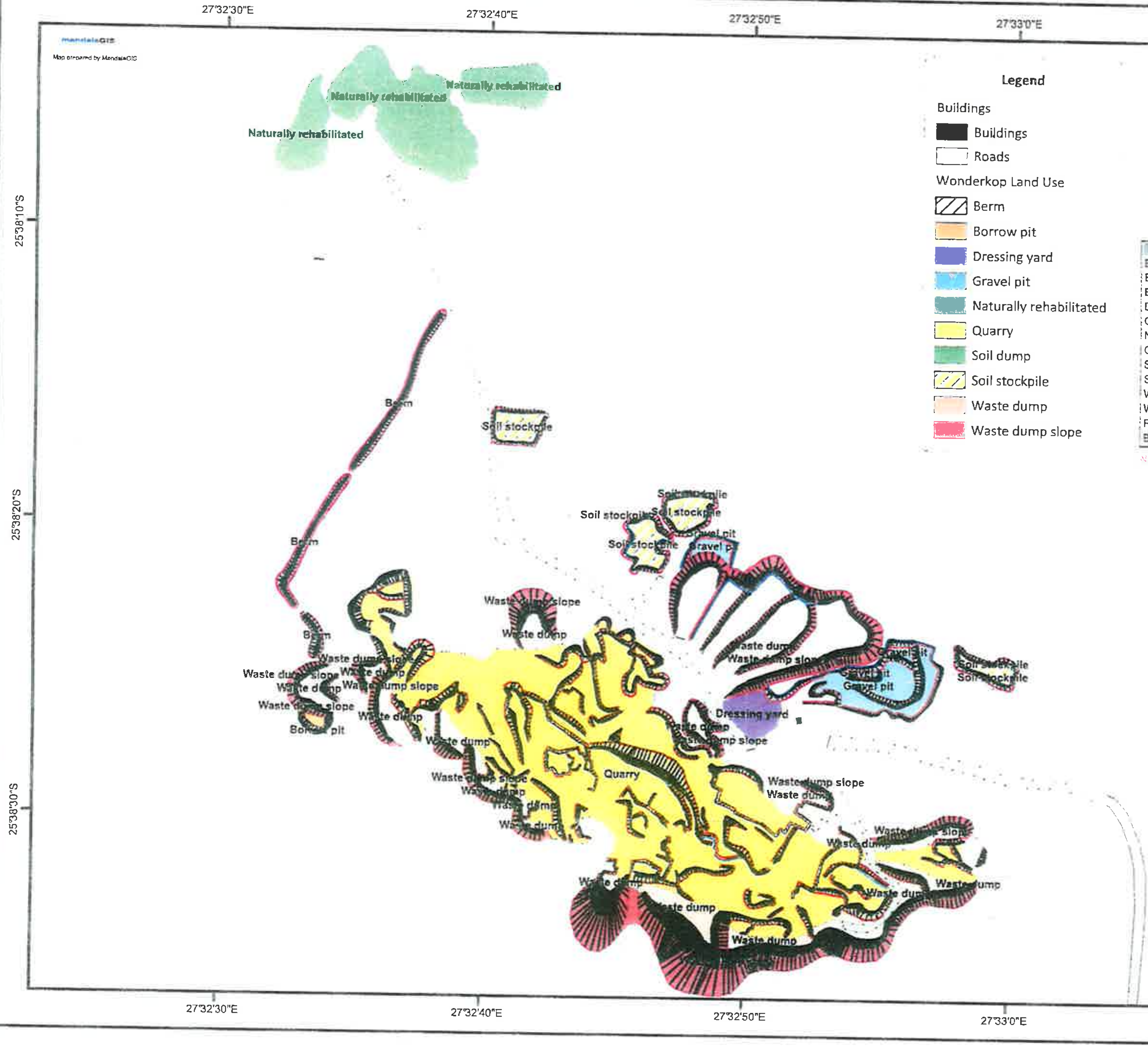
Kind Regards

Joon van der Linde
EIM Environmental Services
Cell: 083 680 1032
Tel: 011 979 2846
Fax: 086 658 0637/011979 3788

Tracking:

Recipient	Read
'dmabaso@rustenburg.gov.za'	Read: 2009/11/03 03:01 PM

APPENDIX I: GIS PLAN INDICATING THE EXTENT OF HISTORICAL AND CURRENT DISTURBANCES AT WONDERKOP 1 AND WONDERKOP 2 SECTIONS



WONDERKOP QUARRY

WONDERKOP 400 JQ

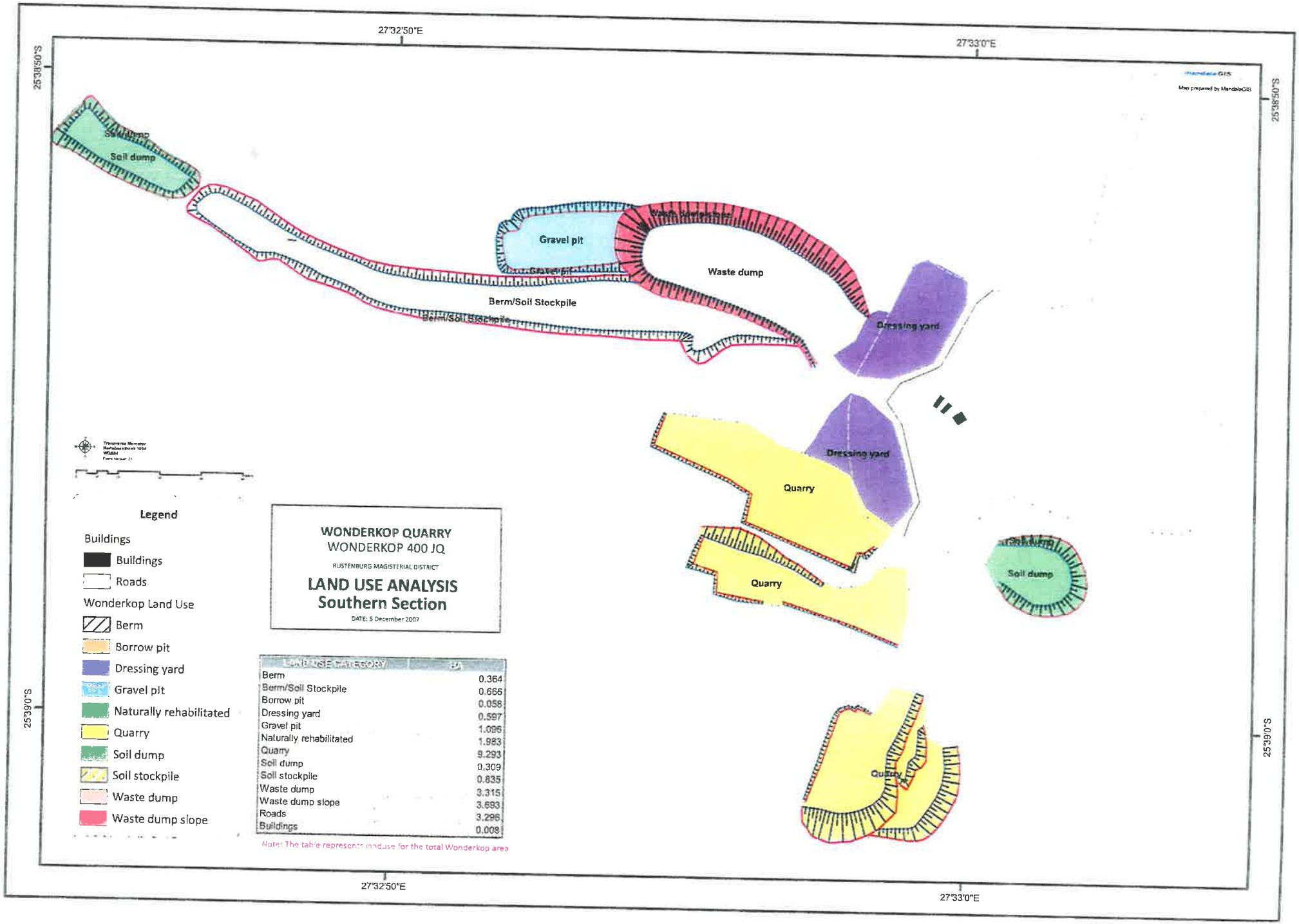
RUSTENBURG MAGISTERIAL DISTRICT

LAND USE ANALYSIS
Northern Section

DATE: 5 December 2007

[illegible]	HA
Berm	0.364
Berm/Soil Stockpile	0.666
Borrow pit	0.058
Dressing yard	0.597
Gravel pit	1.096
Naturally rehabilitated	1.983
Quarry	9.293
Soil dump	0.309
Soil stockpile	0.835
Waste dump	3.315
Waste dump slope	3.693
Roads	3.296
Buildings	0.008

Note: The table represents landuse for the total Wonderkop area


27°32'50"E
27°33'0"E
25°38'50"S
25°39'0"S
Soil dump
Gravel pit
Waste dump
Berm/Soil Stockpile
Dressing yard
Quarry
Soil dump
Legend
Buildings
Buildings
Roads
Wonderkop Land Use
Berm
Borrow pit
Dressing yard
Gravel pit
Naturally rehabilitated
Quarry
Soil dump
Soil stockpile
Waste dump
Waste dump slope
WONDERKOP QUARRY
WONDERKOP 400 JQ
RUSTENBURG MAGISTERIAL DISTRICT
LAND USE ANALYSIS
Southern Section
DATE: 5 December 2007
LAND USE CATEGORY
Berm 0.364
Berm/Soil Stockpile 0.666
Borrow pit 0.058
Dressing yard 0.597
Gravel pit 1.096
Naturally rehabilitated 1.983
Quarry 9.293
Soil dump 0.309
Soil stockpile 0.635
Waste dump 3.315
Waste dump slope 3.693
Roads 3.296
Buildings 0.008
Notes The table represents landuse for the total Wonderkop area

APPENDIX J: "BATNEEC" RELATED TO DIMENSION STONE MINES

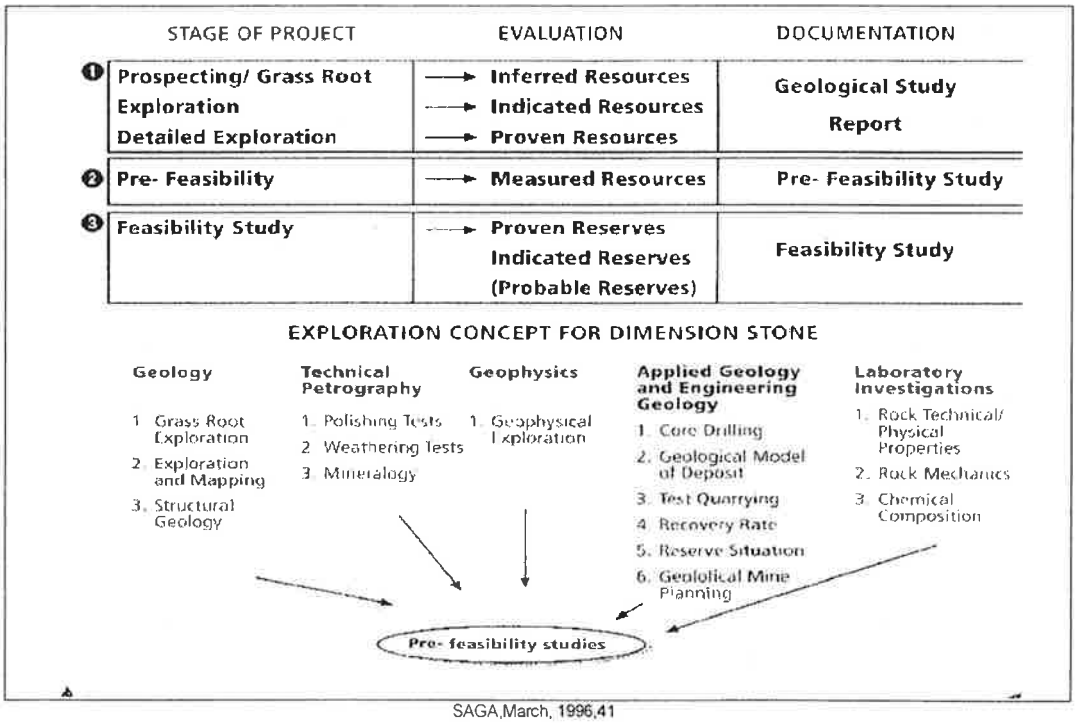
INFORMATION GUIDE AND BEST PRACTICE GUIDELINES FOR MARLIN GRANITE (PTY) LTD

The united States Bureau of mines defines granite as a dimension stone " naturally occurring rock material, cut, shaped or selected for use in blocks, slabs, sheets or other construction units of specified shapes or sizes, and used for exterior parts of buildings, foundations, kerbing, paving, flagging or for other architectural or engineering purposes".

Oosterhuis (SAGA, 36) defines a true granite best as a "granular plutonic rock of light colour (shades of white, grey, green, pink and red) and even texture, consisting mainly of free quartz and feldspar and plagioclase are present. Gabbronorite is the material quarried in the Rustenburg – Brits Region and is generally known as Rustenburg Grey.

"The task and aim of exploration is to find, investigate and evaluate a mine – able deposit" (Diehl, 41)

EXPLORATION CONCEPT FOR DIMENSION STONE



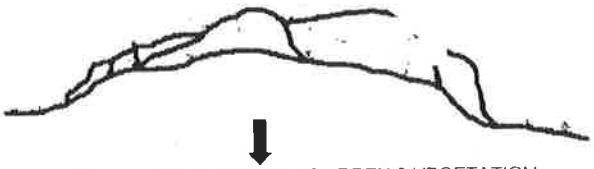
SAGA,March, 1996,41

Mine planning as stated by Nelles, has to take into account the following geological parameters:

- Topographical features of the location of the deposit
- Size of the deposit and distribution of reserves
- Expected recovery rate and its distribution
- Expected average block sizes
- Direction of the freeway
- Direction of the joint system or fracture pattern
- Optimum direction of block extraction

SIMPLEFIED PREFIGURATION OF THE MODERN SMALL SCALE QUARRY CYCLE IN SOUTH AFRICA

1 POTENTIAL QUARRY



2. REMOVAL OF OVERBURDEN & VEGETATION

3. REMOVAL OF (MINE) BOULDER FORMATIONS

4 SOLID FORMATION MINING

5. REHABILITATION: USE WASTE MATERIAL TO CREATE NATURAL PROFILE
6.

7 FINAL REHABILITATED PROFILE

FEATURES OF SOLID FORMATION MINING VS BOULDER MINING

Solid formation mining	Boulder formation mining
• Technically advanced mining methods of high adaptability	• Primitive extraction method
• Continuous optimising of cost	• Cost advantages
• Familiar material supply	• Surprising variety of materials
• Optimum production	• Low production levels
• Reliable supplier	• Unreliable supplier
• Long standing producer	• Generally short life cycle
• High development cost spent	• Low development cost
• Standard material	• Exotic material
• Distinct material classification	• Fluctuations in material quality

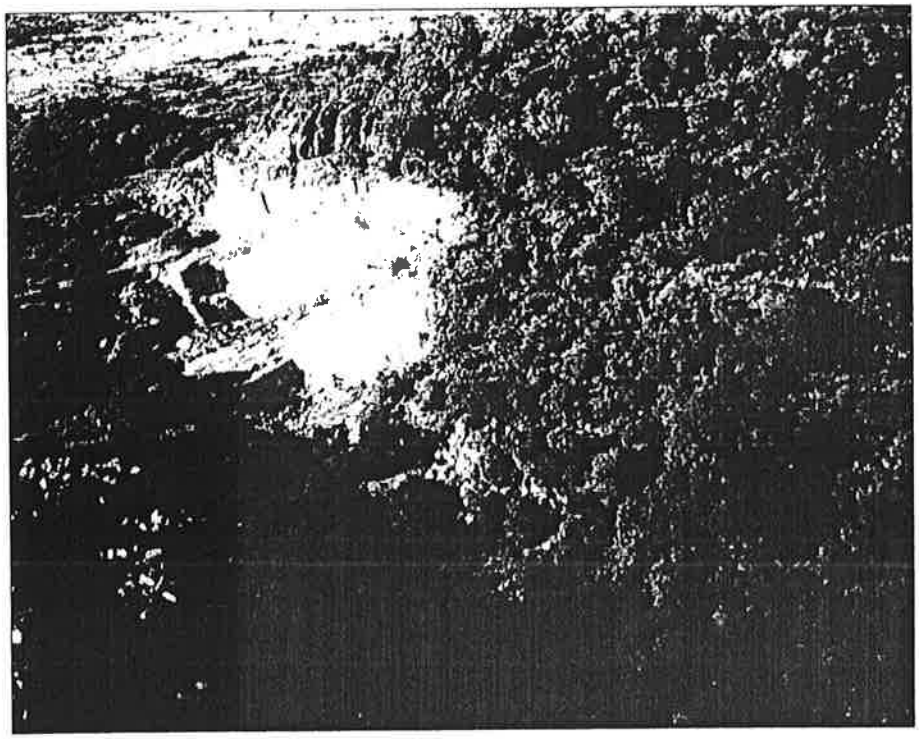
Source: SAGA, 19

The Market desire: Optimum production volumes, reliable supply, consistent quality

According to Kastinen, quarrying methods can be divided into four groups

Boulder Quarrying
This form of quarrying can be described as the easy step into the quarrying business, because of the accessibility of good quality material relatively large profit margin.

Hill side Quarrying
Disadvantages associated to Hill Side Quarrying are that there is no control to bench heights and that controlling of the quarry is limited.



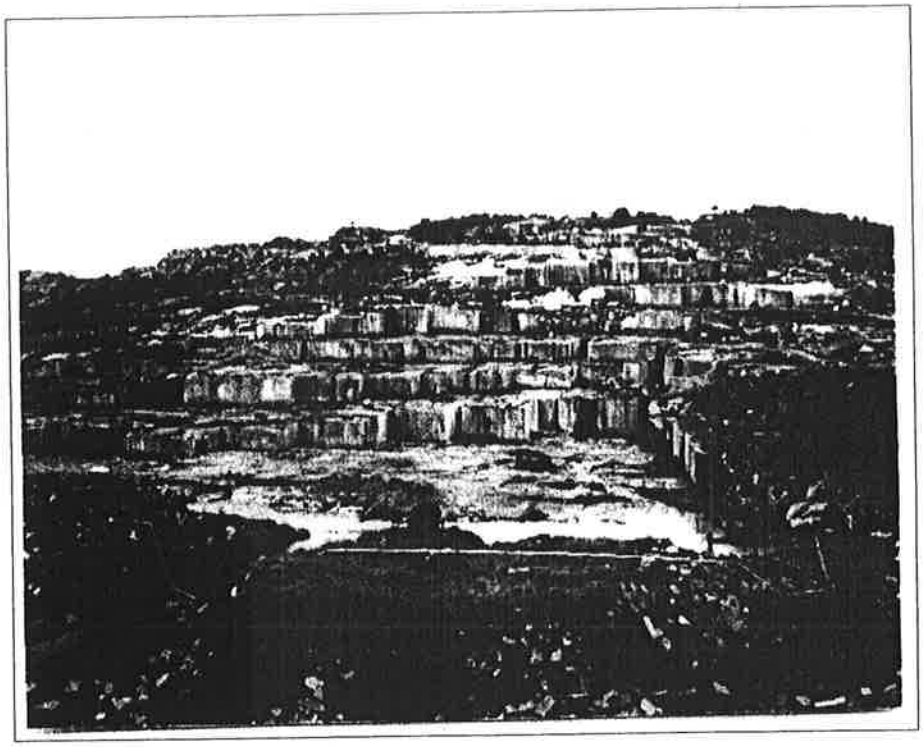
Selective Quarrying

This form of quarrying takes place mostly in areas where gabbro based stones occur and where quarrying takes place according to natural joints.

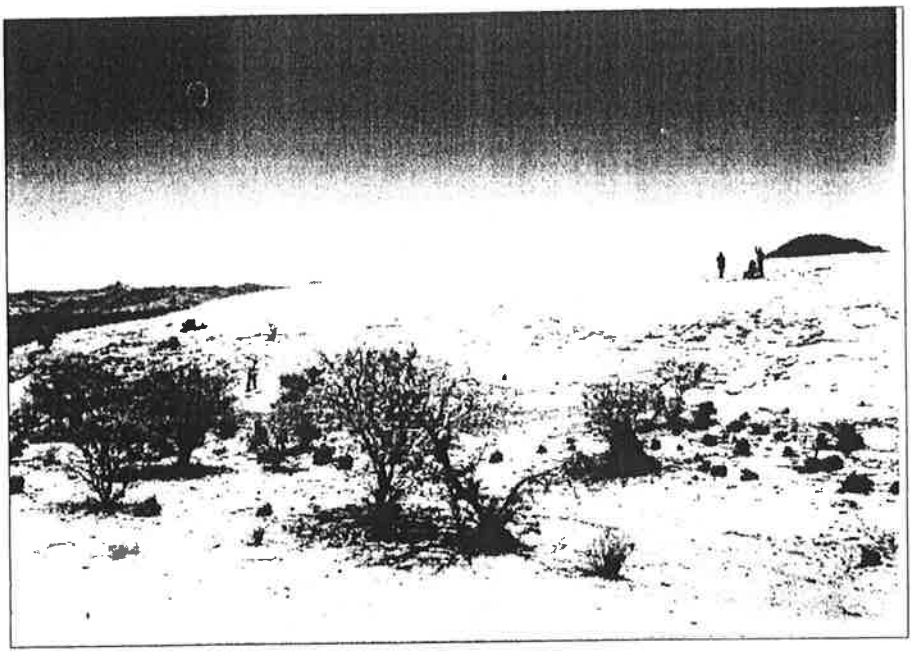
Bench Quarrying

Kastinen describes Bench Quarrying as a method involving controlled quarrying and long term planning. The most common practice is selective bench quarrying.

Developed Solid Formation Mine – Springbok Quarry (North – West Province)

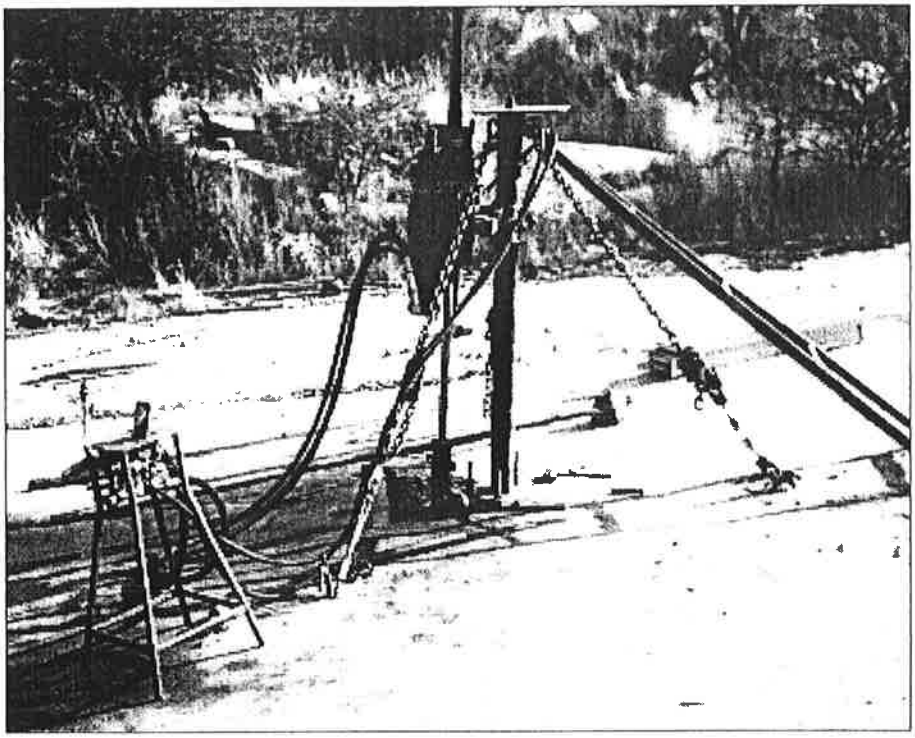


Exploration in Namibia



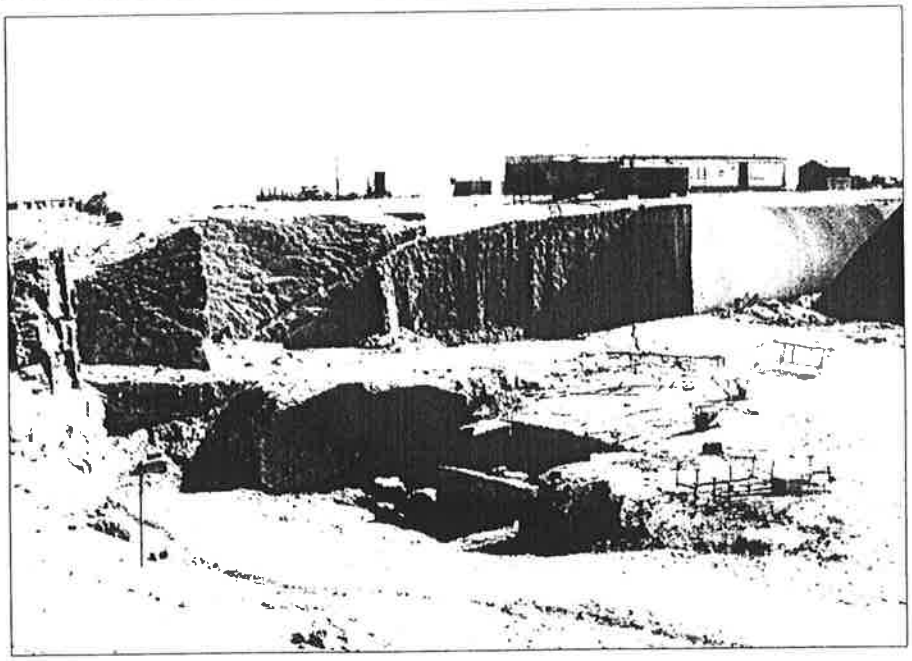
Potential Quarry

Core drilling



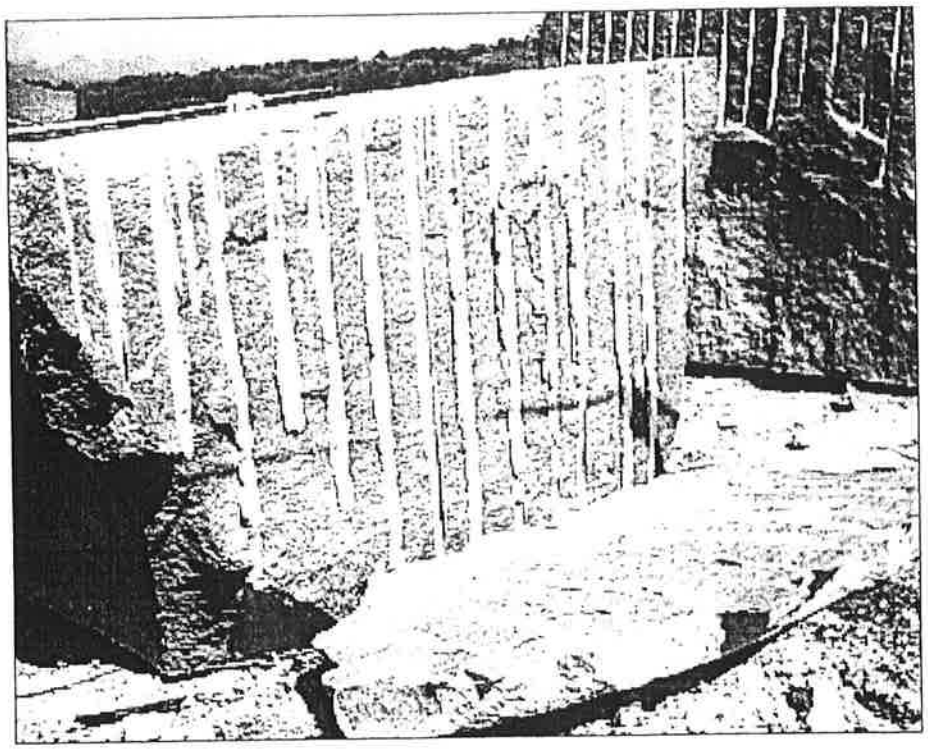
Production Viability Sample

Small – scale Solid Formation Mining – Namibia

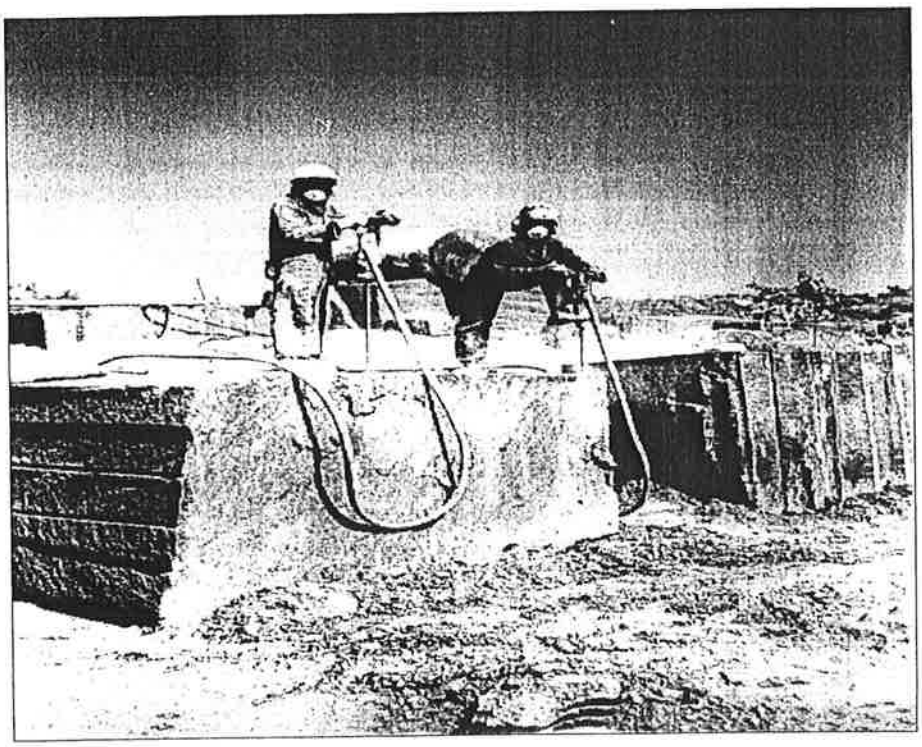


NON – EXPLOSIVE CUTTING METHODS

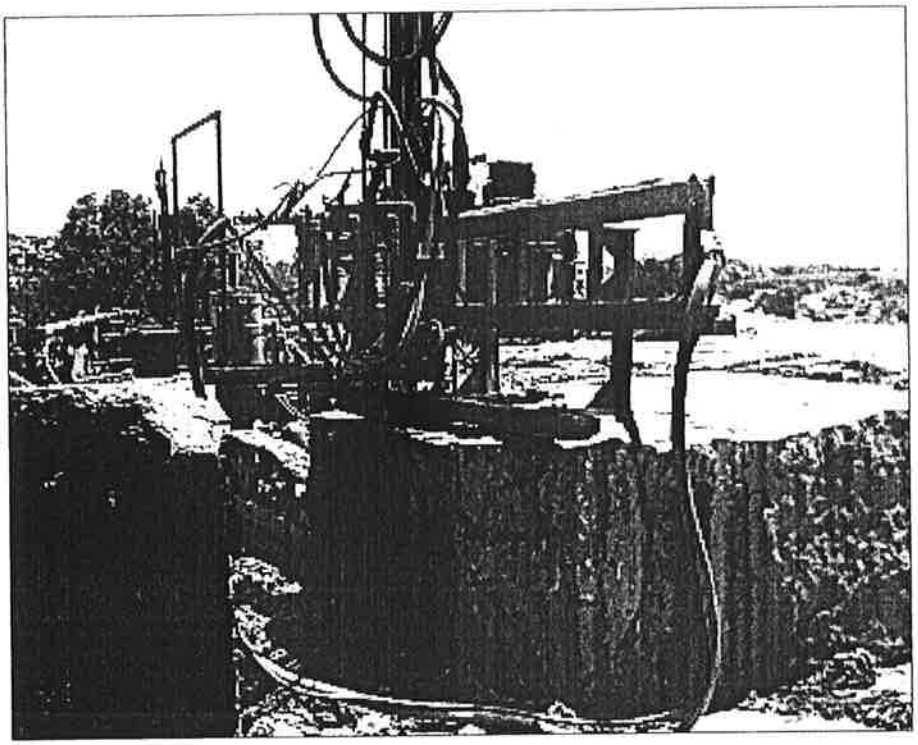
The use of Fract – AG (Expansive Mortar) at dress yards



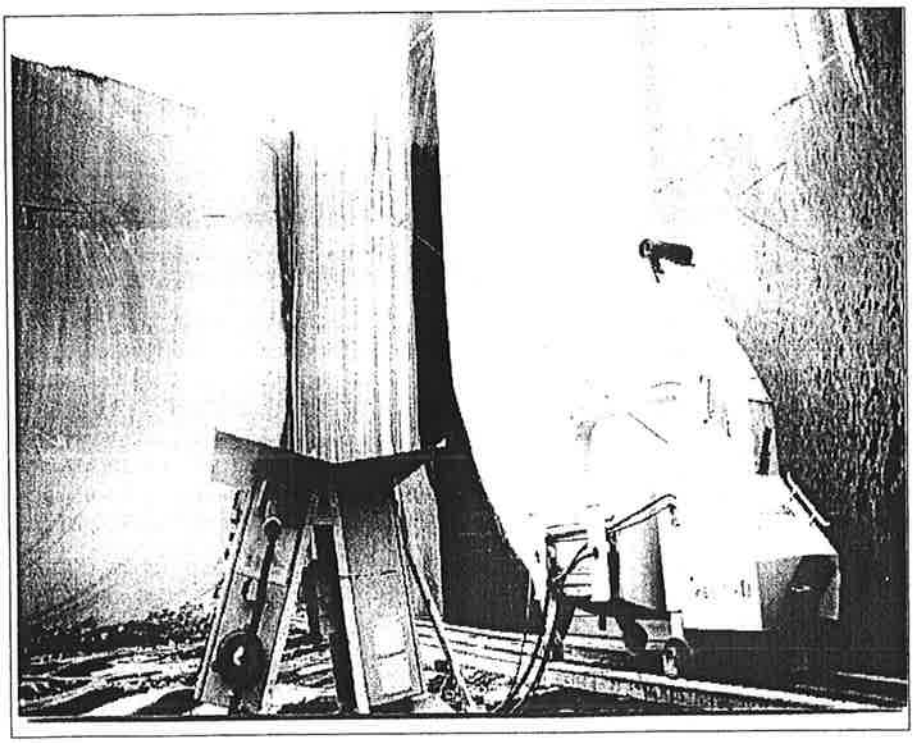
Drilling

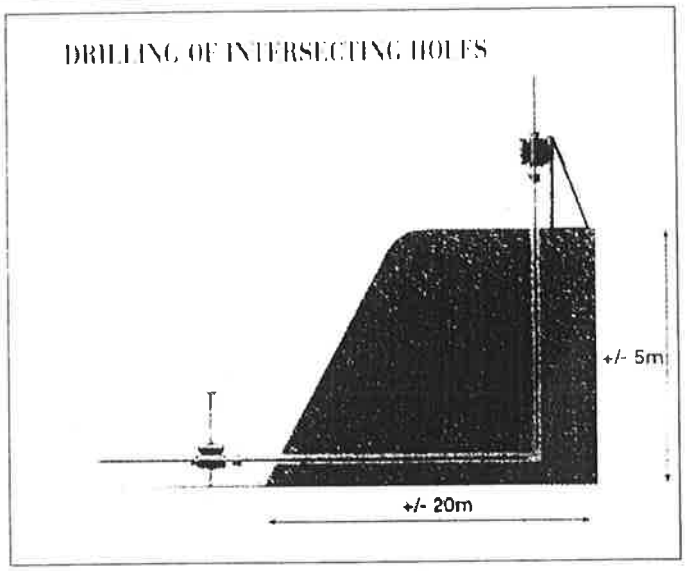


Mechanical Drilling

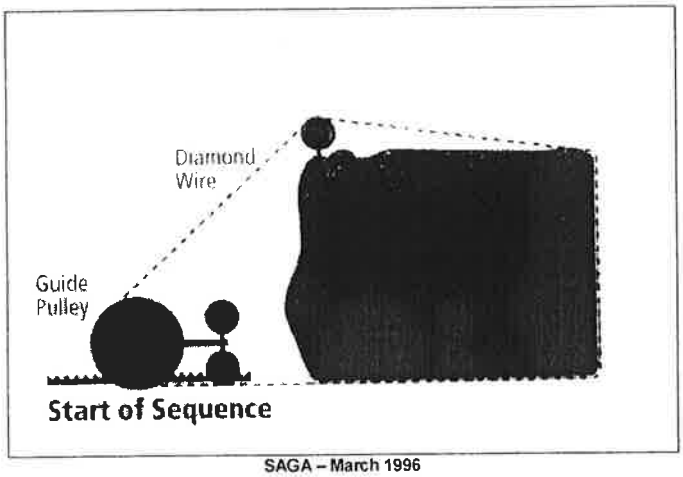


Diamond Wire Saw – Marikana



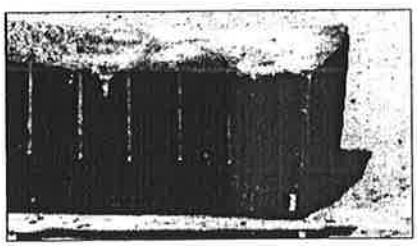


- Metre Eater drilling intersection holes for diamond wire sawing sequence

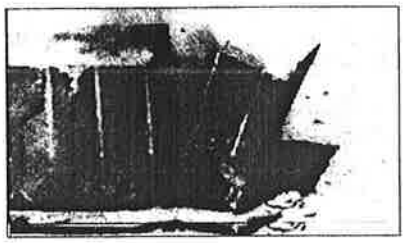


SAGA – March 1996

Cutting with explosives: The use of Black Powder



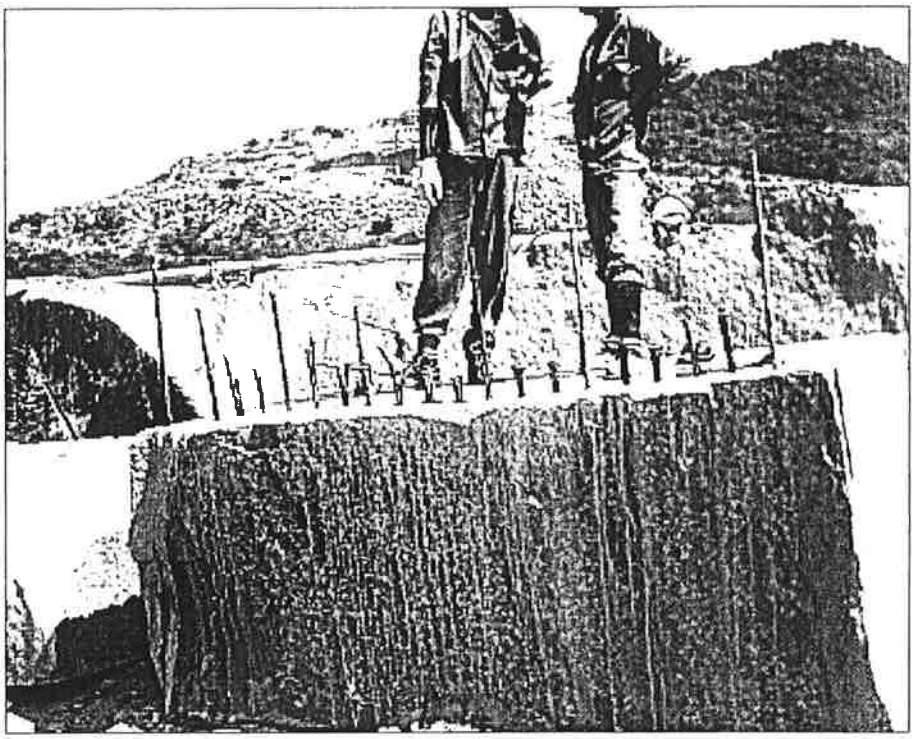
1

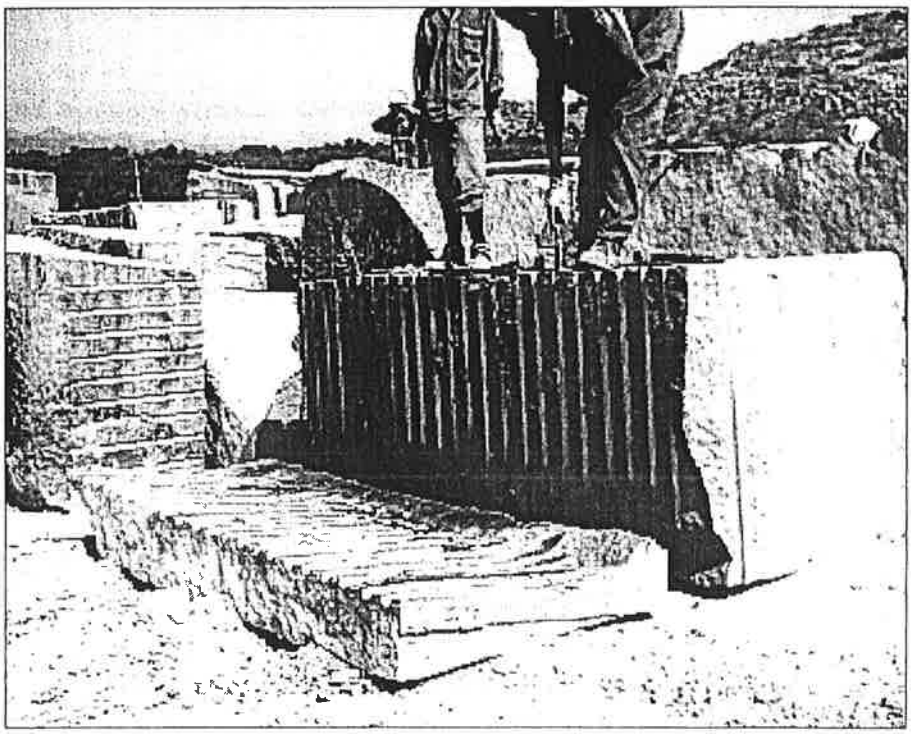


2

Photographs by Mike Speak

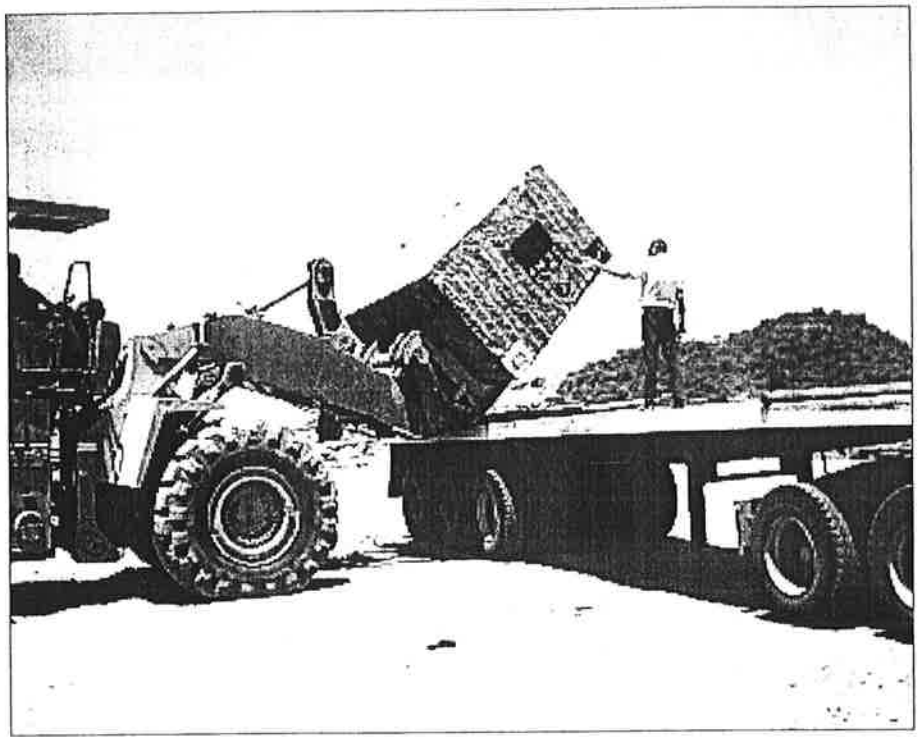
Plugs & Feathers (Non explosive cutting technology)



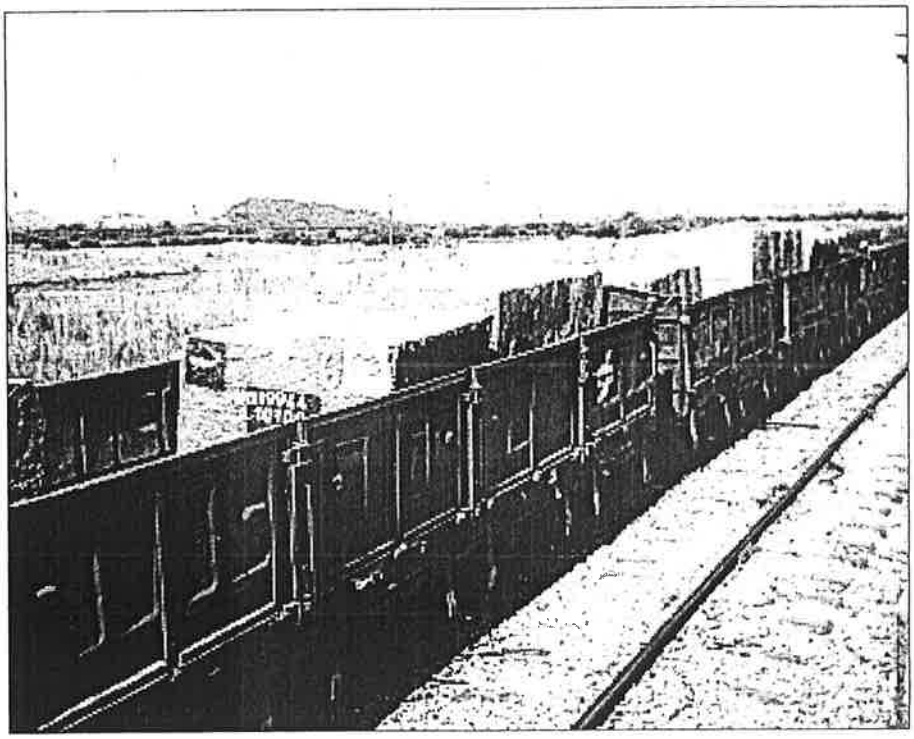


TRANSPORTATION AND PROCESSING OF GRANITE BLOCKS

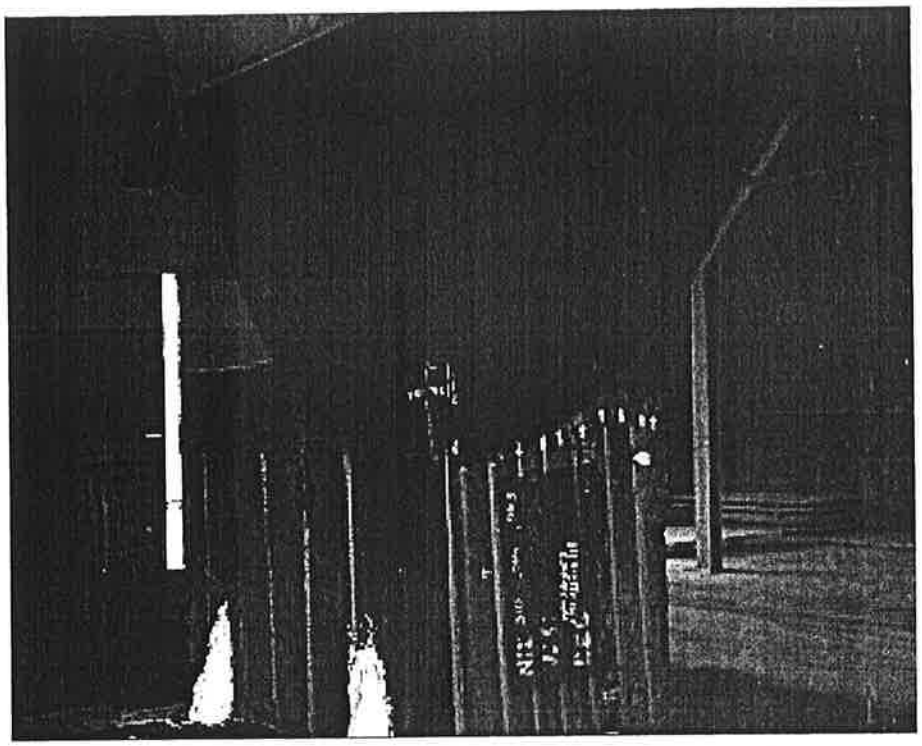
Loader loading block for transportation to Marikana station.



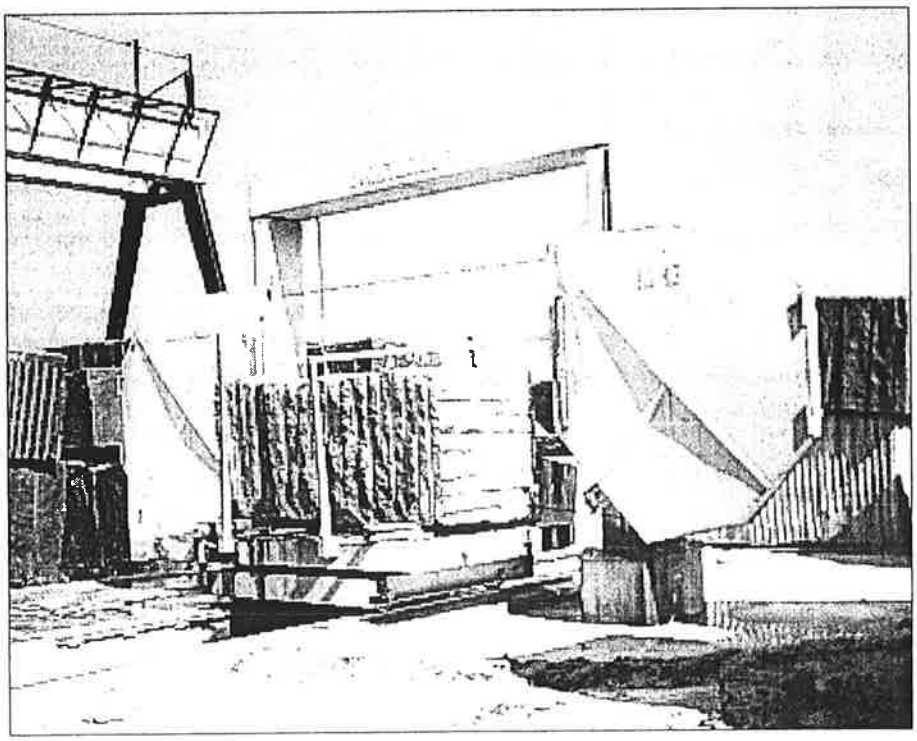
Transportation of blocks to Durban harbour for export to foreign markets



Cutting of a granite block by means of a circular saw



Diamond Wire Saw - Impala



THE DIMENSIONAL STONE MARKET

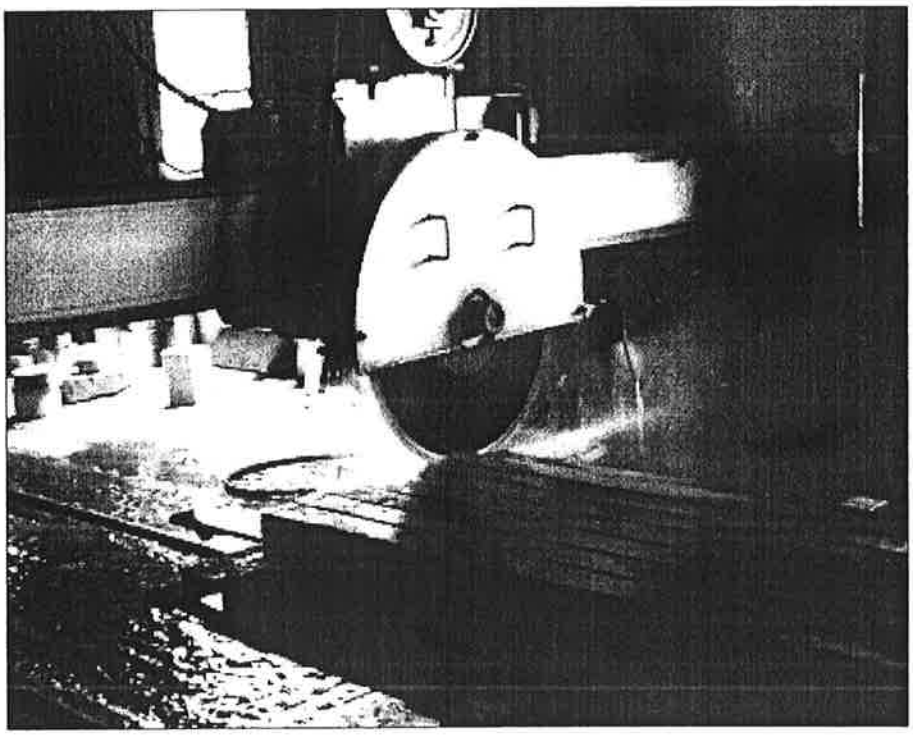
Markets for dimensional stone

- Construction market for buildings
- Monumental masons (tomb stones)
- Furniture

According to Nellis (SAGA, 20) the construction industry forms the backbone of growth of the dimension stone quarrying, therefore the dimension stone mines must meet the following the following requirements of the construction industry:

- Consistent and predictable quality
- Minimum quantities
- Regular and timely supply
- Reliable partners
- Attractive material range

Impala Factory – Brits (Tomb stone manufacturing)



APPENDIX K: QUOTATIONS AND SUPPORTING DOCUMENTATION FOR THE DETERMINATION OF FINANCIAL PROVISION FOR REHABILITATION AND MAINTENANCE

Environmental Services CC
CK 2000 / 027652 / 23

EIM
PO Box 8483
Bonaero Park
1622
Tel: (011) 979 2846
Fax:(011) 979 3788
Cell:083 680 1032
joon@eim.co.za

17 February 2009

FINANCIAL PROVISION FOR REHABILITATION ESTIMATE: WONDERKOP QUARRY: NELL BROTHERS (PTY) LTD

INTRODUCTION

EIM Environmental Services is currently contracted by Finstone SA (Pty) Ltd Companies to determine the approximate cost for rehabilitation of dimensional stone quarries in South Africa.

Attention must be drawn to the fact that there is a distinction between rehabilitation and mitigation of disturbed areas. Rehabilitation involves restoration of a disturbed area to such an extent that it would represent the area before disturbance took place. Implicit within this is that the restoration of the affected area is environmentally sustainable.

To mitigate the negative impact of dimensional stone quarrying means that the disturbed area must be managed. Such management involves the safe making, to both man and animal, areas of disturbance. Also environmental degradation should be minimised to such an extent that the larger part of the disturbed area can rehabilitate through natural ecological processes.

Mitigation of negative impacts of quarried areas can be described as the minimum requirement set out by the Department of Minerals and Energy. Such mitigation has a cost implication and part of the mitigation process is cost estimation for rehabilitation (the everyday term).

In economic terms the difference between rehabilitation of impacts and the mitigation of impacts is cost. Whereas mitigation involves mainly earthmoving costs, costs associated with the erection of safety signs and fencing or barricading, rehabilitation involves detailed aspects such as costs associated with soil amelioration, revegetation, intensive landscaping and rockshading.

The purpose of establishing the approximate cost for rehabilitation / mitigation was to assess if the financial provision for rehabilitation provided by Finstone, is adequate.

METHOD OF ESTIMATIONS:

- Determine the different disturbance types
- Determine the extent of disturbances
- Determine the mitigation measures for unexpected mine closure
- Determine the cost associated with mitigation measures
- Determine the cost of environmental maintenance
- Application of supervision cost
- Application of preliminary and general costs as stipulated in the DME guidelines
- Application of contingency costs as stipulated in the DME guidelines
- Application of Value Added Tax
- Determine the annual escalation in rehabilitation/mitigation costs (Production Price Index for Mining and Quarrying – Table 8)

MAINTENANCE COST MOTIVATION FOR DIMENSION STONE MINING:

INTRODUCTION:

EIM Environmental Services cc was requested by Kudu Granite Operations (Pty) Ltd to utilise existing rehabilitation data in assisting to establish a more realistic aftercare and maintenance cost estimate than that set out in the DME's guideline document for assessing the quantum of financial provision for rehabilitation of mines.

Kudu had previously requested that the Department of Minerals and Energy consider provision of R 2000 per disturbed hectare in respect of the aftercare and maintenance of when taking into account environmental maintenance measures required for dimensional stone quarries, rather that the R7000 master rate contained in the guideline document. This was motivated on the basis that the rehabilitation of dimension stone quarries and waste dumps, and hence the aftercare and maintenance required is significantly different from the typical conventional mine scenarios and assumptions analysed in determining the master rates.

In order to assist in determining environmental maintenance costs related to the dimension stone industry, it is necessary to explain which maintenance tasks would be required after rehabilitation.

EIM are involved with several Closure applications in North West Province and Northern Cape Province. A number of dormant and abandoned quarries have also been evaluated. In terms of environmental maintenance the following aspects usually need attention:

Watering of newly established trees and shrubs during times of drought in the first season only
Removal or eradication of invasive plant species.
Reconstruction of ill constructed erosion control berms on steep gravel access roads or angled mine residue deposits. (Please note that no maintenance related to erosion control berms is required if it is constructed correctly during the rehabilitation phase).

METHODOLOGY:

1. *Data from existing operations*

In order to establish an estimate for environmental maintenance it was necessary to find an indication of maintenance cost derived from existing information.

Data from the rehabilitation and maintenance division of Kudu Granite Operations (Pty) Ltd was used for this exercise. Firstly a cost per square metre was calculated for rock shading and the eradication of invasive plant species, such as Ricinus communis (castor oil tree) and Nicotania Glauca (wild tobacco tree) that could be regarded as the biggest threat in terms of its invasive characteristics in disturbed areas.

Data was collected from 4 quarries as listed in table 1.1 and maps 1 - 4. An average cost of R 0.14 per square metre was calculated. Please note that both rock shading and eradication of invasive species are included in the estimation. This is actually a rehabilitation cost, not a maintenance cost as maintenance only commence after rehabilitation.

TABLE 1.1 REHABILITATION COST FOR ERADICATION OF INVASIVE SPECIES ACCORDING TO DATA FROM KUDU GRANITE OPERATIONS (PTY) LTD

Quarry	m² covered	Rehab cost (R)	cost/square(R)
Taylor	25600	14206.92	0.55
Minaco	119301	6557.04	0.05
Springbok	88316	9835.56	0.11
Marikana	159128	25681.74	0.16
TOTAL AVERAGE COST	***392345***	***56281.26***	***0.14***

Table 1.2 indicates costs associated with the eradication of invasive species only, which is a more realistic representation of maintenance required for a rehabilitated area. Once again it should be made clear that these figures represent information of first time eradication which could be viewed as rehabilitation rather than maintenance of an area in which invasive species have already been eradicated. Less time, effort and products will be required for maintenance over the total maintenance period. The extremely low cost per square metre indicates that the density of weeds were very low as great areas were covered to remove a small population of weeds. It should also be mentioned that a lower number of invasive weeds will require eradication in active mining areas than on dormant or decommissioned areas.

TABLE 1.2: ERADICATION OF INVASIVE SPECIES ONLY (Product cost)

Quarry	m² covered	Maintenance (R)	cost/square(R)
Taylor	19029	202.80	0.01
Minaco	119301	405.60	0.004
Springbok	88316	540.80	0.006
Marikana	141069	473.20	0.003
TOTAL AVERAGE COST	***367715***	***1622.40***	***0.004***

Table 1.3 represents information on the cost of rock shading which forms part of rehabilitation. Maintenance costs relating to rock shading would not be required if rock shading is performed during seasons of low rainfall, as per the company's standard practice, as under these circumstances, the ferric chloride oxidises to haematite and magnetite, which are both stable compounds, and therefore will not wash off the rock surface.

TABLE 1.3 ROCKSHADING COST EXCLUDING LABOUR

Quarry	m² covered	Cost/m²	cost/square(R)
Taylor	6571	12000	1.83
Marikana	18059	15200	0.84
TOTAL AVERAGE COST	**24630**	**27200**	**1.10**

2. Estimates based on detailed itemisation of required work

Maintenance of rehabilitated areas would rely on manual labour to eradicate invasive plant species or if required, reconstruct faulty erosion control berms on angled mine residue deposits or steep haul road inclines. For the purpose of the exercise a quotation from a labour hire company was requested. An hourly rate per labourer of R 21.00 per hour was used that included food, equipment and other maintenance products. It should be noted that this cost could be reduced if labourers from the local community are sourced for the requested work.

The cost for earthmoving machines is not being facilitated in this estimate because rehabilitation work requiring the use of earthmoving equipment would not require maintenance. Rehabilitation tasks utilising earthmoving machines would be limited to backfilling, removal of isolated waste rock and unsaleable blocks, barricading highwalls with blocks and the construction of erosion control berms in areas where the erosion potential is high. The risk of using earthmoving machines in maintenance areas also carries the risk of disturbing already rehabilitated areas mainly because of their size, weight and mobility.

Table 1.4 represents an estimate for costs associated for site establishment. Quotations from various contractors were requested to calculate the approximate costs if no facilities were available on site during maintenance periods. Costs for site establishment would dramatically decrease should infrastructure on the rehabilitation site be available or if manual labourers from the nearby communities could be sourced for the required work.

Maintenance related to Hydroseeding may be required, but it is unlikely. Hydroseeding is also guaranteed for the first 12 months. An after care cost for a hectare is provided for should it be required. A quotation for Dust and Erosion Control was requested for assisting in compiling a cost estimate for Hydroseeding.

TABLE 1.4 SITE ESTABLISHMENT COST ESTIMATION

SITE ESTABLISHMENT	1 YEAR	3 YEARS
HUTS/SHEDS (10 PEOPLE)	840	2520
WATER TANK & STAND	4754	4754
GENERATOR & FUEL	4208.59	4208.59
CHEMICAL TOILET	1279.08	3837.24
ADDITIONAL DELIVERY COST	1026	3078
TOTAL	12107.67	18397.83

Guidance, environmental monitoring and reporting are also being facilitated for the duration of the maintenance period. This will be performed by competent professionals experienced in rehabilitation at a cost of R 250.00/hour and R 3.00/km travel. The duty of the rehabilitation officer would be to:

Identify areas where maintenance would be required.
Identify the maintenance tasks to be performed.
Monitor the maintenance tasks and
Report to the Department of Mineral and Energy

TABLE 1.5: ITEMIZATION OF MAINTENANCE COST ESTIMATION

Maintenance for certain sections within a disturbed area of approximately 40 ha	**Machine /Item/labour**	**Cost/Hour**	**Hours**	**Total (Rand)**
Manual labour cost (food & equipment included) - declared invasive plant species and reconstruction of faulty erosion control berms (10 labourers + 40 h/year/labourer	10	R 21.00	120	R 25,200.00
Possible Hydroseeding (± 10 000 m²) out of total 40 ha at R 7000.00/ha for 2 years				R 7,000.00
Environmental maintenance, supervision, monitoring and reporting for three years		R 250.00	61	R 15,250.00
Site Establishment (Huts/toilets/potable water tanks/generator & additional delivery costs for 3 years				R 18,397.83
Travel – To and from site as well as on site for inspections (2340 km)		R 3.00		R 7,020.00
				R 72,867.83

Maintenance Cost	Rehabilitation Area (ha)			Cost/ha
R 72,867.83	40			R 1,821.70

PPI FOR MINING AND QUARRYING FOR THE PERIOD JUNE 2006 – DECEMBER 2008	11.5%
R 1,821.70 + 11.5%	R 2,031.20 EXCL VAT

LATEST (FEBRUARY 2008) ACTUAL COST ALLOCATED FOR ENVIRONMENTAL MAINTENANCE	12.6%
R 2,000.00 + 12.6% (PPI FOR THE PERIOD NOVEMBER 2006 – DECEMBER 2007	R 2,252.00 EXCL VAT

Additional documentation is comprised of the following:

Quotations for labour hire
Quotations for equipment
GIS map indicating the extent of disturbances

CONCLUSION:

In view of the consistency shown between the analysis of actual costs and the detailed itemization, and taking into account the nature of maintenance work required in rehabilitated granite quarries, we are of the opinion that a basic amount of R 2000.00 per hectare is adequate in regard to financial provision for maintenance of rehabilitation areas related to the dimensional stone industry.

J.A van der Linde
EIM ENVIRONMENTAL SERVICES

QUARRY NAME	**WONDERKOP**
COMPANY	**NELL BROTHERS (PTY) LTD**
FARM	**REMAINDER OF PORTION 1(1297,39 HA)AND PORTION 2(1317,98 HA) OF THE FARM WONDERKOP 400 JQ**
CO - ORDINATES	**25° 38'31.52 S 27° 32 51.23 E**
COST ESTIMATE	**R 436,529.88**

Rock waste dumps (Total area ± 6.90 Ha) Extent of area that need to be rehabilitated(± 4.79 ha)	**Machine /Item/labour**	**Cost per hour (labour included)**	**Hours**	**Total (Rand)**
Removal of isolated waste and/or natural stockpiled boulders to rock waste dump	CAT 988B FEL	R 750.00	18	R 13,500.00
Removal of isolated waste and/or natural stockpiled boulders to rock waste dump	CAT D 30 DUMPER	R 450.00	18	R 8,100.00
Round off work (erosion control & landscaping)	CAT 330 EXCAVATOR	R 450.00	45	R 20,250.00
Rockshading (± 12 000 m²)	R 1,30 / m²			R 15,600.00
Hydroseeding (± 5000 m²)	R 6700,00 /ha or R 0.67 / m²			R 3,350.00
Reallocation of stockpiled growth medium	CAT 988 FEL	R 750.00	18	R 13,500.00
Reallocation of stockpiled growth medium	CAT D 30 DUMPER	R 450.00	18	R 8,100.00
				R 82,400.00

Quarry area (Total area ± 10.49 Ha)Extent of area that need to be rehabilitated(± 5.26 ha)	**Machine /Item/labour**	**Cost per hour (labour included)**	**Estimated hours**	**Total (Rand)**
Construction of safety berms (Blocks)	CAT 988B FEL	R 750.00	36	R 27,000.00
Round off work, including removal isolated waste rock and landscaping with stockpiled soil	CAT 988B FEL	R 750.00	27	R 20,250.00

Hydroseeding (± 4000 m²)	R 6700,00 /ha or R 0.67 / m²			R 2,680.00
Rock Shading (2000 m)	R 13000,00 /ha or R 1.30 / m²			R 2,600.00
Ripping of stockyard	CAT 140 H GRADER	R 520.00	6	R 3,120.00
Round off work (erosion control & landscaping)	CAT 330 EXCAVATOR	R 450.00	27	R 12,150.00
Removal of isolated waste or soil and/or natural stockpiled boulders to rock waste dump	CAT D 30 DUMPER	R 450.00	36	R 16,200.00
				R 84,000.00

Buildings, related structures and temporary structures (± 80 m²)	**Machine /Item/labour**	**Cost per hour (labour included)**	**Estimated hours**	**Total (Rand)**
Demolition work and transportation of temporary structures (containers)	CAT 988B FEL	R 750.00	6	R 4,500.00
				R 4,500.00

Gravel access and haul roads (± 3.38 Ha)	**Machine /Item/labour**	**Cost per hour (labour included)**	**Estimated hours**	**Total (Rand)**
Ripping	CAT 140 H GRADER	R 520.00	27	R 14,040.00
Erosion control berms	CAT 330 EXCAVATOR	R 450.00	9	R 4,050.00
Hydroseeding - ± 16000 m²	R 6700,00 /ha or R 0.67 / m²			R 10,720.00
				R 28,810.00

Gravel Pits ± 17000 m²	**Machine /Item/labour**	**Cost per hour (labour included)**	**Estimated hours**	**Total (Rand)**
Backfilling (Covering base with growth medium)	CAT 988B FEL	R 750.00	9	R 6,750.00
Backfilling (Covering base with growth medium)	CAT D 30 DUMPER	R 450.00	9	R 4,050.00
Backfilling and sloping	CAT 330 EXCAVATOR	R 450.00	18	R 8,100.00
				R 18,900.00

Stock/dress yards - Forms part of the quarry/roads area	**Machine /Item/labour**	**Cost per hour (labour included)**	**Estimated hours**	**Total (Rand)**
Ripping	CAT 140 H GRADER	R 520.00	0	R 0.00
			0	R 0.00
				R 0.00

Disturbance type	**Sub Totals**
Rock waste dumps	R 82,400.00
Quarry areas	R 84,000.00
Buildings, related structures and temporary structures	R 4,500.00
Dressyards / stockyards	R 0.00
Gravel pits	R 18,900.00
Gravel access and haul roads	R 28,810.00
Transportation of machines included with Marikana estimate	R 0.00
Rehab Total	**R 218,610.00**
Additional cost for Supervision	R 10,000.00
Maintenance (22.50 ha that will require maintenance @ R 2,000.00/ha)	R 45,000.00
Sub Total 1	**R 273,610.00**
Preliminary & General (+12%)	R 32,833.20
Contingencies (+ 10 %)	R 27,361.00
Sub Total 2	**R 333,804.20**
Inflation Amount: 12.6%(PPI for Mining and Quarrying Nov 2006 - Dec 2007)	**R 42,059.33**
Sub Total 3: 2008 Total	**R 375,863.53**
Inflation Amount: 1.9 %(PPI for Mining and Quarrying Dec 2007 - Dec 2008	R 7,141.41
Subtotal 4: 2009 excl VAT	**R 383,004.94**
VAT (14%)	R 53,620.69
GRAND TOTAL JAN 2009	**R 436,625.63**

ANNEXURE A: QUOTATIONS

WCM PLANT HIRE (PTY) Ltd

Tel: (014) - 596 6648
Fax: (014) - 596 6235

Co. Reg.: 2003/004678/07
VAT. Reg. No.: 480208660

75 Van Belkum Street
Rustenburg, 0299
P.O. Box 688
RUSTENBURG 0300

EIM ENVIRONMENTAL SERVICES cc
P.O. BOC 8483
BONAERO PARK
1622

17th January 2007

ATTENTION: ME D. DE LANGE
FAX NO: 011-979-3788
CELL NO: 083 680 1032

Dear Me

Re: RATES FOR PLANT AS REQUESTED.

We thank you for affording us the opportunity to submit this quotation and have pleasure in responding as follows:

- ***Hire of 950E Front End Loader*** - ***R 385.00 / Per Hour/ Excluding V.A.T.***
- ***Hire of B20 Bell Dumper*** - ***R 420.00 / Per Hour / Excluding V.A.T.***
- ***Hire of Excavator*** - ***R 415.00 / Per Hour / Excluding V.A.T.***
- ***Hire of Grader*** - ***R 450.00 / Per Hour / Excluding V.A.T.***

This is a WET rate.
Minimum of 9 (NINE) hours per day per machine.
No transport was quoted.
Rates are for the Rustenburg area and does not include living out for Operators.
Order to be faxed thru to the office before work can commence.
No deductions will be allowed if not accepted and signed by management.
All damages caused by vandalism and theft (tyres, batteries etc) for the hire's account.
Standing time 100%, Inclement weather 50% of rate.
Payment strictly 30 days after date of Statement thereafter 2.5% interest per month.

THIS QUOTATION IS ONLY VALID FOR 30 (THIRTY) DAYS.

Yours faithfully

C. WISSEKERKE
Wcm 3255/ r.k.

Alert Fencing Contractors

Phone: (011) 894–4385 / 6 / 7 / 8
Fax: (011) 894–5343
After Hours: (076) 042 1543
E-mail: alertfc@iafrica.com

P.O. Box 6329,
Dunswart
1508

REF NO.: E14-01-07-MD 2007-01-18

ENVIROMENTAL SERVICES
ATTENTION: Delia
TEL NO.: 011-979-2846
FAX NO.: 011-979-3788

Dear Sir

RE: FENCING.

Further to your recent inquiry, we have pleasure in submitting our quotation as follows for the supply and erection of:-

1200 m of 1,8 m high x 75 x 75 x 2,5 mm Diamond mesh fencing to specification as set out below;

- **Posts:** 75 mm round tube posts (primer and silver paint) with pole caps and base plates embedded 600 mm in 15 mpa concrete
- **Stays:** 50 mm round tube stays (primer and silver paint) with stays bolt and base plates embedded 600 mm in 15 mpa concrete
- **Intermediates:** Iscor bitumen dipped standards knocked into the ground at 3,5 m centers
- **Straining wires:** 3,15 mm galvanized mild steel wires x 4 strands
- **Binding wires:** 1,6 mm galvanized mild steel wires

TOTAL PRICE:	R 77 500-00	V.A.T. EXCLUDED
	R 10 850-00	V.A.T.
	R 88 350-00	V.A.T. INCLUDED

COMMENCEMENT: 5 days after confirmation COMPLETION: 15 working days

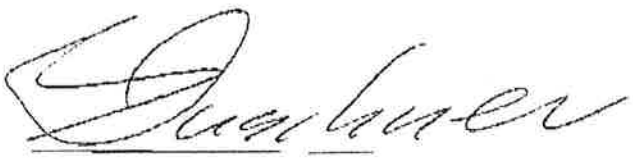
This quotation is subject to the following conditions :-

1. Prices are subject to steel and labour escalation based on the specific gate and fence manufacturers SEIFSA FORMULA. Although prices are subject to the SEIFSA FORMULA, this quotation is firm for 30 days only, from date hereof

2. Water for mixing of concrete will be supplied by yourselves free of charge on site.
3. Specification.
4. Site unseen.
5. Please notify the contractor of underground cables, sewer – and water pipes.
   We will not be held responsible for any damages without such notification.
6. SETTLEMENT: Nett on completion unless otherwise arranged
7. It is agreed and understood that ownership in all material supplied and erected by us remains the property of ALERT FENCING CONTRACTORS GAUTENG CC until paid for in full.

We assure you of the best workmanship and material and thank you for the opportunity of tendering.

Yours faithfully



Martin Daschner

For more information on our company and our products visit our website

www.alertfencing.co.za

or email us at

info@alertfencing.co.za

or me personally at

martin@alertfencing.co.za

Sani-tech
No 5, Second Street, Midrand Industrial Park, Commercia
P.O. Box 3053, Halfway House, 1685
Tel : (011) 310-7040 Fax : (011) 310-3518
Website : www.sanitech.co.za

Quote No. EIM

Construction Quote

Customer

Company: EIM ENVIROMENTAL SERVICE
Address:
Phone No.:
Contact: DELIA
Fax No.: 011 979 3788

Date: 15/01/2007
Order No.:
Vat Reg. No.:

Delivery / Collection Details

Site In: RUSTENBURG
Address:
Delivery Date: TBA
Collection Date: TBA

Qty	Description	Unit Price	TOTAL
1	**Hire of construction portable chemical Toilet** *(Per unit per month or part thereof)*	R222.00	R222.00
0	**Hire of construction portable chemical Toilet(Flush)** *(Per unit per month or part thereof)*	R285.00	R0.00
4	**Services a month (per service per unit)** *(An additional service will be charged for a 5 week month)*	R135.00	R540.00
1	**Transport : Delivery and Collection to site (Once Off)** *Please Note: A 24 Hour Lead Time is requested for delivery*	R900.00	R900.00
	Please Note : The recommended ratios as set by the Portable Sanitation Association recommend 1 toilet for every 10 workers with a weekly service to ensure sanitary conditions are met.		
		SubTotal	R1,662.00
		Vat 14%	R232.68
		TOTAL	R1,894.68

Confirmation Details

We hereby accept the Quote as above from Sani-Tech (PTY) Ltd. We also accept the price and conditions of the quote and verify them as correct.

Name:
Company:
Order No.:
Signature:

Office Use Only - Authorisation signature

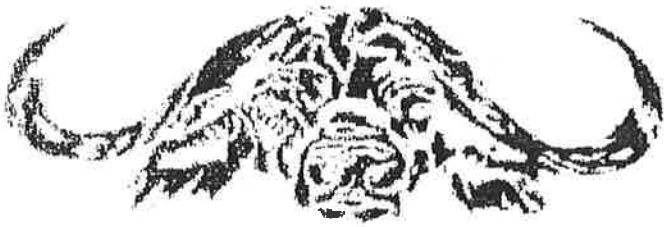
Sarah Breedt
Email: sarahb@sanitech.co.za

Terms and Conditions

**** Terms for payment are strictly to be paid in advance before delivery will take place ****
QUOTE IS VALID FOR 14 DAYS ONLY
Quote is subject to availability.
Cancellation of hire contract needs to be confirmed in writing or telephonically
(an off hire number will be given as a reference)
Transport will be charged for units that are cancelled when already delivered to site.
Toilets are to be accessible to service crew at all times as if inaccessible a service charge will still be charged.
A Spare Key for the locked units needs to be given to service crew to allow servicing
The Hirer will be held responsible for the unit while in their possession.
For special access conditions E.g. Red cards, Inductions these prices are excluded from the quote and will effect the above prices.
If no confirmation is received, toilets will not be booked automatically.
We require a faxed confirmation well in advance
as well as details of buyer and person responsible for payment.

Clearly a seat above the rest!

M.C. FENCING
QUOTATION



61 Allblack Rd
Anderbolt
Boksburg-North

Tel:(011) 917-0221
Tel:(011) 917-0247
Fax:(011) 892-4366
EMAIL:mcfence@cis.co.za

Vat No : 4690212354 / CC No : 2003/067044/23

Att:	MNR VAN DER LINDE		
Company:			
Adress:			
Tel:	011-979-2846		
Fax:	011-979-3788	QT NO:	16423
Cell	083-6801032		
EMAIL:		Date:	17-01-2007

ALL GOODS REMAIN THE PROPERTY OF M.C.FENCING UNTIL FULLY PAID

Qty	Description	Total
We Thank you for your valued enquiry and have pleasure in submitting		
the following quotation.		
TO SUPPLY AND INSTALL:		
	OPTION - 1 RUSTENBURG	
	600 m x 1.2 m High 5 Strands Double Strain barbed Wire Fence	24,800.00
	OPTION - 2 POFADDER	
	600 m x 1.2 m High 5 Strands Double Strain barbed Wire Fence	30,250.00
	SPEC: Straining Posts 76 mm Round tubing every 30 m	
	Stays : 38 Round Tubing Knock-In Y-Standards Every 6 m Apart	
	Droppers 1.2 m Long Every 2 m Apart	
	Tubing Materials Painted Silver QD	
	SITE NOT SEEN . Accomadation Not Included	
Please do not hesitate to contact me should you require any information		
regarding this quotation		
Sales Rep:	FRANS ACKERMAN	Sub Total:
Rep Cell:	076-681-9167	Vat 14%:
		Quote Total:

50% DEPOSIT AFTER APPROVAL.

CONDITIONS OF SALE/CONTRACT.

(a) Signed and accepted quotation are considered as binding.
(b) Payments is due on date of completion, unless M.C.FENCING are notified in writing three days before completion.
(c) It is assumed that ground will be clear,level and of pickable nature.
(d) Should ground conditions necessitate the need of a compressor, this will be charge as an extra.
(e) Please notify M.C.FENCING of under ground cables, sewer pipes or telephone cables as we will not be held responsible for any such damage/damages if not notify prior to commencement.
(f) Water for the mixing of concrete will be supply by client at no cost to M.C.FENCING and there nominated sub-contractors.
(g) **M.C.FENCING reserves the right to remove all property that has not been paid for.**
(H) All workmanship quaranteed for TWELVE MONTHS from handover.

COLEGO INDUSTRIES trading as :

PROFESSIONAL LABOUR HIRE & MINING SUPPLIES

Labour Hire Consultants & Suppliers

21 Van Zyl Street
Pienaarsdorp
P O Box 11365
KLERKSDORP 2570
Tel : 018 464 4148
Fax : 018 464 3098
e-mail : proflab@gds.co.za
website : www.proflab.co.za

16 January 2006

Messrs E I M
P O Box 8483
BONAERO PARK
1622

e-mail to delia@eim.co.za

Dear Sirs

QUOTATION: SUPPLY OF LABOUR : RUSTENBURG

With reference to our telephone conversation and your request, we have pleasure in submitting our quotation as follows:

10 x Labourers (5 days) ..... R28.50 p/h per person

- Price quoted includes:
- Payment to statutory bodies viz. Workmens Compensation; Regional service council levies; P.A.Y.E.; Training levies etc.
- Administration of employees' wages and payroll.
- The handling of staff disciplinary procedures, labour disputes (inclusive of any CCMA cases)
- The provision of a liaison officer to act as an intermediary between employees and the Company.

NOTES:

- The regulations as stated in the Basic Conditions of Employment Act apply, in respect of overtime payment, public holidays etc.
- All control of staff remains vested in yourselves.
- A placement fee is applicable in the event of an employee being appointed to the permanent staff.
- Prices quoted exclude VAT.
- No allowance has been made for medicals .
- No allowance has been made for training.
- No allowance has been made for bonuses or incentives.
- No allowance has been made for accommodation and/or transport.
- PPE for your account.

Yours faithfully

COLIN ENGELBRECHT
PROFESSIONAL LABOUR HIRE

GOODALL INDUSTRIAL (PTY) LTD

GOODALL INDUSTRIAL · GOODALL HIRE CENTRE · MASTERLINE QUALITY CONSTRUCTION EQUIPMENT

HEAD OFFICE
CAPE TOWN
FAX +27 (0)21 510 ...
E-MAIL ...

310-378 LANSDOWNE ROAD
LANSDOWNE
CAPE TOWN
FAX +27 (0)21 ...

UNIT 3 GALLAGHER PLACE
CNR ... RD & RICHARDS DRIVE
MIDRAND GAUTENG
... 6336 HALFWAY HOUSE 1685
FAX ...
E-MAIL ...

X

QUOTATION / KWOTASIE

4042

TO / AAN: EIM
ATT: DELIA DE LANGE
(T) 011 979 2846
(F) 011 979 3788.

DATE / DATUM: 17/01/07
YOUR REF / U VERW:
OUR REF / ONS VERW:
ATTENTION / AANDAG:

WE THANK YOU FOR YOUR ENQUIRY AND TAKE PLEASURE IN SUBMITTING THE FOLLOWING QUOTATION
ONS BEDANK U VIR U NAVRAAG EN DIT IS MET GENOEë DAT ONS DIE VOLGENDE KWOTASIE VOORLê:

ITEM No: / ITEM Nr:	DESCRIPTION/BESKRYWING	QUANTITY / HOEVEELHEID	UNIT PRICE / EENHEID PRYS	DISCOUNT / KORTING TRADE / HANDEL	SETT / VERLT
1)	EP 2500 CX HONDA Generator	1	4300.00	—	4300.00

HONDA POWER PRODUCTS

REMARKS: / OPMERKINGS: PRICE EXCL VAT.

THIS QUOTATION IS VALID FOR 30 DAYS FROM DATE HEREOF AND SUBJECT TO THE GOODS BEING AVAILABLE WHEN THE ORDER IS PLACED	☒	HIERDIE KWOTASIE IS GELDIG VIR DAE VANAF HIERDIE DATUM EN IS ONDERHEWIG AAN DIE BESKIKBAARHEID VAN VOORRAAD WANNEER DIE BESTELLING GEPLAAS WORD
IMPORTED ITEMS ARE SUBJECT TO EXCHANGE RATE FLUCTUATIONS	☒	INGEVOERDE GOEDERE IS ONDERHEWIG AAN BUITELANDSE WISSELKOERS
V.A.T. HAS NOT BEEN INCLUDED IN THE PRICE	☒	B.T.W. IS NIE BY DIE PRYS INGESLUIT NIE
PRICE INCLUDES DELIVERY JHB + Pretoria ONLY	☒	PRYS SLUIT AFLEWERING IN
RAILAGE/ROAD/AIR FREIGHT CHARGES FOR YOUR ACCOUNT	☒	SPOORWEG/PAD/LUGVRAG KOSTE IS VIR U REKENING

ELIZABETH CORREIA
CELL: 082 738 2001

FOR AND ON BEHALF OF / VIR EN NAMENS
GOODALL INDUSTRIAL (PTY) LTD

[signature]

DIRECTORS: B.A. SHURRIE, A. PETERSEN
Reg. No. 1990/001531/07

Ref. 469

DANAPRINT ... 1650

ALS PLANT HIRE

ALS PLANT HIRE (Pty) Ltd
Reg. Nr 2000/029759/07
Vat. Nr 4410191854
Tel/Fax (018) 290 6060
Fax 0866342532

P.O. Box 2579
Potchefstroom, 2520
www.alsplanthire.co.za
admin@alsplanthire.co.za

QUOTATION - KWOTASIE

NO: 2336

TO: EIM ENVIROMENTAL SERVICES
ADDRESS: PO BOX 8483
BENAERO PARK 1622
CONTACT PERSON:DELIA DE LANGE
TEL: 011 - 979 2846
FAX NO: 011 - 979 3788
E-MAIL: jo on@eim.co.za

DATE: 17/01/2007
TIME: 11H30
WHEN NEEDED: TBA
WHERE NEEDED: ROOSSENEKAL
PERIOD NEEDED:
CELL NO: 083 680 1032

THIS QUOTE IS VALID FOR USE OF EQUIPMENT: INTERMEDIATE

TYPE OF EQUIPMENT	MAKE	MODEL	TARIFF /HR	FUEL /HR	TRANSPORT TO SITE	TRANSPORT FROM SITE	REMARKS
ADT	BELL	B25	R 300 - 00	DRY	R 6 500 - 00	R 6 500 - 00	EA

CONDITIONS:

MIN PERIODE: 3 MONTHS
MIN. HRS: 9,5 HRS / DAY
STANDING TIME: 100%
RAIN TIME: 50%
INSURANCE. : INCLUDED
QUOTE VALID FOR: 7 DAYS

OPERATOR ACCOM: EXCLUDED
PROTECTIVE CLOTHING: INCLUDED
MEDICAL INDUCTION: EXCLUDED
V.A.T.: EXCLUDED
G.E.T.: EXCLUDED

PAYMENT CONDITIONS: NEW ACCOUNTS ALL TRANSPORT TO AND FROM SITE CASH UP FRONT HOURS WORKED 30 DAYS NETT FROM DATE OF INVOICE

MAX ROCK SIZE: 500mm³ (no more than 500mm diameter)

SPECIAL CONDITIONS:

1. ON RECEIPT OF ORDER HIRE AGREEMENT AND CREDIT APPLICATION MUST BE COMPLETED BEFORE ANY MACHINES WILL BE DESPATCHED
2. TYRE DAMAGE DUE TO BAD HAUL ROAD MAINTANANCE WILL BE FOR YOUR ACCOUNT.
3. QUOTE SUBJECT TO AVAILABILITY OF EQUIPMENT AT TIME OF ORDER
4. OFFICIAL ORDER MUST BE SUBMITTED TO ENSURE RELEASE OF MACHINES.
5. PROOF OF CASH UP FRONT PAYMENT MUST BE SUBMITTED

P. ENGELBRECHT		PHC	17/01/2007
FULL NAME	SIGNATURE	CAPACITY	DATE

ACCEPTANCE OF ALL CONDITIONS

FULL NAME	SIGNATURE	DATE

Camelot Mining (Pty) Ltd

Railway Street Ext., Brits
P.O Box 426, Brits, 0250
Tel: (012) 252-0201
Fax: (012) 252-0688

17-Jan-07

This quotes are valid for the first six months and are subject to machine availability.

EQUIPMENT	RATE EXCLUDING VAT
CATERPILLAR 988B - LOADER	R750.00 p/h
CATERPILLAR 980C - LOADER	R570.00 p/h
CATERPILLAR 330 - EXCAVATOR	R450.00 p/h
CATERPILLAR D30 - DUMPER	R450.00 p/h
CATERPILLAR 428 TLB	R200.00 p/h
GALION GRADER	R200.00 p/h
80Kw GENSET	R960.00 p/d
TRACTOR	R200.00 p/h

Yours truly,

Dave Hyslop

Dust & Erosion Control cc

Ck 98/25515/23

P.O. Box 1448
Heidelberg
1438

Tel: (016) 349 5407
Fax: (016) 341 7535
Cell: 08 3 284 5385
E-mail: dec@worldonline.co.za

Attention:	Jaco v. Linde	Date:	17/01/2007.
Company:	Elm Environmental	Ref. No:	2371
Fax No:	011 975 7806.	Pages:	2. 1

TENDER

Contract: Grassplaat - 9 Provinsies
Contract No:
Message ± R6000.00/ha minimum van 2ha.
Enquiries: Piet Venter R6700.00 alles ingesluit - Saad - Kunsmis + aanwending.

TENDER - QUOTATION CONDITIONS

ACCEPTANCE OF THIS QUOTATION/TENDER IMPLIES ACCEPTANCE OF ALL CONDITIONS

This quotation:

- **Excludes Vat.**
- **Is subject to escalation as per main contract.**
- **Does not provide for unexpected cost escalation, for example fuel and material.**
- **Excludes soil sampling and analysis.**
- **Excludes maintenance and watering unless otherwise stated.**
- **Is valid for a minimum of 90% of tendered quantities.**
- **Provides for one visit to site only, unless otherwise stated.**
- **Is valid for a period of 90 days from date of tender.**

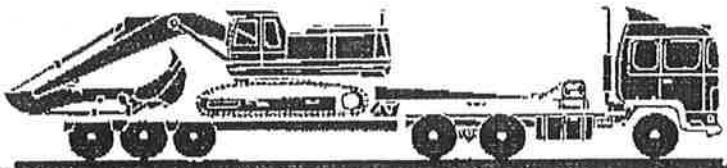
Water other than from a standard tap, should be available on site, at no cost.

DUST & EROSION CONTROL is not responsible for:

- **Erosion which occur prior to or after seeding/sodding/sprigging.**
- **Weeds which may occur on site before or after grass seed germination and establishing, as DUST & EROSION uses only weed-free grass seeds/sods at all times.**
- **Lack of germination/growth due to drought, insufficient watering, any extreme climatic conditions of traffic of whatever kind.**

During the grassing process, DUST & EROSION requires the presence of a representative of the client/consultants.

Payment terms are strictly 30 days from date of invoice. (10% retention)



TRANSCOR

Time: _____
Date: _____
FAXED

Transcor Truck Hire (Pty) Ltd
Reg. No. 1976/03497/07
Cnr. Third & Setter Streets
Midrand Industrial Park
Commercia, Midrand
P.O.Box 3708 Halfway House 1685
Telephone (011) 310-1671
Telefax (011) 310-1598

TO: EIM ENVIRO SERIVES

ATT: DELIA DE LANGE

FAX: (011) 979 3788

DATE: 15 JANUARY 2007

FROM: RUDI ENGELBRECHT

SUBJECT: TRANSPORT QUOTE

With regard to the above I would like to thank you for allowing us the opportunity to submit a price to convey the following from Rustenburg to Betane:

Load:

Cat 980
Cat 20ton Excavator
Cat 950E
Cat 120G
Bell B20

R 5,300.00 : Site Establishment
R 5,800.00 : Per Day

The above price excludes VAT,

I trust you find this satisfactory.

Kind regards

RUDI ENGELBRECHT
Email: rudi@transcor.co.za

Please note: All work carried out is subject to our General terms and Conditions of Contract, a copy of which is available on request. Should our services be engaged it would be deemed that these conditions are acceptable.

Prices exclude VAT.
Site Establishment to be determined.
Prices subject to change.
Quotation valid for 30 days only.
Machines subject to availability.
Working hours – 9 hours per day (From 7h00 to 17h00)
Dry tariff – Machines delivered with full tank of diesel and be returned with a full tank of diesel.

Thanking you

Natalie

V5000 LT WATER TANK R 1963.85
V2500 LT WATER TANK R 1325.55
3M TANK STAND R 3600.00
4.5M TANK STAND R 4600.00

PRYSE SLUIT BTW UIT.

BAIE DANKIE
MARIUS OPPERMAN
0829215730

APPENDIX L: PETROCHEMICAL POLLUTION PREVENTION POLICY AND CODE OF PRACTICE FOR THE USE OF FERRIC CHLORIDE

FERRIC CHLORIDE USAGE FOR ROCKSHADING (REHABILITATION) CRADLE TO THE GRAVE PROCESS

DELIVERY OF FERRIC CHLORIDE TO MINE PREMISES

- Ferric Chloride must be transported with a vehicle licensed to transport the chemical substance.
- Transport vehicle must have all the necessary warning signs portrayed.
- The liquid chemical substance transferring system must be examined for leaks before transferring starts.

TRANSFER OF FERRIC CHLORIDE TO TANK

- Delegated persons must be responsible for the transfer process.
- Responsible persons must wear PPE
- Responsible persons must not fill up the Ferric Chloride Tank to the maximum (10 000 l).

TRANSFER OF FERRIC CHLORIDE TO SMALLER CONTAINERS

- Delegated persons must be responsible for the transfer process.
- Responsible persons must wear PPE.
- Equipment must be examined for leaks before transferring the Ferric Chloride.

PROTECTIVE CLOTHING AND EQUIPMENT

Employees responsible for Rockshading must always wear their PPE. PPE include the following clothing and protective equipment.

• **Protective clothing:** ➢ Chemical resistant suit ➢ Chemical resistant gloves ➢ Chemical resistant boots	• **Protective equipment:** ➢ Eye screens ➢ Respirators ➢ Milk Cream

ROCKSHADING PROCESS – (APPLYING FERRIC CHLORIDE TO GREY ROCK SURFACES)

- Ferric Chloride must be transferred to chemical resistant spray backpacks. The substance must be applied to disturbed rock faces or waste rock, by using the chemical resistant spray backpacks.

- The substance should be applied in such a manner as to prevent spillage, without compromising the effectiveness of the applied substance.

- Rockshading must not occur during the rainfall season or during any other damp climatic conditions.

- Rockshading on waste dumps must be executed in such a manner as to minimise any situations of falling. On wastedumps where there is a risk of falling or slipping, employees must make use of a safety rope to ensure the safety of the person that applies the Ferric Chloride.

REHABILITATION OF FERRIC CHLORIDE SPILLAGES

All Ferric Chloride spillages must be rehabilitated by using Agricultural Lime at contaminated areas.

PETROCHEMICAL POLLUTION PREVENTION POLICY

Any petrochemical substance shall be handled in a responsible manner in order to minimize the risk of petrochemical pollution.

Any petrochemical spillage that may occur at any mine shall be reported to the Mine Manager as soon as the chance presents itself.

All petrochemical spillages shall be rehabilitated.

No petrochemical substance shall be discarded of in a manner that will be detrimental to the environment

All petrochemical substances shall be stored in contained designated areas as required by regulations contained in the relevant national legislation.

Emergency containment foundations and walls will be constructed around all fuel tanks, oil storage facilities workshops and wash bays in order to minimize the impact of a major spillage.

Used petrochemical substances shall be safely contained and collected by registered contactors for recycling.

The management of any petrochemical substances around workshops will be the responsibility of the relevant Workshop Manager.

Earth moving machines as well as any other vehicles and equipment using petroleum products shall be maintained to minimize potential petrochemical spillages.

General Manager

MARLIN
GROUP