2

DME 12



Department: Minerals and Energy REPUBLIC OF SOUTH AFRICA

the **dme**

Private Bag X6076, Port Elizabeth 6000, Tel: (041) 396 3900 Fax: (041) 396 3946 Cnr.Diaz and Mount Roads Mount Croix Port Elizabeth,6001

Enquiries: D.A. Watkins E-mail: deidre.watkins@dme.gov.za Reference: Date: EC30/5/1/1/3/2/1(0136)EM 18 November 2009

South African Heritage Resources Agency P.O. Box 758 **GRAHAMSTOWN** 6140

CaselD: 2164

ATTENTION: MR. T. LUNGILE

Sir

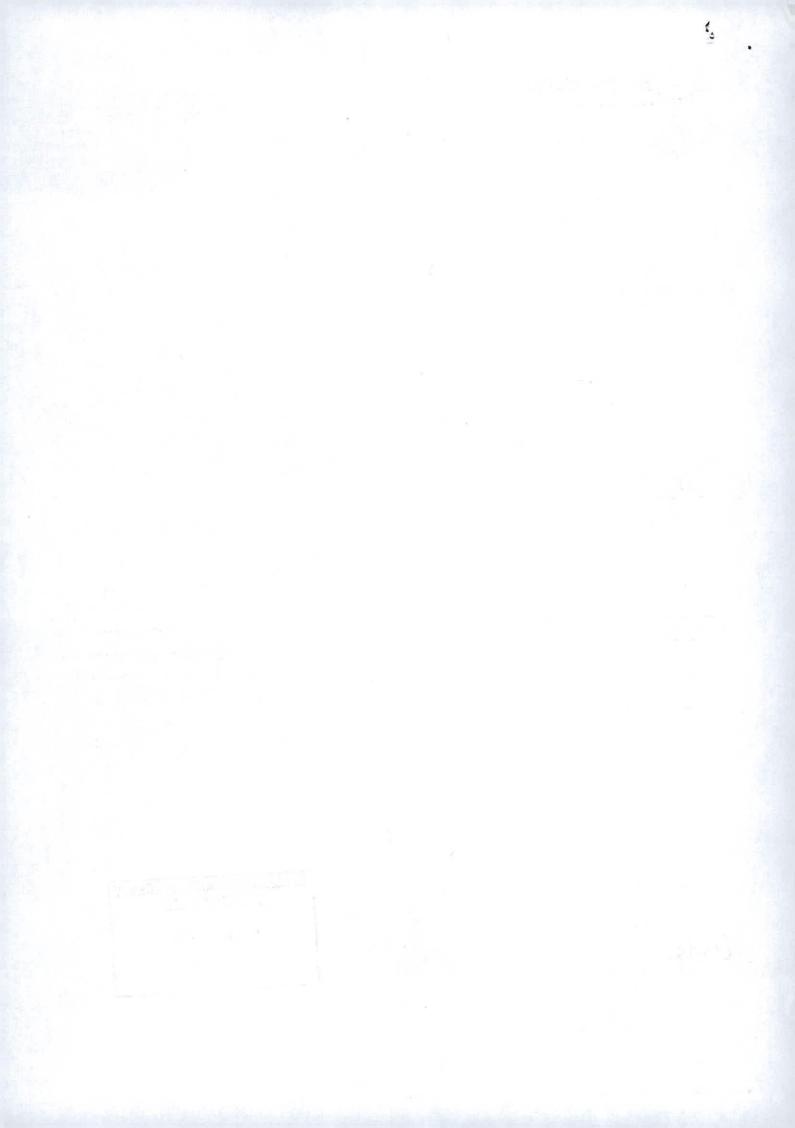
CONSULTATION IN TERMS OF SECTION 40 OF THE MPRDA OF 2002: PROSPECTING FOR GRAVEL ON THE FARM KAKKERLAKS VLEI NO. 400, DIVISION OF UITENHAGE AND ERF 1362, BLOEMENDAL, DIVISION OF PORT ELIZABETH, EASTERN CAPE

- 1. Mrs R J van Der Berg applied for a prospecting right. Attached the following for your comments:
- Contact details of the applicant
- Locality Map;
- Broad project description
- Please forward any written comments or requirements your department may have in this regard, to this office no later than <u>15 January 2010</u>. Failure to do so, will lead to the assumption that your department has <u>no objection(s) or comments</u> with regard to the said documents.
- 3. Consultation in this regard has also been initiated with other relevant State Departments.
- 4. Please use the reference numbers as indicated in all future correspondence.
- 5. Your co-operation is appreciated.

Yours faithfully

REGIONAL MANAGER EASTERN CAPE

R	E	CEI	URCES AGENCY VED
1	8	МДү	2010

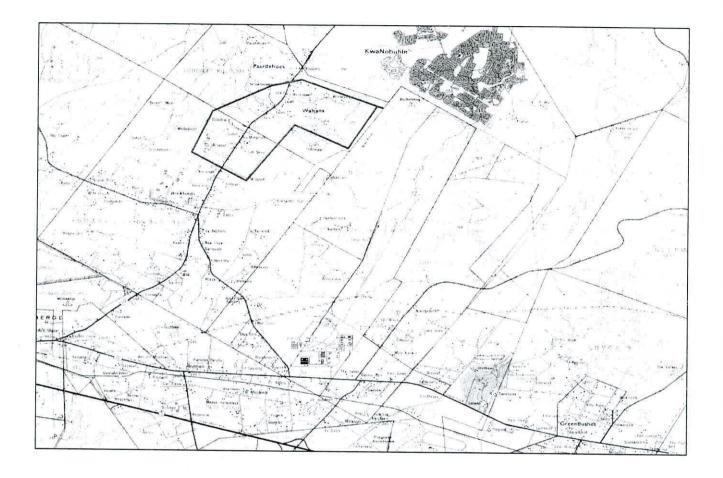


PARTICULARS OF THE APPLICANT	Ρ,	AF	5.	ΓI	C	U	LA	AF	S	C)F	Т	H	IE	A	P	P	L	E	C.	A	N	IT	1	:
------------------------------	----	----	----	----	---	---	----	----	---	---	----	---	---	----	---	---	---	---	---	----	---	---	----	---	---

Full name of applicant for permit	R. J. Van der Berg
ID number of applicant	5607150009089
Address	P. O. Box 13655
	Vincent Park
a	5217
Telephone number	0834134194
Fax number	None
Property description	Erf 1362/Bloemendal AA &
	Kakkerlaks Vley 400
Name of the subdivision	
Locality of prospecting area	a a a a a a a a a a a a a a a a a a a
XY Co-ordinates A	
See prospecting plan for further detail	
Magisterial district	Port Elizabeth
Holder of mineral rights	State
n	
Registered owner of the property	Nelson Mandela Municipality
Telephone number	041-5065555
Postal address	P.O. Box 834
	Port Elizabeth
	6000
Current uses of surrounding areas	
Commonage; Mining & Semi-wildernis	A
Name of the nearest town(s) or settlement	'S
West – Greenbushes ± 5km	
East - Booysens Park ± 3km	

REGIONAL SETTING

The prospecting area is situated approximately 20km from Port Elizabeth town centre. Access to the prospecting area is via the Stanford gravel road leading towards Bethelsdorp or via Mission Road.



BROAD PROJECT DESCRIPTION

Although the prospecting programme covers the whole of the two properties (±900ha), prospecting will only be done on the flat plateau areas and all drainage lines will be excluded due to environmental reasons.

The proposed prospecting area of will be divided in three phases as depicted on the prospecting plan. During the first phase of the prospecting programme an excavator on a low-bed will be used to dig ±20 trenches to establish the depth and nature of overburden. Depth of the prospecting trenches will be 2m deep or until bedrock or clay layers are encountered. Seven samples each will be taken in each area for analysis at a local laboratory to determine the plasticity index and CBR values. The nature of the geology will be logged, a photographic record will be kept and the boreholes will be covered up before continuing to the next phase.

DETAILS OF THE MINERALS TO BE PROSPECTED FOR

Prospect will be carried out to determine residual deposit of red gravel covering quartzite on the plateau areas. Red gravel is a weathering product of the underlying quartzites of the Peninsula Formation. Prospecting depth will be two to three meters.



REGIONAL GEOLOGY

Minerals

The geology of the property consists of steeply dipping quartzites of the Peninsula Formation, which consist of medium to coarse grained sandstone, which has become quartzitic in places. The Peninsula Formation in the area has been deeply incised by a number of watercourses giving rise to steep valley sides. There are no gravel deposits on the steeper valley sides and these areas will be excluded from prospecting and future mining. The Peninsula Formation sedimentary rocks are severely folded, jointed and fractured with the upper layers giving rise through chemical and physical weathering to course sandstone gravel. This material display a reddish colour due to iron pigmentation and the deposits are between 1 and 2 meters thick. The upper weathered layer is also known as the Kirkwood Formation.

An indicator of red gravel is the deep purple pebble layer and the entire area displays these pebbles which guarantee the availability of the material. The depth of the underlying sandstones is several hundred meters deep. In some areas the gravel is underlain by clay layers causing small pans to develop and will be excluded from mining. In other areas chemical weathering has resulted in deep clay based layers with no red gravel present. These areas will also be excluded from prospecting if these areas can be visually determined.

Dykes and Faults

The area displays no igneous rock intrusions and no major fault lines have been observed on the geological maps studied.

Refer to the geological map for more information.

DME 12



Department: Minerals and Energy REPUBLIC OF SOUTH AFRICA

the **dme**

Private Bag X6076, Port Elizabeth 6000, Tel: (041) 396 3900 Fax: (041) 396 3946 Cnr.Diaz and Mount Roads Mount Croix Port Elizabeth,6001

> EC30/5/1/3/3/2/1(0381)EM 18 November 2009

Enquiries: D.A. Watkins E-mail: deidre.watkins@dme.gov.za Reference: Date:

South African Heritage Resources Agency P.O. Box 758 **GRAHAMSTOWN** 6140

ATTENTION: MR. T. LUNGILE

Sir

CONSULTATION IN TERMS OF SECTION 40 OF THE MPRDA OF 2002: LIMESTONE MINING ON THE REMAINDER OF PORTION 1 (THORNDALE) OF THE FARM GOUS KRAAL NO. 257, DIVISION OF JANSENVILLE, EASTERN CAPE

- 1. Attached herewith, please find a copy of the EMP received from SA Lime Eastern Cape Pty) td.
- Please forward any written comments or requirements your department may have in this regard, to this office no later than <u>16 January 2010</u>. Failure to do so, will lead to the assumption that your department has <u>no objection(s) or comments</u> with regard to the said documents.
- 3. Consultation in this regard has also been initiated with other relevant State Departments.
- 4. Please use the reference numbers as indicated in all future correspondence.
- 5. Your co-operation is appreciated.

Yours faithfully

REGIONAL MANAGER EASTERN CAPE



M	REGION INFRAL ASTERN	S AM	UQ B	ENE	FIG	Y
PHIV/	TE NUC	[23]	VA A	TS	KX	6076
	2009	-'1	1-	1	7	
-	PORT EL	1740	E FE	1, 61	000	
s.	STREEK INERAL 005-K	EEN	VSP	VEF	GIF	

130 Cape Road ; Mill Park ; P.E., 6001 PO Box 16501, Emerald Hill, 6011 Republic of South Africa Telephone: National (041) 374 0842 International +27 41 374 0842 Facsimile: National (086) 657 7703 International +27 86 657 7703 e-mail : rudi@algoacme.co.za

ENVIRONMENTAL MANAGEMENT PLAN



This report is an addendum to the mining permit application for a proposed open pit mining operation in the Mount Stewart area intended to supply limestone to the agricultural sector and Portland Cement manufacturers within South Africa. This report is undertaken in compliance with the Minerals and Petroleum Resources Development Act, Act 28 of 2002

November 2009

TABLE OF CONTENTS

1	INT	RODUCTION	4
2	PAR	RTICULARS OF THE APPLICANT	4
3	DET	AILS OF THE LAND AND THE AREA	5
	3.1	TOPOGRAPHICAL MAPS	
	3.2	REGULATION 2(2) PLAN	
4	PAR	RTICULARS OF THE LANDOWNER	6
5	SUN	MMARY OF MINING WORK PROGRAMME	6
6	DES	CRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED	7
	6.1	TOPOGRAPHY & LAND DESCRIPTION	
	6.2	CLIMATE	
	6.3	GEOLOGY	
	6.4	Soils	
	6.5	GROUND – AND SURFACE WATER	
	6.6		
	6.7	FAUNA	
	6.8 6.9	SOCIO-ECONOMIC SCENARIO	
	6.9 6.10		
	6.11	NEIGHBOURING ACTIVITIES Cultural Heritage	
7	ENV	/IRONMENTAL IMPACT ASSESSMENT	15
	7.1	SOIL REMOVAL	16
	7.2	VEGETATION REMOVAL	16
	7.3	REMOVAL OF ANIMALS	
	7.4	AIRBORNE DUST	
	7.5	NUISANCE NOISE	
	7.6	SURFACE- AND GROUND- WATER	
	7.7	DESTRUCTION OF CULTURAL HERITAGE	
	7.8	GENERAL WASTE LIBERATION	
	7.9	SURROUNDING SMALL STOCK FARMING.	
	7.10	TRAFFIC IMPACT	19
8	SUN	MMARY AND MITIGATING MEASURES OF THE IMPACTS	20
	8.1	GENERAL	20
	8.2	Air Quality	20
	8.3	WATER COURSES	21
	8.4	FAUNA & FLORA	21
	8.5	GEOLOGY AND SOILS	
	8.6	Cultural Heritage	
	8.7	CLOSURE OBJECTIVES FOR THE QUARRY	22
9	ENG	GAGEMENT OF INTERESTED & AFFECTED PARTIES	22
10	REH	IABILITATION PLAN	23
	8.1	Access Roads	22
	8.2	WASTE MANAGEMENT	
			23

8	3.3	STORMWATER MANAGEMENT	.24
8	3.4	MINING AREA	.24
8	8.5	REHABILITATION TIMEFRAMES	. 25
8	8.6	MAINTENANCE PERIOD	
0.8	3.7	ENVIRONMENTAL AWARENESS PLAN	
11	FINA	ANCIAL PROVISION FOR REHABILITATION	.26
1	1.1	SPREADING OF TOPSOIL	. 26
	1.2	REPLANTING OF VEGETATION	. 26
	1.3	MAINTENANCE PERIOD	.26
-	1.4	TOTAL PECUNIARY VALUE	
12	CON	ICLUSIONS AND RECOMMENDATIONS	.27
13	UND	DERTAKING TO ADHERE TO THIS EMP	.28
14	ANN	IEXURE 1 : CIPRO DOCUMENTATION	.29
15	ANN	EXURE 2 : RESOLUTION TO ACT ON BEHALF OF THE COMPANY	.30
0004254	15153546		
16	ANN	IEXURE 3 : MAPS , PLANS AND LAYOUTS	31
10	-		
17		IEXURE 4 : TITLE DEED OF LAND	22
1/	Ann		.52
18	A NIN	IEXURE 5 : SPECIALIST HERITAGE REPORTS	22
10	ANIN	IEAURE 5 : SPECIALIST HERITAGE REPORTS	.33
40			
19	ANN	IEXURE 6 : CONSULTATION WITH I&A PARTIES	.34
20	ANN	IEXURE 8 : MINING WORK PROGRAMME	.35

1 INTRODUCTION

S.A. Lime Eastern Cape (Pty) Ltd, ("S.A. Lime EC") is a small enterprise focusing on the production and supply of high quality limestone and gypsum to the PPC Cement's factories as well as to the agricultural communities in South Africa. S.A. Lime EC recently lodged an application for a Mining Permit to mine limestone under Section 27 of the Mineral & Petroleum Resources Development Act, Act 28 of 2002, ("MPRDA"), at the Department of Minerals & Energy, ("DME"), in Port Elizabeth. This Environmental Management Plan to S.A. Lime EC's Mining Permit Application is being conducted in terms of the Mineral & Petroleum Resources Development Act, Act 28 of 2002 and its Regulations.

2 PARTICULARS OF THE APPLICANT

S.A. Lime Eastern Cape (Pty) Ltd (trading as S.A. Lime EC Opencast Mine) has one other mining permit for gypsum with reference number EC 13/2009 MP and DME office reference number EC 30/5/1/3/2/0328 MP valid until 26 May 2011.

Item	Description	Detail			
2.1	Full name of Company	S.A. Lime Eastern Cape (Pty) Ltd			
2.2	Registration number of Company	2006/02764/07			
2.3	Certified copy of certification of incorporation.	See Annexure 1			
2.4	Certified copy of certification to commence business	See Annexure 1			
2.5	Copy of resolution of representative for the company	See Annexure 2			
2.6	Contact Person	Mr Henke Pistorius			
2.7	Applicant's Telephone number	012 – 346 4594			
2.8	Applicant's Facsimile number	012 – 346 4359			
2.9	Applicant's Cell phone number	082 – 881 1119			
2.10	Applicant's Physical Address	R338 Road – Farm 257, Ptn. 1 Mount Stewart Jansenville			
2.11	Applicant's Postal Address	P.O. Box 12444 Hatfield 0028			
2.12	Contact person's e-mail address	<u>henke@salime.biz</u> ursela@icon.co.za			

The relevant information regarding the applicant for this mining permit is as follows :

3 DETAILS OF THE LAND AND THE AREA

3.1 Topographical Maps

S.A. Lime EC Opencast Mine is applying for a mining permit over a 1,5 hectare area for the mining of limestone for agricultural and industrial uses. The site is located at 33° 07' 06" S and 24° 25' 32" E.

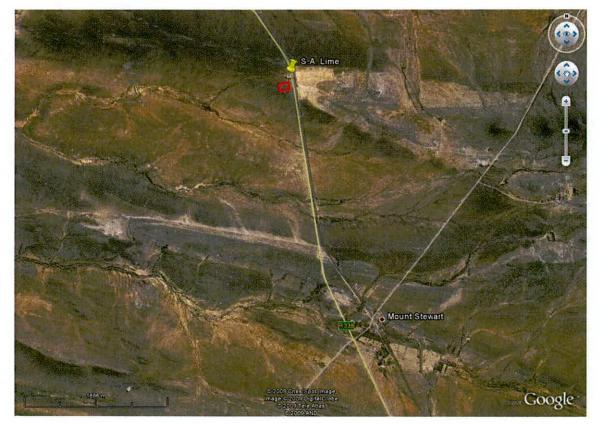


Figure 1: Locality of the proposed mining permit area shown on a Google earth image

See Annexure 3 : Maps , Plans and Layouts for any further extracts of topographical maps depicting the area.

3.2 Regulation 2(2) Plan

See Annexure 3 : Maps , Plans and Layouts for the plans contemplated in Regulation 2(2) of the Mineral & Petroleum Resources Development Act, Act 28 of 2002. These plans have been prepared by a registered Mine Surveyor, who has used Trimble Global Positioning System equipment. The coordinates of the study area are depicted on the survey plan and the coordinates of application of this mining right have been plotted by the DME's Mineral Resource Management System in the Spatial Information System.

4 PARTICULARS OF THE LANDOWNER

S.A Lime Opencast Mine plans to mine the limestone on a portion of Portion 1 of the Farm East of Gous Kraal, nr 257, situated in the magisterial district of Jansenville in the Ikwezi District Municipal area of the Eastern Cape. Mr Peter Cawood is the land owner and uses the property for his small stock farming. The total area of the farm is 1033,5686 ha of which only 1,5 ha will be utilised for the mining permit area. The title deed details are shown as :

Title Deed Extent		Owner	Administrative district	Local authority		
T25861/1977	1033,5686	Peter Logie Cawood	Jansenville	Ikwezi Local Municipality		

See Annexure 4 : Title Deed of Land for detail descriptions of the land and its use.

5 SUMMARY OF MINING WORK PROGRAMME

See Annexure 3 : Maps , Plans and Layouts for detail showing the topographical contours, mine boundaries and related infrastructure. The mine surface area dips gradually westwards more or less perpendicular to the R338 Regional road. A culvert just north of the mining permit area cuts underneath the road facilitating stormwater flow from the east to the west. As a minor dip is in a northerly direction, a stormwater cut-off drain is planned to be constructed along the southern boundary. This leaves the northern boundary available for the stacking and storage of any possible topsoil. Minimal topsoil exists in the area, but where any topsoil is present, it would be stripped off and stacked no higher than 2,5m in the designated areas and clearly demarcated as such. It will be protected with suitable plant cover for use of rehabilitation afterwards.

S.A. Lime Eastern Cape (Pty) Ltd has successfully concluded an Off-take & Supply Agreement with Portland Cement producers. The mining methods to be used for all limestone to be mined will be opencast - open pit stripping. No blasting with explosives is envisaged and all minerals will be free dug by means of mechanical excavators and loaders. The limestone is then loaded onto dump trucks and then transported to various sites of PPC Cement, who will beneficiate these minerals as raw materials. The mining operations will follow the sequence of :

- Topsoil removal and stacking
- Stripping off of minerals
- Replacing of Topsoil
- Rehabilitating the affected areas

November 2009

The operational pit width will be 30 metres wide and will be mined in strips starting from the east with a single 3,0 m vertical lift. The minerals are screened to meet the customer's specifications. About 65% of all ROM material mined, is expected to yield as saleable material. The remainder, the fine material (35%), is transported back to the quarry as a backfill. Thus, the topography is lowered by only about 2,0m. Once the first strip had been mined, then the second strip of 30m wide will commence and the backfilling of the quarry could start at the most eastern boundary. As the mining face advances westwards up until the western boundary had been reached 5 strips further, the backfilling and the replacement of any topsoil continues concurrently. Once the mining is completed, the rehabilitation of the affected areas should be completed within one month thereof.

Only four sloped areas will remain behind along the perimeter of the mine boundary. These sloped areas will be about 2,0 metres lower than the original ground level and will have an inclination of not less than 18 degrees with the horizontal. The four benches will be constructed during the operational phase and maintained until rehabilitation thereof. The planned daily production rate for the minerals will be about 250 m³ / day and the reserve should last about 5 months.

6 DESCRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED

6.1 Topography & Land Description

The surrounding area is flat expansive open Karoo veldt with distant mountain ridges. The area is mostly used as large goat farming areas with scattered Karoo bushes. The site and surrounding area is zoned for agricultural use and utilised as pastures for goat -& sheep small stock farmers. The owner of the land where the limestone reserves are found is also a farmer who has angora goats. Boundary fences of the farmers are vermin proof to protect the sheep and goats.



Figure 2: Surrounding environment of the mining permit area

Adjacent to the proposed quarry site, between the road and the farm lands, an old road borrow-pit quarry has been left un-rehabilitated which poses a threat to the livestock and the motorists using the road.

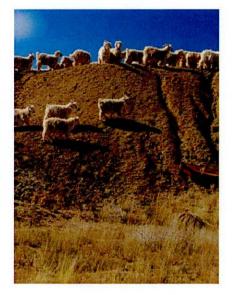


Figure 3: The embankments of the old road quarry borrow pit

6.2 Climate

The climate is very hot and dry and water is at a premium. During the winter months the area does not receive rainfall and during the summer the rainfall is low. It receives "a-seasonal" rainfall but with a clearly bimodal pattern. Mean Annual Precipitation (MAP) is low (around 220 mm per annum). The mean annual temperature is ~17°C (Mucina and Rutherford, 2006) with an average of 22 days of frost per year. Peak precipitation generally occurs in late summer (Mucina and Rutherford, 2006), although that does not guarantee that wetlands and streams will be inundated every year and they can be dry for several years (Davies and Day, 1998), dependent on local climatic conditions.

6.3 Geology

S.A. Lime EC's limestone deposit is found north of the Small Winterhoekberg Mountains within the Whitehill Formation of the Ecca Group of the Karoo Supergroup. This formation overlies the Prins Albert Formation, which lies on top of the Dwyka Group. A close-up view of the geology of the area is shown in the figures below, the Whitehill formation is shown in light reddish brown, with Gy, denoting the presence of Gypsum and Limestone.

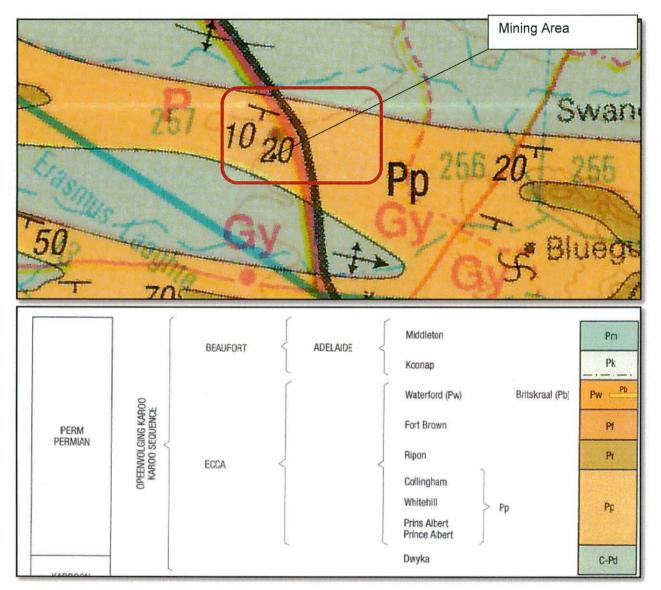


Figure 4: Map and legend of the location of the proposed limestone quarry for SA Lime EC.

The limestone that is to be mined is clearly visible within the adjacent roadside quarry borrow pit and the new mining area applied for.



Figure 5: The white limestone between the other surface minerals.

November 2009

6.4 Soils

Little or no fertile soil is found on the mining site. The surface soil is hard and exposed, with minimal vegetation cover and is very stony. Any excavation in the area indicates the shallow topsoil layer and the underlying unconsolidated subsoil and mineral for extraction.



Figure 6: Topsoils and Subsoils are very stony with very little humus.

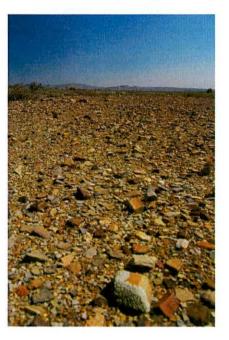


Figure 7: The surface soils contain very little if any fertile topsoil.

6.5 Ground – and Surface Water

Local boreholes in the area indicate that the water table is deep (±150m deep) and the water quality is good. Framers abstract water from boreholes via windmills and catch water in shallow earth dams in non-perennial water courses. Part of the rehabilitation objective of the mine once mining has seized, would consequently be to catch any run-

off stormwater from the adjacent R338 road in a dam-like excavation for the farmer's later on. A culvert passes underneath the R338 road some 100m north of the mining area and water flows in a westerly direction. This water is caught in an earth dam / waterhole, which was dry at the time of investigation, for animal drinking purposes.

6.6 Vegetation

The surface soil is hard and exposed, with minimal vegetation cover and is very stony. The loss of vegetation within the mining area is definite as open cast mining requires the total removal of the overlying topsoil and its vegetation cover, in order to get to the underlying mineral deposits. The vegetation of this site is minimal and is not listed as endangered in any way. The only mitigation required would be to transplant the few individual *Euphorbia caput-medusae* plants that still occur in the area. These must be transplanted into the natural vegetation outside the mining area in a nursery. The retention of the topsoil and its use in the rehabilitation will preserve any seed supply.



Figure 8: The vegetation of the area is succulent Karroo veld with very sparse cover.

The area has a well represented succulent Karroo community of *Euphorbia caputmedusae*, one that has only marginally been disturbed through farming.

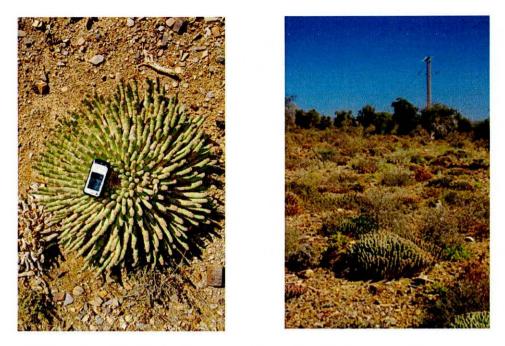


Figure 9: Examples of the Euphorbia caput-medusae found in the surrounding area.

Fortunately, the mining area contains no specimens and should have no impact upon the Karroo Succulent community that lies some 5 km due south of the mining area. According to the NSBA, the mining area falls within a "Least Threatened Terrestrial Ecosystem".

6.7 Fauna

Faunal species are restricted to migratory buck species ; small rodents and predators such as jackal and lynx (rooikat). With the vermin proof fences in place, the predators are not found in the mining area.

6.8 Socio-Economic Scenario

According to the 2001 census the population by gender in the Ikwezi Local Municipal area (4309 hectares) is 4927 Males (48%) and 5442 Females (52%). This gives a population density of only 3 people per hectare. The district is comparatively poor in terms of poverty measures such as Human Development Index (HDI) of 0,55 ; poverty gap (R450 million) and number of people living in poverty (60%). The residential component in the Klipplaat Town is currently in decline, which correlates with the general depopulation of the rural areas of South Africa.

6.9 Land use

The mining area is currently being used as grazing land for small stock farming. The landowner, Mr Cawood, farms with Angora goats for their mohair and sheep for their wool. The animals have proven their resilience to the semi-arid environment. The carrying capacity of the veld is typically 1 goat / sheep per hectare. Therefore, the grazing land for 2 sheep / goats would be affected by this mining venture.



Figure 10: Small stock goat farming is commonly found in Mount Stewart.

6.10 Neighbouring Activities

The photographs below show the existing PPC Quarry immediately opposite the proposed limestone quarry site of S.A. Lime EC Opencast Mine. Note the rail way line in the foreground.



Figure 11: The railway infrastructure parallel to the R338 servicing the PPC Quarry.

The little hamlet of Mount Stewart, which includes a small church and forms part of the farm, is now unoccupied and lies more than 1km away from the site.



Figure 12: The Little hamlet of Mount Stewart.



Figure 13: The small church at the hamlet of Mount Stewart.

As there are no communities living within the proximity of the quarry and given the existing PPC quarry in the area, it is not anticipated that any specific measures will be required to control air quality. Dust may be a temporary problem during carting of the materials to the rail siding or along the roads. It is anticipated that the loads themselves will be covered in order to prevent them from blowing out of the trucks or rail carts while being transported.

6.11 Cultural Heritage

The Whitehill Formation bedrock to be mined in the proposed quarry is potentially fossiliferous. The mining area is of low cultural sensitivity and it is believed that it is unlikely that any archaeological heritage remains will be found on the property. It was recommended that the proposed mining of limestone on a portion of portion 1 (Thorndale) of the farm east of Gous Kraal, No. 257, Division of Jansenville in the Magisterial area of

Ikwezi, Cacadu District Municipality, Eastern Cape Province, be exempted from a full Phase 1 Archaeological Heritage Impact Assessment.

The DME has awarded a mining permit earlier this year to S.A. Lime EC for the mining of gypsum just north of the mining permit area. A specialist study was undertaken to assess impacts of similar mining methods upon the archaeological environment of the area.

Any archaeological artefacts and fossil remains found during mining would be of scientific interest, especially given the sparse current knowledge of Ecca Group palaeontology in the Eastern Cape Province as a whole. See also Annexure 5 : Specialist Heritage Reports for details of the archaeological and paleontological status of the environment.

7 ENVIRONMENTAL IMPACT ASSESSMENT

This process involves the assessment of nature, extent, duration, probability and significance of identified environmental, social and cultural impacts of the current mining operation. The methodology applied is to rate the probability, extent, duration, intensity and thereby significance of each impact, according to the table below :

IMPACT	CATEGORY	RATING	DESCRIPTION			
	Improbable	0	Less than 30% chance			
Probability	Possible	1	30 to 50% chance			
Probability	Probable	2	50 to 75% chance			
	Definite	3	Greater than 75% chance			
	Site only	1	Project site			
	Local	2	Affects surrounding suburbs			
Extent	Municipal	3	Affects municipal area			
	Regional	4	Affects regional district area			
	National	5	Affects the Republic of South Africa			
	Very short term	1	Less than 1 year			
	Short term	2	1 to 5 years			
Duration	Medium term	3	5 to 20 years			
	Long term	4	Longer than 20 years			
	Permanent	5	Permanent			
	Very low	1	No effect on natural, cultural or social conditions			
Intensity	Low	2	Marginal effect on natural, cultural or social conditions			
or	Medium	3	Modification of natural, cultural or social conditions			
Severity	High	4	Temporary threat to existence of natural, cultural or social conditions			
	Very High	5	Permanent Threat to existence of natural, cultural or social conditions			

November 2009

The overall Significance of the IMPACT would then be the product of all the individual ratings. This methodology has been applied to each aspect of the operation that may have an impact on the environment. Once the baseline risk had been determined, an evaluation of the extent to which mitigation would reduce risk exposure is undertaken and the results shown.

7.1 Soil Removal

The impact would be the result of soil stripping to access the lime, however, since no soil occurs at the proposed site. The impact here will be nil.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Loss of Soils	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.2 Vegetation Removal

Vegetation growing on the mining site must be removed prior to mining. However, in the case of this mine, no vegetation and certainly no threatened species are found on the mining permit area and thus no impact is expected.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Loss of Flora	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.3 Removal of Animals

Opencast mining could result in the destruction of habitat for terrestrial animal species. In the case of this proposed mining project, the area has been previously disturbed by farming activities with no wild animals other than the farmer's small stock goats and sheep found. Hence this area does not pose a sanctuary for any terrestrial species.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Loss of Fauna	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.4 Airborne Dust

Dust could be liberated and made airborne if excavation and loading of minerals take place during windy periods. Given the existing PPC quarry opposite the site, it is not anticipated that any specific measures will be required to control air quality. Though

	Novem	ber	2009	
--	-------	-----	------	--

there are no residential areas nearby, there may still be minor visual or aesthetic impacts. Dust may be a temporary problem during carting of the materials to the rail siding or along the roads, but these intervals are few and far in between. It is anticipated that the loads themselves will be covered in order to prevent them from blowing out of the trucks or rail carts while being transported. In addition, the health of the workers involved in the mining may be at risk during such times.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Vehicles and wind causing airborne dust	Probable 2	Site 1	Very Short Term 1	Low 2	Low 4	Stoppage of work during high wind conditions. Dust suppression systems to be implemented in accordance with the Mine Health & Safety Act
Vehicles causing gaseous emissions into the air	Definite 3	Site 1	Very Short Term 1	Very Low 1	3	Vehicles must be maintained in a road worthy condition so as to limit the emissions to air.
Post Mitigation	Possible 1	Site 1	Very Short Term 1	Very Low 1	Low 1	Nil

7.5 Nuisance Noise

The noise produced by the machinery of a mine may cause a nuisance to nearby residents. As there are no residential areas close to this mining project, the impact should be nil. Cognisance must be taken of the impact of noise on the workforce during the mining process.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Machinery producing noise	Possible 1	Site 1	Very Short Term 1	Low 2	Low 2	Machinery to comply with health & safety standards for noise emissions.
Post Mitigation	Possible 1	Site 1	Very Short Term 1	Low 2	Low 2	Nil

7.6 Surface- and Ground- Water

Mining operations could impede the flow of natural water courses and affect the quality of groundwater adversely. The use of machinery creates the hazard of hydrocarbon contamination of water courses. This could affect the communities abstracting water from boreholes in the vicinity of the mine. No hydrocarbons will be stored in the mining area. Any accidental leakage from machinery needs to be immediately rectified, repaired and cleaned up. Machines should be stored over night within the mining yard, with a sand and woodchip layer as a surface – this acts as a good absorbent of any spill material. Contaminated material must be removed from site and stored in empty 210 litre drums, and then be disposed of at a recognised waste disposal site that allows for such substances. – no waste of any form is to be burnt or buried on site.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Interception of water courses	Possible 1	Local 2	Short Term 2	Low 2	Low 8	No storage of hydrocarbons. Emergency spill kits available for accidental oil leaks.
Post Mitigation	Possible 1	Site 1	Very Short Term 1	Very Low 1	Low 1	Analyse water samples from nearby boreholes

7.7 Destruction of Cultural Heritage

Mining operations could destroy paleontological – and / or archaeological artefacts that could exist in the mining area. It is concluded, however, that pending further discoveries mining will not have a significant impact on local fossil heritage resources given :

- the shallow nature of the excavations (focussing on weathered, shallow limestone-rich bedrock)
- the small area involved (100 x 150 m)
- the short time scale of the operation (circa 5 months)

No further palaeontological mitigation is therefore recommended for this project.

The mining area is of low cultural sensitivity and it is believed that it is unlikely that any archaeological heritage remains will be found on the property. The proposed development may proceed as planned. It is recommended that the proposed mining of lime on a portion of portion 1 (Thorndale) of the farm east of Gous Kraal, No. 257, Division of Jansenville in the Magisterial area of Ikwezi, Cacadu District Municipality, Eastern Cape Province, is exempted from a full Phase 1 Archaeological Heritage Impact Assessment. In addition, the old deserted hamlet of Mount Stewart, lies far from the mining operation and is not threatened by the proposed mining activity.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Destruction of fossils and / or archaeological artefacts	Possible 1	Site 1	Very Short Term 1	Medium 3	Low 3	Mine Personnel to notify SAHRA when any fossil or archaeological artefact encountered.
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.8 General Waste Liberation

Wind can blow and liberate general waste produced by the mining operations. The mine must institute a waste disposal management system for the handling of general waste. General domestic waste must be collected in storage bins / drums to be removed from site to the waste disposal site in Steytlerville. It should be sorted into the various recyclable materials on site prior to the removal thereof.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Spreading of general waste	Possible 1	Local 2	Very Short Term 1	Medium 3	Low 6	General waste to be contained in drums / bins.
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.9 Surrounding Small Stock Farming

The opencast mine within an area of extensive grazing raises the potential for problems to livestock such as falling into the excavation. The mine area could give unauthorised access to poachers or predators that might kill the farmer's sheep or goats. In order to mitigate this impact, adequate fencing of the work area will be required and all staff and machinery will need to be restricted to the work area. This will prevent any unnecessary disturbance to the farming and reduce the potential for poaching and preying. Gates are to be kept closed at all times.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Mine area could give access to predators	Possible 1	Local 2	Short Term 2	Medium 3	Low 12	Mining Area to be fenced in with standard vermin proof fence
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

7.10 Traffic Impact

The existing R338 - Regional road will give access to the mine workings. All deliveries of the limestone would be transported via this road. Movement of heavy self-propelled machinery within the mining area and along the transport routes may have an impact on the farming operations. In mitigation, where trucks transport the mineral on the road network, the drivers must be counselled to drive with care (so as do all other road users) that farmers drive their livestock along the roads in order to get from one grazing camp to the next.

Activity & Impact	Probability	Extent	Duration	Intensity	Significance	Mitigation Measures
Mine transport vehicles overrun other road users or animals	Possible 1	Local 2	Very Short Term 1	Medium 3	Low 6	Truck drivers counselled to drive with extreme caution
Post Mitigation	Improbable 0	Site 1	Very Short Term 1	Very Low 1	Low 0	Nil

Needless to say, should rail transport be chosen instead, the adjacent railway siding and under-utilised railway transportation system would become more profitable.

8 SUMMARY AND MITIGATING MEASURES OF THE IMPACTS

8.1 General

Some general issues not specifically linked to the expected environmental impact assessments must also be dealt with in terms of the environmental management plan for the mining site, these issues include :

- 1. A hierarchical structure of responsibility must be compiled, which clearly defines and indicate the person or entities responsible for implementation of this EMP.
- Employees must be subjected to a health and safety management system or plan for the mining site. The mine management must enforce the Mine Health & Safety Act, Act 29 of 1996, to eliminate and minimise risk.
- 3. All personnel involved in the development of the mine must be informed of this environmental management plan.
- 4. The exact position of the mining site must be clearly demarcated with fences or other means to ensure that mining remains within the area discussed in this document and designated on the MPRDA Regulation 2(2) plan.
- 5. The disposal of any type of refuse / waste may not occur on the proposed mining site.
- There may be no disturbance of land outside of the area shown in the Regulation 2(2) plan.
- 7. No maintenance of vehicles should take place on the mining site. In the unlikely event of a vehicle breakdown, extreme care must be taken not to spill any hydrocarbons.
- 8. No disposal of oil or any other hazardous waste may take place on the mining site.
- Any vehicle leaking oil or fuel must be taken off-site and maintenance carried out to deal with the leaking oil or fuel.
- 10. No hydrocarbons such as paint, fuel or oil may be stored on the mining site.
- 11. No hazardous chemicals including tar and cement may be stored on the mining site.
- 12. No open fires may take place on the mining site.
- 13. Only mobile infrastructure may be placed on the mining site. No temporary or permanent infrastructure may be erected within the mining area.

8.2 Air Quality

Airborne dust may occur during the mining operations. This impact will be minimised by ensuring that mining does not take place during strong windy times. The machinery that handles the minerals will be maintained in a roadworthy manner so as to minimise gaseous emissions. Drivers of laden trucks would take extreme caution during transportation of the minerals not to create spillage of the limestone along the way. Dust suppression methods would be applied on haul roads where trucks travel hourly. Work would be stopped during adverse windy conditions to minimise the liberation of airborne dust. S.A. Lime EC's own employees would be issued with type FF2 dust masks as personal protective equipment.

8.3 Water Courses

Ideally mining must take place in a manner which supports the creation of a single pit. If mining is done systematically for each mining strip at a constant depth, then the impact would be minimal. Such a final pit could then serve as a possible waterhole for animal drinking purposes by channelling any surface run-off water from the adjacent R338 road towards it.

No storage of Hydrocarbons such as paint, fuel or oil will be stored on the mining site. Emergency oil spill kits will be available in the unlikely event of an accidental leakage of oil / fuel. Any contaminated soil would be picked up and placed in drums to be disposed of in Steytlerville waste disposal dumping site.

8.4 Fauna & Flora

The area is to be returned to as natural topography as possible, blending into the surrounding landscape. The in-situ topsoil is to be spread immediately on completion of any section of work, thereby allowing the natural vegetation and seed supply to germinate. Where necessary, additional indigenous seed should be sewed during rainy periods to promote vegetation cover and prevent erosion by wind or water. The area is to be returned for agricultural use – goat farming, as is the current land use. The only exception is the *Euphorbia caput-medusae* community, which will not be disturbed and will remain as a conservation area with natural goat grazing (as is the current land use). Any temporary site camp office, labour accommodation, and storage areas will all be removed and left in a state as required by the land owner. The landowners permission must be sought prior to removing any demarcating fences at the time of decommissioning – as the farmer may require them to remain in place. This in terms of the consultation with the Interested Parties in terms of Regulation 52(2)(g).

8.5 Geology and Soils

The potential impact for topsoil removal will need to be mitigated through the stockpiling of the topsoil prior to excavation of the mineral for use later in the rehabilitation. This is critically important as the topsoil contains the natural seed bank of the area which will be required for stabilizing the area after mining – to ensure minimal loss of natural vegetation.

8.6 Cultural Heritage

Any fossil remains or archaeological artefacts encountered during fresh bedrock excavations made during the mining production phase should be safeguarded by the responsible manager who must notify SAHRA or a local museum (e.g. the Albany Museum, Grahamstown) for the removal thereof.

8.7 Closure Objectives for the Quarry

The mining area will be rehabilitated during the production phase as close as to pristine condition prior to the mining activities have started. Thus, the area will be returned as grazing land for small stock farming and the land-use will remain unchanged. S.A. Lime EC will do this by profiling the topography gradually again ; replacement of topsoil and the re-vegetation of the disturbed area.

9 ENGAGEMENT OF INTERESTED & AFFECTED PARTIES

SA Lime Eastern Cape (Pty) Ltd has engaged consultation with the land owner, Mr Cawood, of the proposed mining area from an early stage of the project. This land owner is the only directly affected party that would be impacted upon the mining activities. Mr Cawood would like the following aspects to be addressed when the quarry operation commences :

- Fencing off of the quarry area with a gate only accessible to the road and not into the farmlands;
- An agreed royalty amount to be paid for the quantity of mineral extracted ;
- All quarry operating staff to be restricted to the quarry area and not permitted onto the farmlands under any circumstances;
- The area to be rehabilitated after mining seized to natural grazing lands for the goats.

Other interested parties are the local municipality PPC and local farmers being the customers who are interested in purchasing the limestone. A Supply & Off-take Agreement has been concluded between PPC, the buyer, and SA Lime EC, the seller, to supply all the limestone at a market related price. An agreement has also been concluded between SA Lime EC and the land owner whereby he supports the mining project and has no objections to the mining plans described in the EMP. See Annexure 3 : Proof of consultation with I&AP's, for a copy of the proof of consultation and their comments regarding the engagement of Interested & Affected Parties with this mining venture.

10 REHABILITATION PLAN

8.1 Access Roads

All access roads and haul roads are to be constructed on top of the existing soils. Although no base material for road building is planned for, should it be utilised as such, then such material must be removed prior to profiling and topsoil spreading. During the production phase no chemical may be used as dust suppression, but only water. Provided that a biodegradable dust suppressant had been used together with water, it may only be scarified and profiled. Otherwise, if a hazardous chemical had been used as dust suppressant, then the soil must be dug out ; removed and disposed of at a hazardous waste disposal dump.

8.2 Waste Management

All general waste will be contained in clearly identified bins / drums that would be constructed of a sturdy design. No littering will be allowed in the mining area and any wind-blown general waste will be retrieved and contained before the end of the day. The bins / drums will be emptied on a weekly basis at a waste disposal site.

In the unlikely event of hazardous waste (e.g. oil filters, rubber tyres, hydraulic hoses etc.) generation, the items must be contained at the earliest convenience before the end of the shift in clearly identified drums / bins for hazardous waste. Emergency oil spill kits will be available for the retrieval of contaminated soil in the unlikely event of an accidental oil / fuel leak on a machine. Such contaminated soil will also be retrieved and disposed of in the hazardous waste bins provided. The hazardous waste bins must also be emptied on a weekly basis at a waste disposal site.

8.3 Stormwater Management

One continuous stormwater cut-off drain is required to be dug on the southern side of the mine permit area. This conduit will serve as a channel for both surrounding surface run-off stormwater as well as a diversion of the stormwater flowing through the culvert from the eastern side of the R338 road. This stormwater drain will be dug wide enough to accommodate the cleaning thereof during the mine's operations. The material to be dug from it will be spoiled as equal amounts on either side of the trenches throughout the linear distance thereof. Any erosion within these trenches will be maintained / limited via backfilling during the mine's operational phase.

8.4 Mining Area

To effectively deal with the ecological impact, the rehabilitation process will follow the sequence of :

- 1) Removal and replacing of any indigenous vegetation
- 2) Stripping and stockpiling of the topsoil
- 3) Construction of final slopes during the quarrying production process
- 4) Backfilling of fine material
- 5) Spreading of topsoil
- 6) Recovering and re-planting of vegetation
- 7) Maintaining rehabilitated areas for retention period

Rehabilitation will be concurrent with quarrying in terms of the production of benches and slopes along the final quarry boundary faces. All horizontal areas to be rehabilitated shall be covered with topsoil to a thickness of at least 7,5 cm and sloped areas to a thickness of 0,1 m. Depending on the re-vegetation, fertiliser could be advantageous. Where available any possible topsoil will be reclaimed and spread mechanically with a truck – shovel operation. The spreading of topsoil will be finalised to the correct level by means of a mechanical grader or by hand shovel in confined spaces.

All final areas are to be re-vegetated with the indigenous plants of the surrounding area. The re-vegetation will be done concurrently with the opening up of newly developed mining areas. A front end loader will scoop the vegetation from the newly developed area and transport it to the previous mined-out strip or any other area to be rehabilitated. As the root system of the vegetation on the property is shallow, care must be taken not to destroy the vegetation during extraction. The front end loader should at least include 10 cm of soil thickness together with each load of vegetation.

No topsoil will be removed from the site and where the topsoil have been disturbed, the immediate surrounding topsoil will be used to even the area. Topsoil will not be imported or transported from another area to prevent possible pH - contamination of the immediate ecosystem.

8.5 Rehabilitation Timeframes

The rehabilitation consists of merely creating an even topography where the mining have caused a change in the topography. This levelling would be done by using self-propelled mechanical equipment. The even spreading of the surrounding topsoil will also be done by means of mechanical loader. Each mining strip will be rehabilitated within 6 months after the mining had been completed. Thereafter, another 6 months period of maintenance will be required for monitoring purposes. Hence the rehabilitation should be completed within one year from the mining activities have completed.

8.6 Maintenance Period

All rehabilitated areas are to be regularly inspected and maintained. All alien vegetation growing before and after mining must be eradicated. All vegetation must be sufficiently watered and nurtured to ensure longevity. All of these activities shall continue for a period of 12 months after an area has been rehabilitated or as per the directive of the Department of Minerals & Energy.

8.7 Environmental Awareness Plan

S.A. Lime EC will introduce an Environmental Awareness Plan as part of its mining induction programme that will remind all people entering the quarry of their responsibility towards the development and conservation of the environment. S.A. Lime EC intends to reach this objective by prominently displaying posters of possible archaeological artefacts and fossils expected to be found in that area. The procedure to address such finds will also be displayed. Furthermore, S.A. Lime EC will display examples of good – and poor practices that would adversely impact the environment. In such a way employees and contractors would constantly be reminded of the impacts and mitigation factors addressed in this EMP.

11 FINANCIAL PROVISION FOR REHABILITATION

As the rehabilitation of disturbed areas are done concurrently with the mining production progress and that mining activities can only be started once the development phase has been finished, the cost analysis will be limited to the activities for post-mining activities :

11.1 Spreading of topsoil

The final slopes combined are approximately 2 500 m^2 and the horizontal planes equates to 12 466 m^2 . Thus the cost of replacement of topsoil is estimated to be :

- 250 m³ on slopes @ R7-50 / m³ equals R1 875-00
- 935 m³ on horizontal planes @ R5-00 / m³ equals R4 675-00

Thus, the total allowable for topsoil spreading is **R6 550-00**.

11.2 Replanting of vegetation

As the horizontal planes will be rehabilitated for grazing purposes, the indigenous vegetation will be replanted. Thus, the cost of replanting the vegetation is estimated to be :

- 2 500 m² on slopes @ R2-50 / m² equals R6 250-00
- 12 466 m² on horizontal planes @ R2-00 / m² equals R24 932-00

Thus, the total allowable for the replanting of indigenous vegetation is estimated to be **R31 182-00**.

11.3 Maintenance Period

The costs to be incurred during the retention & maintenance period are estimated to be as follows:

- Supervision of operation equals R12 000-00
- Maintenance of stormwater channels equals R5 000-00
- Alien vegetation eradication equals R 5 000-00

Thus, the total allowable for the retention period is estimated to be R22 000-00.

11.4 Total Pecuniary Value

Thus, the total pecuniary value allowable for the rehabilitation is estimated to be not more than **R 59 732-00**. S.A. Lime Eastern Cape (Pty) Ltd undertakes to submit a bank guarantee in favour of the DME for rehabilitation as per Regulation 53 (b) to the amount of **R60 000-00** upon receiving the favourable R.O.D. by the DME.

Novemb	er 2	009
--------	------	-----

The DME currently holds such a bank guarantee for this amount from SA Lime EC for a gypsum mine and could be transferred upon mine closure thereof.

12 CONCLUSIONS AND RECOMMENDATIONS

The natural environmental conditions occurring in the mining area have long since been altered to facilitate small stock farming. The social aspects of the environmental investigation were also addressed. This aspect of the investigation was also pursued during the public participation process, which included a press advertisement ; letters to interested and affected parties and followed with meetings.

Algoa Consulting Mining Engineers has found that the site is of little environmental significance and that mining at the site will not result in any tangible environmental degradation. From an environmental perspective, there are no significant fatal flaws suggesting that the study area is unsuitable for the proposed mining operations. However, taking a precautionary approach, a few environmental issues have been identified, but mitigating measures to reduce or eliminate the potential impacts are advocated.

From a geological perspective, the study area represents limestone which has a number of applications in the agricultural – and construction industry. Inspection of the minerals found on the surface in the surrounding areas, confirm the existence and suitability for economic extraction.

From a socio-economic perspective the mining venture would improve the livelihood of the families who would be employed during the course of the mining venture. All down-stream beneficiation of the minerals would also improve the living conditions estimated to be around a further 50 families in South Africa for every employee directly employed at the mine.

With a financial guarantee secured, this mining venture of S.A. Lime EC has the potential to develop the economic - and social environment of the Mount Stewart area without adversely affecting the ecological status of the environment and by doing so a balance is reached between social development, economic development and bio-diversity conservation.

13 UNDERTAKING TO ADHERE TO THIS EMP

I, Heinrich Carl Wilhelm Pistorius, duly authorised by the applicant, S.A. Lime Eastern Cape (Pty) Ltd (Reg. nr 2006/027364/07), for a mining permit hereby declare that the above information is true, complete and correct. I undertake to implement the management measures as described in this report. I understand that this undertaking is legally binding and that failure to give effect hereto will render me liable for prosecution in terms of Section 98 (b) and 99 (1)(g) of the Mineral and Petroleum Resources Development Act (Act No 28 of 2002). I am also aware that the Regional Manager may, at any time but after consultation with me, make such changes to this environmental management plan as he *I* she may deem necessary.

SIGNED AT Port Elizabethon THIS 16 DAY OF November 2009.

Mr Heinrich Carl Wilhelm Pistorius

Witness

14 ANNEXURE 1 : CIPRO DOCUMENTATION

Republiek van Suid-Afrika Maatskappywet 1973 (Artikel 64)

Republic of South Africa Companies Act 1973 (Section 64)

Vorm/Form CM I

Registrasient CCI-F-25E) 47 BIJELLEOTVAL FF.CFEF.TT PEOISTEATION STRICE

ipany

2006/027364/07

SALIME ÉASTERN CAPE

Sertifikaat van Inlywing

van 'n Maatskappy met 'n aandelekapitaal

Certificate of Incorporation

of a Company having a share capital

Hierby word gesertifiseer dat/This is to certify that

SA LIME EASTERN CAPE (PTY) LTD

vandag ingelyf is kragtens die Maatskappywet, 1973 (Wet 61 van 1973), en dat die Maatskappy 'n maatskappy is met 'n aandelekapitaal.

was this day incorporated under the Companies Act, 1973 (Act 61 of 1973), and that the Company is a company having a share capital.

Geteken en geseël te Pretoria op hede die/Signed and sealed at Pretoria this 4 dag van / day of September. en/and Six Twee Duisend / Two Thousand

Registrateur van Maatskappye / Registrar of Companies

Seël van die Registrasiekantoor vir Maatskappye. Seal of Companies Registration Office.

Hierdie serufikaat is nie geldig nie, tensy geseël deur die seël van die Registrasiekantoor vir Maatskappye. This certificate is not valid unless sealed by the seal of the Companies Registration Office.

Hortors Stationery - Reproduced under Government Printer's Copyright Authority No: 5025 of 8.10.73 (April 89)

REPUBLIEK VAN SUID-AFRIKA **REPUBLIC OF SOUTH AFRICA** VORM CM 46 FORM CM 46 MAATSKAPPYWET, 1973 **COMPANIES ACT, 1973** SERTIFIKAAT OM MET BESIGHEID TE BEGIN CERTIFICATE TO COMMENCE BUSINESS (Artikel 172) (Section 172) ON BALTIES AND DITELLECTIVA. FROPER TUREOISTRA" ION OFFICE SALDIE EASTERN CAPE 2006/027364/07 Ek sertifiseer hierby dat I hereby certify that _____SA LIME EASTERN CAPE (PTY) LTD wat ingelyf is op die which was incorporated on the dag van Twee Duisend en day of Two Thousand and voldoen het aan die vereistes van artikel 172 van die Wet, en met ingang van vandag geregtig is om met besigheid te begin. has complied with the requirements of Section 172 of the Act and is with effect from this day entitled to commence business. Geteken en geseël te PRETORIA op hede die dag van _ day of Signed and sealed at PRETORIA this Twee Duisend en 201 Two Thousand and Seël van Registrasiekantoor vir Maatskappye Seal of Companies Registration Office Registrateur van Maatskappye Registrar of Companies Hierdie sertifikaat is nie geldig nie, tensy geseël deur die Seël van die Registrasiekantoor vir Maatskappye This certificate is not valid unless sealed by the Seal of the Companies Registration Office Y-ZA Business Solutions (Pty) Ltd - reproduced under Government Printers Copyright Authority No: 10746 of 15 September 1999 FINANCIAL YEAR END ON EACH YEAR

15 ANNEXURE 2 : RESOLUTION TO ACT ON BEHALF OF THE COMPANY

SA LIME EASTERN CAPE (PTY)LTD.

Vat no: 4530246786 Reg no: 2006/027364/07

110 Bronkhorst Straat Groenkloof Pretoria 0181 POSBUS 12444 HATFIELD PRETORIA 0028 TEL: 012 346 4594 FAKS: 012 346 4359 E-MAIL: <u>henke@salime.biz</u> <u>ursela@icon.co.za</u>

1 August 2009

RESOLUTION PASSED AT A MEETING OF THE DIRECTORS OF SA LIME EASTERN CAPE (PTY) LTD (Registration No: 2006/027364/07) HELD AT 110 BRONKHORST STREET GROENKLOOF 0181 ON 1ST AUGUST 2009

That Heinrich Carl Wilhelm Pistorius will have the right to sign all documents on behalf of SA Lime Eastern Cape (Pty) Ltd as to obtain a "Mining Permit" for above company.

Signed at Pretoria on 1 August 2009

T.G PISTORIUS

DIRECTOR

16 ANNEXURE 3: MAPS, PLANS AND LAYOUTS

17 ANNEXURE 4 : TITLE DEED OF LAND

Deed of Transfer

•

BY-VIRTUE OF A POWER OF ATTORNEY. Drawn by me

A sector ...

Ŧ

Conveyancer.

25861

4299

1977

13-

6

У J re

KNOW ALL MEN WHOM IT MAY CONCERN :

THAT DENIS MORTIMORE TATHAM appeared DENIS MORTIMORE TATHAM appeared before me, Registrar of Deeds, at Cape Town, He, the said Appearer, being duly authorised thereto by a Power of Attorney executed at PORT ELIZABETH on the 23rd day of May, 1977 and granted to him by

JOHANNES DANIEL BENJAMIN LOUW in his capacity as nominee of the Standard Bank of South Africa Limited, as such the Executor in the Estate of the Late WILLIAM ARTHUR CAWOOD (born on 29th January, 1907)

which said Power of Attorney witnessed in accordance with Law was exhibited to me on this day. - AND - MEZ STOP PRESS AND the said Appearer declared that WHEREAS in terms of paragraph 4 of the Last Will and Testament of the said WILLIAM ARTHUR CAWOOD dated the 10th day of July, 1974 the Testator bequeathed the residue of his estate to his son PETER LOGIE CAWOOD subject to the provision of Clause 6 of the said Will, hereinafter more fully set forth.

- 2 -

NOW THEREFORE, he, the said Appearer in his capacity as Attorney aforesaid, did by these Presents, Cede and Transfer in full and free property to and on behalf of

> PETER LOGIE CAWOOD Born on 23rd June, 1943

> > - WHITE GROUP -

his Heirs, Executors, Administrators or Assigns;

 CERTAIN piece of land situate in the Division of Steytlerville, being the remaining extent of the farm Erasmus Leagte No. 13;

MEASURING: One Thousand Four Hundred and Eighty One comma Seven Six One Eight (1481,7618, Hectares;

EXTENDING as the Deed of Grant (under Act 15 of 1887) with Diagram annexed made in favour of L.M.J. van Veuren on 6th April 1891 (Jansenville) Quitrants Vol. 3 No. 18) and lastly held by William Arthur Cawood by Deeds of Transfer No. 4575 dated lith April, (usid And 26239) dated 18th Novasber 1940

- A. SUBJECT to the conditions referred to in Deed of Transfer No. 6935 dated 26th October, 1915.
- B. SUBJECT to the provisions of Clause 6 of the Last Will and Testament of the late William Arthur Caupod dated the 10th July, 1974 which needs as follows:-
 - "6. Any beneficiary taking under this my Will shall take for his or her own sole and absolute us, and benefit and free from the debus of and exclused free may community of projectly with any

/spouse

G

0

ANNO,

m

spouse he or she has married or may marry and, in the case of a female, free from the control and marital power of any husband she has married or may marry and her receipt alone shall be a sufficient discharge for any payments made to her."

 CERTAIN piece of abolished quitrent land situate in the Division of Steytlerville, being the remainder of the farm Erasmus Laagte No. 15;

- 3 -

MEASURING: Four Hundred and Fifty Two comma Two Five Six Eight (452,2568) Hectares;

EXTENDING as the Deed of Grant (under Act 5/1870) with diagram annexed made in favour of W. Hume on 30th June, 1877 (Uitenhage Quitrents Vol. 13 No. 2) and lastly held by William Arthur Cawcod by Deeds of Transfer No. 4575 dated 11th April, 1944 and 26266 dated 18th November, 1948.

- A. SUBJECT to the conditions referred to in Deed of Transfer No. 4575 dated 11th April, 1944.
- B. SUBJECT to the provisions of the Will of the late William Arthur Cawood as more fully set out under Condition B of Paragraph 1 apove.

 CERTAIN piece of abolished guitrent land (granted under Act 5 of 1870) situate in the Division of Steytlerville, being Portion 1 of the farm No. 16;

MEASURING: Four Hundred and Thirty Seven compu-Nil Nil Three Nil (437,0030) Hectares;

EXTENDING as the Daed of Transfer with Diagram annexed made in favour of C.H. Cawood on 29th August, 1884 No. 379 and lastly held by William Arthur Cawood by Deeds of Transfer No. 4575 dated 11th April, 1944 and 26266 dated 18th November, 1948.

- A. SUBJECT to the conditions referred to in Beed of Pranader No. 6935/1915 dated 26th October, 1915.
- B. SUBJECT to the provisions of the Will of the late William Arthur Cowood as more fully set out under Condition B of Paragraph 1 above.

55 4 ż G V me

/ 4.

 CERTAIN piece of land (granted under Act 15/1887) situate in the Division of Steytlerville, being the Remainder of Portion 1 of the farm Jackals Laagte No. 14;

- 4 -

MEASURING: Seventeen comma Two Seven Nine One (17,2791) Hectares;

EXTENDING as the Deed of Transfer with Diagram annexed made in favour of R.P. Bezuidenhout on 4th June, 1907 No. 4378 and lastly held by William Arthur Cawood by Deeds of Transfer No. 4575 dated 11th April, 1944 and 26266 dated 18th November, 1948.

- A. SUBJECT to the conditions referred to in Deed of Transfer No: 6935/1915 dated 26th October, 1915.
- B. SUBJECT to the provisions of the Will of the late William Arthur Cawood as more fully set out under Condition B of paragraph 1 above.
- CERTAIN piece of land situate in the Division of Steytlerville, being the Remainder of the farm Jackals Laagte No. 14;

MEASURING: One Thousard Seven Hundred and Eighteen comma Eight Six Nine Nine (1718,8699) Hectares;

EXTENDING as the Deed of Grant (under Act 15/1887) with diagram annexed made in favour of J.H. Cawcod on 12th March, 1891 (Jansenville Quitrents Vol. 3 No. 13) and lastly held by William Arthur Cawcod by Deeds of Transfer No. 4575 dated 11th April, 1944 and 26266 dated 18th November, 1948.

- A. SUBJECT to the conditions referred to in Deed of Transfer No. 6935 dated 26th October, 1915.
- B. SUBJECT to the provisions of the Will of the late William Arthur Cawood as more fully set out under Condition B of Paragraph 1 above.
- CERTAIN ploce of and seturate in the Division of Staytlerville, being the Remainder of Portion 1 of the farm Pichaars Poort No. 34;

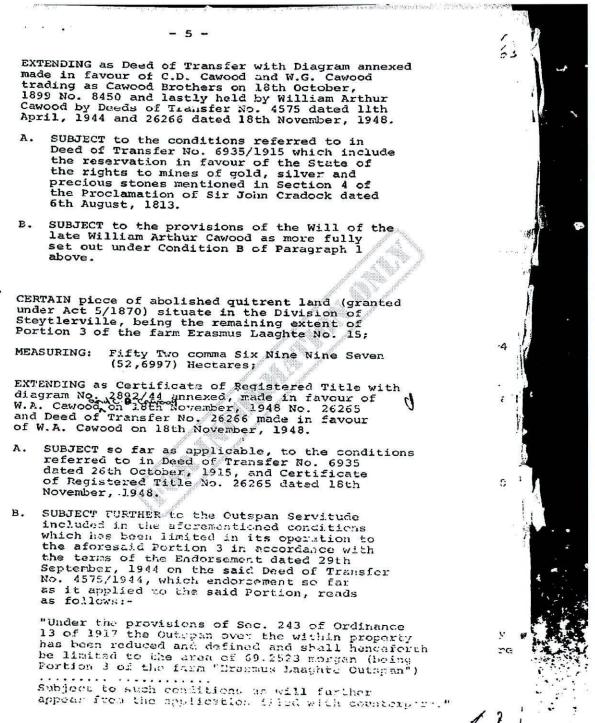
MEASURING: Seventy Sar course Mine Mil Six Five (70,9085) Sectares;

/EXTERNANC ...

4

S

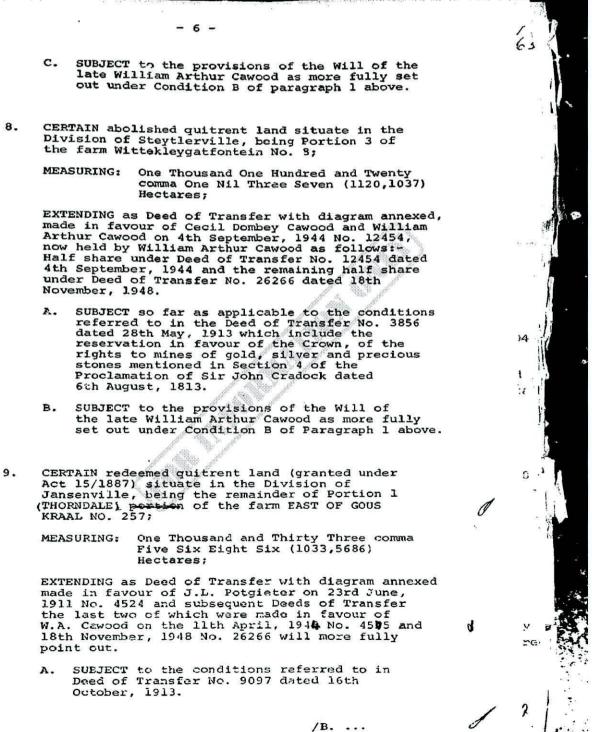
"G.



t

7.

/0.



m

8.

We want the second second - 7 -• • 6 SUBJECT to the provisions of the Will of the late William Arthur Cawood as more fully set out under Condition B of Paragraph 1 above. в. CERTAIN land situate in the Division of Jansenville, being Portion 5 (portion of Portion 2) of the farm EAST OF GOUS KRAAL No. 257: 10. MEASURING: Two Thousand Six Hundred and Ten (2610) Square Metres; EXTENDING as the Crown Grant No. 46/1950 with diagram No. 10226/46 annexed made in favour of W.A. Cawood on 21st April, 1950 will more fully point out. Ś. 34 ŧ : 7 Ś 8 v re /A. SUBJECT Ġ 2

A. SUBJECT to such conditions as are referred to in Deed of Transfer No. 4414 dated 30th May, 1914.

- 8 -

S

(SP)

12

B. SUBJECT FURTHER to the following special condition;-contained in Grown Grant No. 46 dated 21st April, 1950:-"Subject to the provisions of the"Reserved Minerals Development Act, 1926" and of the "Precious Stones Act, 1927" as amended from time to time, all rights to minerals, mineral products, mineral oils, coal, base and/or precious metals and precious stones on or under the said land shall be and are hereby reserved to the State."

in respect of which Certificate of Rights to Minerals No. 39 has been issued in favour of the State on the 21st April, 1950.

C. SUBJECT to the provisions of the Will of the late William Arthur Cawood as more fully set out under Condition C of Paragraph 1 above. WHEREFORE the said APPEARER, renouncing all the Right and Title which the said Estate of the late WILLIAM ARTHUR CAWOOD heretofore had to the premises as aforesaid, did, in consequence, also acknowledge the said Estate to be entirely dispossessed of, and disentitled to the same; and that by virtue of these Presents the said

TRANSFEREE

9 -

his Heirs, Executors, Administrators or Assigns, now is and henceforth shall be entitled thereto, conformably to local custon:- the State, however, reserving its Rights; and finally acknowledging that the said property has been valued for Estate Duty purposes at R242 021,00 (TWO HUNDRED AND FORTY TWO THOUSAND AND TWENTY ONE RAND).

IN WITNESS WHEREOF I, the said Registrar, together with the Appearer, q.q. have subscribed to these Presents, and have caused the Seal of Office to be affixed thereto.

THUS done and executed at the Office of the Registrar of Deeds in CAPE TOWN in the Province

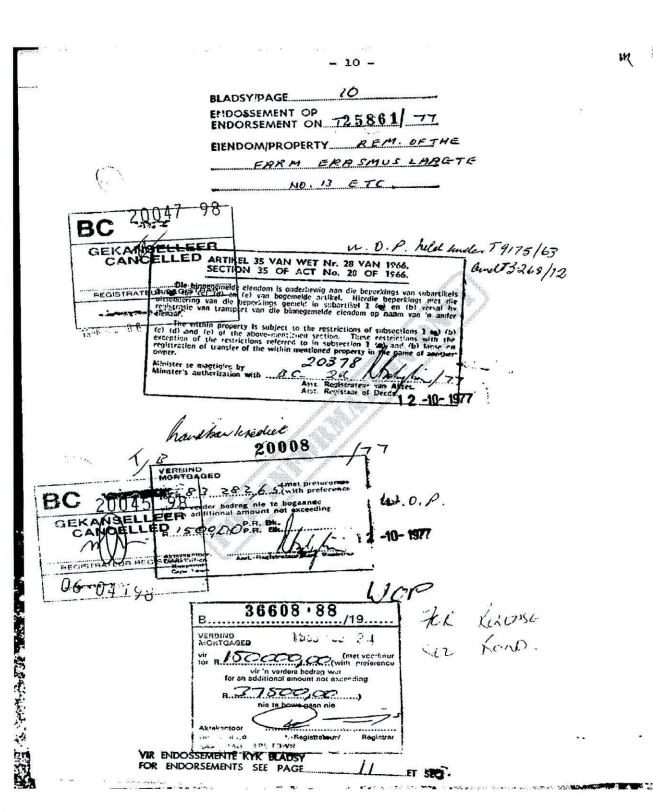
THUS done and executed at the CAPE TOWN of the Cape of Good Hope on the 121 day of the month of Decover in the Year of Our Lord One Thousand Nine Hundred and Seventy seven (19 77).

Conveyancer, q.q.

presence, In m

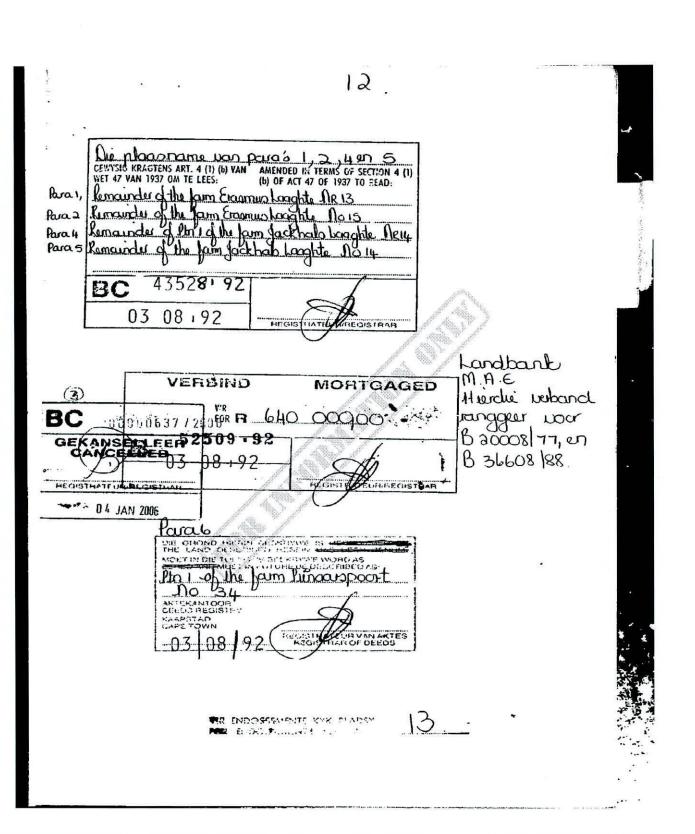
Registrar of Deeds

Registered in the farm / Registersof Steytlewille and Jansenville () 257/1/1 0 () 257/5/ Jan -Folio () 13/17 () 15/27 () 15/27 Senville Book 10/11 Steytlewille 14/1/1 14/1 MES STOP PRESS



1 in

_11-BY VIRTUE OF SECT 27 OF ACT 51/87 THE PROVISIONS OF SECT 35(1)6 Para CONTAINED IN ENDORSMENT DATIO 12/10/1977 ON PAGE 10 HERESN Para fara Para 1-1AS BIEIEN CANCELLED. DIEIZOS OFFICE CAPE TOWN 2ª REGISTIONE OF DEEDS. B GI 12 VIR ENDOSSEMENTE KYK ELMOOT FOR LUG USELAND IS SEL PAGE



13 τ. Para 1-9 24 T. 4 (1) (b) VAN AMENE DIN TERMS OF SECTION 4 (1) TE LEES: (b) OF ACT 47 OF 1937 TO READ: CEWINIG KRAGTENS ART. 4 (1) (b) VAN WET 47 VAN 1937 OM TE LEES: Sign order 43529'92 BC EGISTHAR REGISTRATE By Asternal load No 33/72 dated 15/1/72 if has been agreed that the within properties (described as in Achedule B of the Astarial Dead) will not without the consent of the Dead) will not withcrit Minister of agriculture le alienated seperately from the properties described in Schedule A thereof Copies of Schedules A+B arresced herets. Notarial Deed." y appear from said 03 08 92 VIR ENDOSSEMENTE KYK BLADSY 14 FOR ENDORSEMENTS SEE PAGE. (4) BC00050638/2WERBIND This Bond MORTGAGED GEKANSELLEER CANCELLED Ranles Prior +0 B 36481 88 FOR R 491 15. A. 461,00 1) AEGISTENATE 11 19151-129 99 REGISTRATEUR REGISTRAR JAN 2006 06_ 01 99

GETRANSPORTEER AAN	TRANSFEREFD TO
Nico Van Loggen	671/1995
RESTANT/REMAINDER	Pantico
TAUR00713/2011	
T 00000713/2006	

Para 1-9

I Kragtens Akte Van Notariële Akte Van kansellasie Van Kippeling <u>Koobooboor.2006</u> geoareer 28 ste Van Septenber 2005 TS Notariele Cikte van Koppeling Nr. K S3/1972 gekanselleer verklaar en kansellasie van die beperkende voorwaarde aaarin vervat aanvaar.

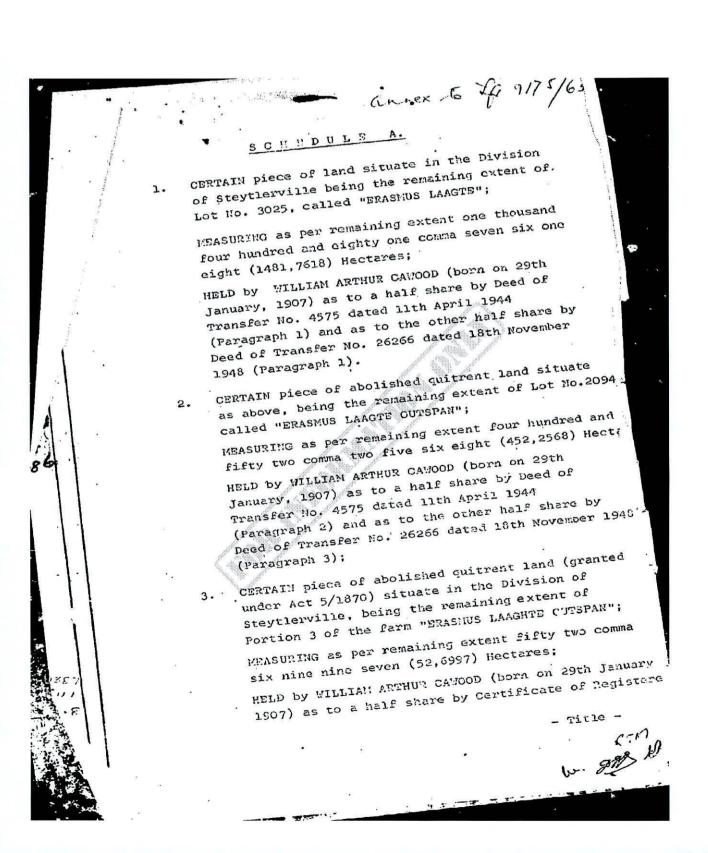
Soos neer volledig so blyk uit ge segge notariele Akte After Kantoor

· kaapstad 04 JAH 2005

Registrateur van Alter.

R

VERBIND	MORTCAGED	NOP
FOR R COD	00,00	
B 0172/2003	$\overline{(b)}$	-
0 4 JAN 2006	REGISTRATEURREGISTEAR	



Title No. 26265 dated 18th November 1947 to the other half share by Deed of Transfer No. 26266 dated 18th November 1948 (Paragraph 2);

CERTAIN piece of abolished quitrent land(granted under Act 5 of 1870)situate as above, being a portion of Lot No. 2093, now called "ERASMUS LAAGTE";

MEASURING four hundred and thirty seven comma nought nought two six (437,002) Hectares:

HELD by WILLIAM ARTHUR CAWOOD (born on 29th January 1907) as to a half share by Deed of Transfer No. 4575 dated 11th April 1944 (Paragraph 3) and as to the other half share by Deed of Transfer No.26266 dated 18th November 1948 (Paragraph 4);

CERTAIN piece of land (granted under Act 15/ 1887) situate as above, being the remaining extent of Lot a of "JACKALS LAAGTE";

5.

6.

MEASURING Seventeen comma two seven nine one (17,2791) Hectares;

HELD by WILLIAN ARTHUR CAWOOD (born on 29th January 1907) as to a half share by Deed of Transfer No. 4575 dated 11th April 1944 (Paragraph 4) and as to the other half share by Deed of Transfer No. 26266 dated 18th November 1948 (Paragraph 5);

CERTAIN piece of land situate as above, being the remaining extent of Lot No. 2079 called "JACKALS LAAGTE";

MEASURING as per remaining extent one thousand seven hundred and eighteen comma eight six nine nine (1718,8699) Hectares;

HELD by WILLIAM ARTHUR CAVOOD (born on 29th January 1907) as to a half share by Deed of

. A

A.

Transfer

Transfer No. 4575 dated 11th April 1944 (Paragraph 5) and as to the other half share by Deed of Transfer No. 26266 dated 18th November 1948 (Paragraph 6);

CERTAIN piece of abolished quitrent land situate as above, being the remaining extent of a portion of the farm"PIENAARS FOORT";

MEASURING as per remaining extent seventy six comma nine nought six five (76,9065) Hectares;

HELD by WILLIAM ARTHUR CAMOOD (born on 29th January 1907) as to a half share by Deed of Transfer No.4575 dated lith April 1944 (Paragraph 6) and as to the other half share by Deed of Transfer No. 26266 dated 18th November 1948 (Paragraph 7);

CERTAIN piece of rodeemed quitrent land (granted under Act 15/1387) situate in the Division of Jansenville, being the remaining extent of "THORNDAL. portion of the farm "EAST OF GOUS KRAAL";

8.

MEASURING as per remaining extent one thousand and thirty three comma five six eight six (1033,5686) Hectares;

HELD by WILLIAM ARTHUR CAWOOD (born on 29th January 1907) as to a half share by Deed of Transfer No.4575 dated llth April 1944 (Paragraph 7) and as to the other half share by Deed of Transfer No. 26265 dated 18th November 1948 (Paragraph 8);

 CERTAIN piece of abolished quitrent land situate in the Division of Steytlerville being Portion 3 of the Farm "WITTEKLEYGATFONTEIN";

MEASURING one thousand one hundred and twenty commatone nought three seven (1120,1037) Hectares;

HELD by WILLIAM ARTHUR CAUOOD (born on 29th January 1907) as to a half share by Deed of Transfer No. 12454 dated 4th September 1944 and as to the other half share by Deed of Transfer No. 26266 dated 18th November 1948 (Paragraph 9).

SCHEDULE B

 CERTAIN piece of land, being PORTION 2 of LOT B of the farm LOT 3038 situate in the Division of STEYTLERVILLE;

MEASURING seven hundred and twelve comma nought four eight six (712,0486) Hectares;

 CERTAIN piece of land (granted in terms of Act 15/1887) being PORTION 1 of the farm "MINNAWILL" situate in the Division of STEYTLERVILLE;

MEASURING two hundred and twenty comma nine three nine eight (220,9398) Hectares;

 CERTAIN piece of land, being portion called "DOM/YLL", of the farm"LMASMUS LAAGTE", situate in the Division of STEYTLERVILLE;

MSASURING two hundred and seventy three comma six one seven seven (273,6177) Hectares;

HELD by WILLIAM LOGIE CAWOOD (born on 23rd June, 1943) as to a half share by Deed of Transfer No. 9175 dated 26th June 1963 and as to the other half share by a Deed of Transfer now about to be issued to him.

NE LING HANNER

18 ANNEXURE 5 : SPECIALIST HERITAGE REPORTS

PALAEONTOLOGICAL IMPACT ASSESSMENT: DESKTOP STUDY

Proposed limestone quarry on Portion 1 of East of Gous Kraal No. 257, Cacadu District, Eastern Cape

John E. Almond PhD (Cantab.) *Natura Viva* cc, PO Box 12410 Mill Street, Cape Town 8010, RSA naturaviva@universe.co.za

April 2009

1. SUMMARY

The proposed new limestone quarry north of Mount Stuart (Steytlerville area, Eastern Cape) will entail shallow excavations into potentially fossil-bearing mudrocks of the Early Permian (278 Ma) Whitehill Formation. The most important fossils likely to be found here include aquatic mesosaurid reptiles, primitive bony fishes and crustaceans. However, the overall impact of the development on palaeontological resources is likely to be minor since unweathered bedrock is unlikely to be exploited and the planned quarrying activities are both small-scale and short-term. Further specialist palaeontological mitigation is therefore not recommended. Should fossil remains be encountered during excavation, however, the material should be safeguarded and SAHRA or a local museum be contacted for advice by the responsible ECO.

2. INTRODUCTION & BRIEF

S.A. Lime (Eastern Cape) (Pty) Ltd are proposing to quarry limestone for agricultural lime on Portion 1 of the farm East of Gous Kraal No. 257, situated *c*. 25km northwest of Steytlerville in the Eastern Cape (Ikwezi Magesterial Area, Cacadu District). The new quarry will be located on the west side of the R338 and some 3 km north of the hamlet of Mount Stuart (Fig. 1). It will be in operation for about five months and will only involve an area of 150m X 100m. An existing quarry that has been operated by PPC since 1965 is situated on the opposite side of the R338 road.

The quarry area is underlain by potentially fossiliferous sediments of the Whitehill Formation (Ecca Group). A desktop palaeontological impact assessment for the project if therefore required by SAHRA in accordance with the requirements of the National Heritage Resources Act, 1999. This study was accordingly commissioned on behalf of the client by Mr Rudi Gerber of Algoa Consulting Mining Engineers.

1

3. GEOLOGICAL BACKGROUND

As shown by the 1: 250 000 scale geological map 3324 Port Elizabeth and satellite images, the study area lies close to the axis of a WNW-ESE syncline in marine sediments of the lower Ecca Group (Fig.1). The S.A. Lime quarry will be excavated into superficial weathered bedrock belonging to the **Whitehill Formation**. This is a thin (*c*. 20-30 m) succession of finely-laminated, carbon-rich pyritic mudrocks of Early Permian (Artinskian) age that forms part of the lower Ecca Group (Karoo Supergroup). In addition to mudrocks, thin cherts, volcanic tuffs (ash bands) and large dolomitic concretions also occur (Toerien & Hill 1989, Johnson & Le Roux 1994). These Whitehill sediments were laid down about 278 Ma (million years ago) in an extensive shallow, brackish to freshwater basin – the Ecca Sea – that stretched across southwestern Gondwana, from southern Africa into South America (McLachlan & Anderson 1971, Oelofsen 1981, 1987, Visser 1992, 1994, Cole & Basson 1991, Johnson *et al.* 2006). Iron sulphides (pyrite or fools' gold) originally precipitated within the oxygen-poor muds on the floor of the Ecca Sea weather under near-surface conditions to form the whitish mineral limestone which is of economic value both in agriculture and the cement industry.

In the study area fresh Whitehill bedrock (black in colour due to its high carbon content) is covered by a thin cover of soil and pale, deeply-weathered mudrocks. The latter contain the limestone deposits that are to be exploited commercially.

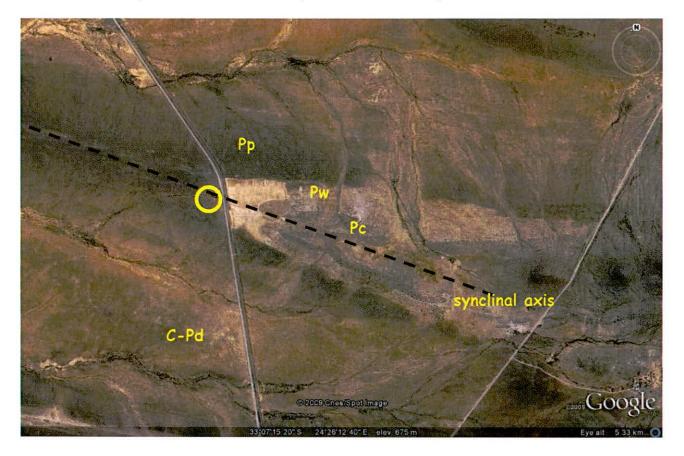


FIG.1. Google satellite image of the study area *c*. 3km north of Mount Stuart, Eastern Cape showing position of proposed new limestone quarry on farm East of Gous Kraal 257 (yellow circle). Geological units indicated are Dwyka Group (C-Pd), Prince Albert Formation (Pp), Whitehill Formation (Pw, pale outcrop), Collingham Formation (Pc).

John E. Almond (2009)

4. PALAEONTOLOGICAL HERITAGE

In palaeontological terms the Whitehil Formation is one of the richest and most interesting stratigraphic units within the Ecca Group. The overall palaeontological sensitivity of this formation has been rated elsewhere as very high (Almond & Pether 2008). In brief, the main groups of Early Permian fossils found within the Whitehill Formation include:

- aquatic mesosaurid reptiles (the earliest known sea-going reptiles)
- rare cephalochordates (ancient relatives of the living lancets)
- a variety of palaeoniscoid fish (primitive bony fish)
- highly abundant small eocarid crustaceans (bottom-living shrimp-like forms)
- insects (mainly preserved as isolated wings, but some intact specimens also found)
- a low diversity of trace fossils (eg king crab trackways, possible shark coprolites / faeces)
- palynomorphs (organic-walled spores and pollens)
- petrified wood (mainly of primitive gymnosperms, silicified or calcified)
- other sparse vascular plant remains (Glossopteris leaves, lycopods etc).

Important material of the fossil groups listed above has mainly been collected in the Western Cape Province during the twentieth century by a series of palaeontologists (See, for example, McLachlan & Anderson 1971, Oelofsen 1981, 1987, Almond 1996, 2008, Almond & Pether 2008, Evans 2005, and refs. therein). The fossil record of the Ecca Group as a whole in the Eastern Cape is still poorly recorded, mainly comprising isolated reports of vascular plant fragments, mostly unidentifiable, and various trace fossils which may be locally abundant (*eg* Haughton 1928, 1935, Johnson 1976, pp225-226). Note that in the earlier geological literature the Whitehill Formation or "Witband" was included within the Upper Dwyka Shales.

The biostratigraphic distribution of the most prominent fossil groups – mesosaurid reptiles, palaeoniscoid fishes and notocarid crustaceans – within the Whitehill Formation has been documented by several authors, including Oelofsen (1987), Visser (1992) and Evans (2005). A non-technical illustrated account of the fossil biota of the Ecca Sea is given in Appendix 1 (See also MacRae 1999).

5. CONCLUSIONS & RECOMMENDATIONS

The Whitehill Formation bedrock to be exploited in the proposed quarry is potentially fossiliferous. Any fossil remains found during excavation would be of scientific interest, especially given the sparse current knowledge of Ecca Group palaeontology in the Eastern Cape Province as a whole. Therefore any fossils encountered during fresh bedrock excavations made for this development should be safeguarded by the responsible ECO. SAHRA or a local museum (*eg* the Albany Museum, Grahamstown) should be contacted for advice at the earliest opportunity.

It is concluded, however, that pending further discoveries the proposed development will not have a significant impact on local fossil heritage resources given:

• the shallow nature of the excavations (focussing on weathered, limestone-rich bedrock)

John E. Almond (2009)

- the small area involved (100 x 150 m)
- the short time scale of the operation (c. 5 months)

No further palaeontological mitigation is therefore recommended for this project.

6. ACKNOWLEDGEMENTS

Mr Rudi Gerber of Algoa Consulting Mining Engineers is thanked for commissioning this study and for kindly providing the necessary background information.

7. REFERENCES

ALMOND, J.E. 1996. Whitehill Formation, Western Cape: joint palaeontological research, October 1996. Unpublished report, Council for Geoscience, Pretoria, 17pp.

ALMOND, J.E. & PETHER, J. 2008. Palaeontological heritage of the Northern Cape. Interim SAHRA technical report, 124 pp. Natura Viva cc., Cape Town.

ALMOND, J.E. 2008. Fossil record of the Loeriesfontein sheet area (1: 250 000 geological sheet 3018). Unpublished report for the Council for Geoscience, Pretoria, 32 pp. (To be published as part of the Loeriesfontein geology sheet explanation by the Council in 2009).

ANDERSON, A.M. & MCLACHLAN, I.R. 1976. The plant record in the Dwyka and Ecca Series (Permian) of the south-western half of the Great Karoo Basin, South Africa. Palaeontologia africana 19: 31-42.

COLE, D.I. & BASSON, W.A. 1991. Whitehill Formation. Catalogue of South African Lithostratigraphic Units 3, 51-52. Council for Geoscience, Pretoria.

EVANS, F.J.E. 2005. Taxonomy, palaeoecology and palaeobiogeography of some Palaeozoic fish of southern Gondwana. Unpublished PhD thesis, University of Stellenbosch, 628 pp.

EVANS, F.J. & BENDER, P.A. 1999. The Permian Whitehill Formation (Ecca Group) of South Africa: a preliminary review of palaeoniscoid fishes and taphonomy. Records of the Western Australian Museum Supplement No. 57: 175-181.

HAUGHTON, S.H. 1928. The geology of the country between Grahamstown and Port Elizabeth. An explanation of Cape Sheet No. 9 (Port Elizabeth), 45 pp. Geological Survey / Council for Geoscience, Pretoria.

HAUGHTON, S.H. 1935. The geology of portion of the country east of Steytlerville, Cape Province. An explanation of Sheet No. 150 (Sundays River), 35 pp. Geological Survey / Council for Geoscience, Pretoria.

JOHNSON, M.R. 1976. Stratigraphy and sedimentology of the Cape and Karoo sequences in the Eastern Cape Province. Unpublished PhD thesis, Rhodes University, Grahamstown, xiv + 335 pp, 1pl.

John E. Almond (2009)

JOHNSON, M.R. & LE ROUX, F.G. 1994. The geology of the Grahamstown area. Explanation to 1: 250 000 geology Sheet 3326 Grahamstown, 40 pp. Council for Geoscience, Pretoria.

JOHNSON, M.R., VAN VUUREN, C.J., VISSER, J.N.J., COLE, D.I., DE V. WICKENS, H., CHRISTIE, A.D.M., ROBERTS, D.L. & BRANDL, G. 2006. Sedimentary rocks of the Karoo Supergroup. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) *The geology of South Africa*, pp. 461-499. Geological Society of South Africa, Marshalltown.

MACRAE, C. 1999. Life etched in stone. Fossils of South Africa. 305 pp. The Geological Society of South Africa, Johannesburg.

McLACHLAN, I.R. & ANDERSON, A. 1971. A review of the evidence for marine conditions in southern Africa during Dwyka times. Palaeontologia africana 15: 37-64.

OELOFSEN, B.W. 1981. An anatomical and systematic study of the Family Mesosauridae (Reptilia: Proganosauria) with special reference to its associated fauna and palaeoecological environment in the Whitehill Sea. Unpublished PhD thesis, University of Stellenbosch, 259 pp.

OELOFSEN, B.W. 1987. The biostratigraphy and fossils of the Whitehill and Iratí Shale Formations of the Karoo and Paraná Basins. In: McKenzie, C.D. (Ed.) Gondwana Six: stratigraphy, sedimentology and paleontology. Geophysical Monograph, American Geophysical Union 41: 131-138.

TOERIEN, D.K. & HILL, R.S. 1989. The geology of the Port Elizabeth area. Explanation to 1: 250 000 geology Sheet 3324 Port Elizabeth, 35 pp. Council for Geoscience, Pretoria.

VISSER, J.N.J. 1992. Deposition of the Early to Late Permian Whitehill Formation during a sea-level highstand in a juvenile foreland basin. South African Journal of Geology 95: 181-193.

VISSER, J.N.J. 1994. A Permian argillaceous syn- to post-glacial foreland sequence in the Karoo Basin, South Africa. In Deynoux, M., Miller, J.M.G., Domack, E.W., Eyles, N. & Young, G.M. (Eds.) Earth's Glacial Record. International Geological Correlation Project Volume 260, pp. 193-203. Cambridge University Press, Cambridge.

Appendix 1: COOL SOUTHERN SEAS OF THE ECCA GROUP, SOUTH AFRICA

JOHN E. ALMOND (2008) *Natura Viva* cc, CAPE TOWN naturaviva@universe.co.za (021-462 3622)

1. GEOGRAPHY AND CLIMATES IN THE EARLY PERMIAN PERIOD

300 million years ago, at the end of the Carboniferous Period, Gondwana was partially submerged beneath extensive ice sheets, one or more kilometres thick, comparable to those of modern Antarctica. Glacial deposits formed when these massive ice sheets melted – the famous Dwyka *tillites* - outcrop today round the margins of the Great Karoo and very similar sediments are found on all Gondwana continents.

Early in the following Permian Period (290 Ma = Sakmarian Stage) the great Gondwana Glaciations finally, and quite suddenly, came to an end. Cool, shallow seas flooded the margins of Gondwana which were still depressed from the weight of ice sheets. During this period the Karoo Basin - a huge region of subsiding crust in the interior of southwestern Gondwana – was forming. A succession some 10km thick of glacial, shallow marine and continental sediments were later deposited within this basin over a time span of about 100 million years (c. 290-182 Ma). The Karoo Basin is famous worldwide for its fossil record of terrestrial tetrapods (amphibians, reptiles, therapsids, early dinosaurs and mammals) of Late Palaeozoic – Mesozoic age (Permian – Jurassic Periods) as well as for its sedimentary and fossil record of the Permo-Triassic Mass Extinction Event.

Around this time a series of collisions between Gondwana and other continental blocks led to the formation of a new, even larger supercontinent called **Pangaea** (Greek" "all land"). Gondwana now formed the southern portion of Pangaea (Fig. 1). The Southern African region lay embedded within Gondwana / Pangaea at high southern palaeolatitudes – estimated at around 60-65°S in the Early Permian Period.

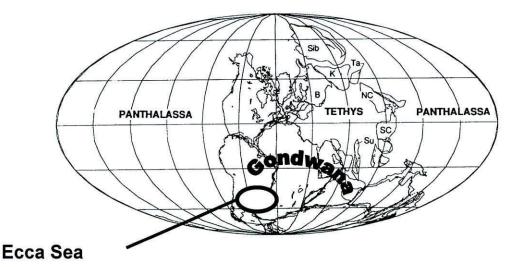


Fig. 1. Palaeogeographic position of the Early to Mid Permian Ecca Sea on Gondwana

In Early Permian Period the Southern African region and adjacent parts of South America - both important parts of SW Gondwana - were covered by the extensive but shallow **Ecca** or

John E. Almond (2008)

Natura Viva cc

Mesosaurus Sea (Fig. 2). This had a limited connection with the world ocean (**Panthalassa**) in the SW and probably also in the east – narrow seaways. Initially seawater was saline, normal salinity, but gradually became brackish and then freshwater due to input from river systems into the restricted basin. A good modern analogy for the Ecca Sea is the huge but shrinking Caspian Sea in Asia.

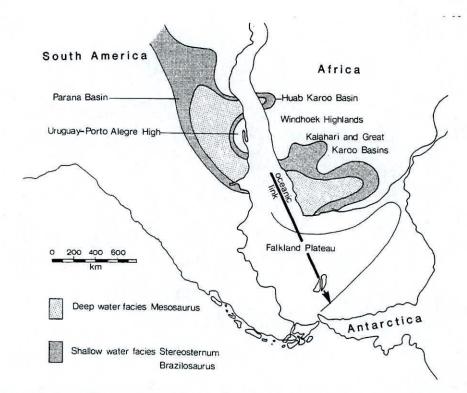


Fig. 2. Geographical extent of the Mesosaurus of Ecca Sea in SW Gondwana

Following the global icehouse conditions of the Carboniferous Period in Gondwana, the Permian was an interval of increasing global warming, culminating in the extreme – and biologically catastrophic - greenhouse conditions at the Permian / Triassic boundary. Climates in the Early Permian Period were still cool temperate, probably with valley glaciers in mountainous uplands such as the so-called Cargonian Highlands of the Northern Cape region, the youthful Cape Fold Belt, as well as volcanic island arc systems off the southern edge of Pangaea. Climates in the Karoo Basin were highly continental, with strongly-marked seasons, as a consequence of its position at high palaeolatitudes within the supercontinental interior, far from the softening influence of the coast. Winters were cold and dark, while summer were long and hot. The presence of several extensive lake systems, including the Ecca Sea itself, in the region may have moderated climatic extremes.

Deposits offshore of fine muds in the young Ecca Sea (*eg* Whitehill Formation, c. 278 Ma = Artinskian Stage), are jet-black in colour and very rich in fine carbon particles (up to 14%). Equivalent sediments in South America (known as the Irati Formation) are mined commercially as oil shales. Extensive blooms of freshwater algae, promoted by high rates of nutrient influx from surrounding continental areas, are probably responsible for the buried carbon. The constant rain of dead algal cells onto the seafloor used up all available oxygen at the sediment /water interface and below. The bottom waters were therefore *anoxic* (oxygen-poor) much of the time, excluding complex animal life, and the sediments are rich in the golden-yellow mineral iron pyrites ("fools gold") that only forms in the absence of oxygen. Corpses of fish, aquatic reptiles and invertebrates which landed on the sea bed were very often preserved intact because of the lack of aerobic decomposers, scavengers and burrowing organisms which might otherwise have disturbed their remains

John E. Almond (2008)

2. ECCA SEA FAUNA

By 278 million years ago, the Ecca Sea was essentially a huge inland freshwater lake. The variety of animal life living in this water body was limited compared with true marine waters. This was probably due to the high, cool palaeolatitudes (seasonally low primary production and low temperatures) as well as the low salinity. Large populations of small **crustaceans**, rather like modern *krill*, thrived at times within the water column as well as on the bed of the Ecca Sea. Their skeletons, flattened by burial pressure to paper-thinness, cover some bedding planes in their thousands (Fig 3s). Beautiful specimens of intact **palaeoniscoids** - primitive bony fish with an external armour of thick, interlocking scales – are also found (Fig 3b). These fish may have fed on crustaceans and other invertebrates. A wide range of **trace fossils** show that the Ecca Sea was inhabited by many other animals whose skeletal remains have not been preserved. These traces include many different sorts of feeding burrows, fish and amphibian swimming and resting trails (Fig. 3c), and the trackways of small arthropods such as crustaceans and king crabs (Fig. 3d). Rare specimens of fossil insects, including whole animals as well as isolated wings, that were blown offshore from the shores of the Ecca Sea have also been found.



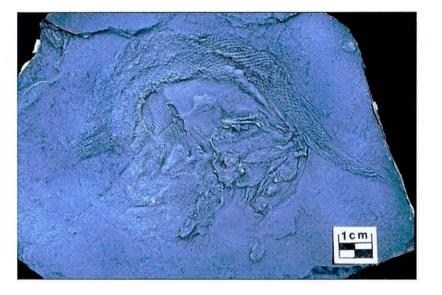






Fig. 3. Ecca Sea fauna:

a. Notocaris crustaceans

- b. Palaeoniscoid fish
- c. King crab trackway

d. Large amphibian resting trace on sandrippled lake margin

John E. Almond (2008)

Giant water scorpions (eurypterids)

The largest animals known from the Ecca Sea were huge **eurypterids** or water scorpions which reached lengths of two metres or more – the largest arthropods ever known. These "gentle giants" were predators but specialised in sweeping up small invertebrates and organic detritus on the seafloor using comb-like structures on their walking legs (Fig. 4). Distinctive trackways and brush-marks made by giant sweep-feeding eurypterids as they simultaneously walked and fed on the Ecca seabed have recently been found near Laingsburg in the SW Karoo (Fig. 5).

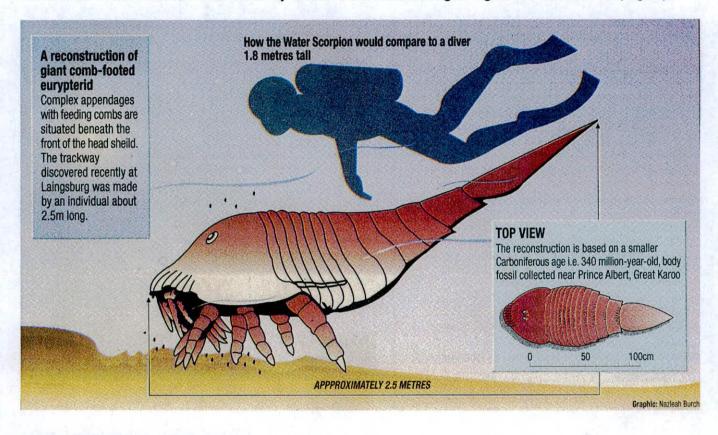




Fig. 4. Artist's reconstruction of a giant sweepfeeding water scorpion (eurypterid) on the Ecca seabed.

Fig. 5. Combined walking and sweep-feeding trackway of a sweep-feeding eurypterid, lower Ecca Group.

19 ANNEXURE 6 : CONSULTATION WITH I&A PARTIES

KENNISGEWING VAN OORLEGPLEGING MET BELANGHEBBENDE & GEAFFEKTEERDE PARTYE

Kennis geskied hiermee, kragtens Artikel 10 & 39 van die Wet op die Ontwikkeling van Minerale & Petroleumhulpbronne, 28 van 2002, om die volgende aktiviteite uitte voer:

S.A. LIME EASTERN CAPE (EDMS) BPK is van voorneme om 'n mynpermit oopgroefmyn te vestig op 'n gedeelte van GEDEELTE 1 van die plaas EAST OF GOUS KRAAL, nr. 257, in die distrik van Jansenville. Ten einde te verseker dat jy as 'n belanghebbende en/of geaffekteerde party geïdentifiseer word, stuur jou naam, kontakbesonderhede, besonderhede van jou belang en enige opmerkings in die saak aan mnr. Rudi Gerberteen 20 Oktober 2009. Voorlegging moet skriftelik gerig word aan Algoa Consulting Mining Engineers, Posbus 16501, Emerald Hill, 6011; of per faks na 086 657 7703. 7882291(19G06Q0) 8/10(234)

19G06Q0-081009-OS-ck

Figure 14: The advertisement in the local newspaper to register as I&AP.

21/03 2006 03:23 FAX +27 0 41 374 0856 Elitheni Coal (Pty) Ltd 002

ALGOA CONSULTING MINING ENGINEERS cc



Ref. nr. : S.A. LIME (EASTERN CAPE) (Pty) Ltd - 06 October 2009 PLEASE RETURN BY FAX OR REGISTERED MAIL TO THE ABOVE CONTACTS.

Contact details of Inter	ested & Affected Party :		
Name	PETER LOGIE CH	1000	
Property / Organisation	PORTION 1 of EAST OF GO	US KRAAL No. 257 division of JANSCONLI	Lt
Postal Address	MOUNT STEWART P.BAG.	XI KLIPPLAAT 6255	
Telephone	:0498349048	Fax No.: 0498349076	
Mabile No	:0.82.4.6128.95	E-mail :	

Please list your comments on the project. Should you require more space, use additional page :

1.	I AS THE DWINER OF THIS PROPERTY SUPPORT THIS P. IN ACCORDANCE WITH THE AGREEMENT BETWEEN MYSELF	COJECT
X.	S.A. LIME EASTERN CAPE (PTY)(LTD) (SAL)	AND
З.		
4.		*****
5.		•

or

I have no comments on the proposed project.

Signed :

1. LETTE LOGIE CALGOD

confirm that I have received the Public Consultation Notice.

Signature

I.D. Number

4306235016083

Page 1 of 1

Date

Name and cont	act details of alternate / n orninated	a person to be contacted	i nstant ·
Name	MARK, S. SHIRES		
Property / Organisation	MOUNT STEWART FAR	21/1 S	
Postal Address	BLUEGUMUALE MC	UNT STEWART PB	KLIPPLAAT 6255
Telephone	0498349050	Fax No.: 04983490	
Mobile No	!	E-mail :	
Print Date : 19/10/2009	I&AP's Reply Fo	m docx	Dens 4 ald

I&AP's Reply Form.docx

20 ANNEXURE 8 : MINING WORK PROGRAMME



130 Cape Road ; Mill Park, P.E., 6001 Republic of South Africa Telephone: National (041) 374 0842 International +27 41 374 0842 Telefax: National (086) 657 7703 International +27 86 657 7703 e-mail : rudi@algoacme.co.za

S.A. LIME EASTERN CAPE (PTY) LTD



MINING WORK PROGRAMME

This report is an addendum to the mining permit application for a proposed open pit mining operation in the Mount Stewart area intended to supply limestone to the agricultural sector and Portland Cement manufacturers within South Africa. This report is undertaken in compliance with the Minerals and Petroleum Resources Development Act, Act 28 of 2002.

August 2009

August 2009

Mining Works Programme for Limestone Mining Permit

Page 1 of 20

TABLE OF CONTENTS

1.	PARTICULARS OF THE APPLICANT AND ITS REPRESENTATIVE
2.	PLANS SHOWING THE LAND AND MINING AREA
2.1	LOCATION OF THE MINE
2.2	Mining Plan4
3.	REGISTERED DESCRIPTION OF THE LAND
4.	LIFE OF MINE
5.	MARKET
6.	TIMEFRAMES AND SCHEDULING
7.	FINANCING PLAN
7.1	Costs Related to Mining Techniques
7.2	
7.3	Costs related to Technical Skills
7.4	Costs related to Regulatory Requirements7
7.5	OTHER COSTS AND CAPITAL EXPENDITURE
7.6	Capital Expenditure7
7.7	Revenue
7.8	Cash flow Forecast
7.9	Proposed Financing Mechanism
7.1	0 FINANCIAL YEAR OF MINE9
8.	RESOLUTION / UNDERTAKING
9.	ANNEXURE 1 : CERTIFICATE OF INCORPORATION
10.	ANNEXURE 2 : CERTIFICATE TO COMMENCE BUSINESS
11.	ANNEXURE 3 : RESOLUTION OF REPRESENTATIVE OF THE COMPANY
12.	ANNEXURE 4 : MINING PLAN 13
13.	ANNEXURE 5 : TITLE DEEDS 14
15.	ANNEXURE 6 : LATEST AUDITED FINANCIAL STATEMENTS
16.	ANNEXURE 7 : FORECAST OF DETAILED COST ANALYSIS
17.	ANNEXURE 8 : FORECAST OF DETAILED REVENUE ANALYSIS
18.	ANNEXURE 9 : CASHFLOW FORECAST 18
19.	ANNEXURE 10 : FORECAST OF CAPITAL EXPENDITURE
20.	ANNEXURE 11 : LIFE OF MINE DOCUMENT 20

1. PARTICULARS OF THE APPLICANT AND ITS REPRESENTATIVE

Item	Description	Detail
1.1	Full name of Company	S.A. Lime Eastern Cape (Pty) Ltd
1.2	Registration number of Company	2006/027364/07
1.3	Copy of certification of incorporation.	See ANNEXURE 1 : CERTIFICATE OF INCORPORATION
1.4	Copy of certification to commence business	See ANNEXURE 2 : CERTIFICATE TO COMMENCE BUSINESS
1.5	Copy of resolution of representative for the company	See ANNEXURE 3 : RESOLUTION OF REPRESENTATIVE OF THE COMPANY
1.6	Contact Person	Mr Henke Pistorius
1.7	Applicant's Telephone number	012 346 4594
1.8	Applicant's Facsimile number	012 346 4359
1.9	Applicant's Cell phone number	082 881 1119
1.10	Applicant's Physical Address	110 Bronkhorst Street Groenkloof Pretoria 0181
1.11	Applicant's Postal Address	S.A. Lime EC Opencast Mine P.O. Box 12444 Hatfield Pretoria 0028
1.12	Contact person's e-mail address	henke@salime.biz ursela@icon.co.za

S.A. Lime Eastern Cape (Pty) Ltd (trading as S.A. Lime EC Opencast Mine) is a small to medium size enterprise focusing on the mining of limestone for retail as raw materials. The focus of the business is on the optimal utilisation of the natural ore reserves within the Mount Stewart area, to supply unprocessed limestone to the agricultural community and the cement producers of South Africa.

2. PLANS SHOWING THE LAND AND MINING AREA

2.1 Location of the Mine

1

S.A. Lime EC Opencast Mine is applying for a mining permit over a 1,5 hectare area for the mining of limestone for agricultural and industrial uses. The site is located at 33° 07' 06" S and 24° 25' 32" E.

August 2009	Mining Works Programme for Limestone Mining Permit	Page 3 of 20
-------------	--	--------------