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Department:  
Minerals and Energy  
**REPUBLIC OF SOUTH AFRICA**

DME 12

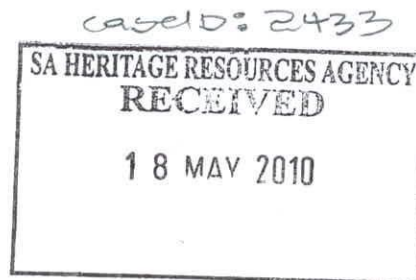
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Date:

EC30/5/1/2/3/2/1(0245)EM  
11 December 2009

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:  
SCOPING REPORT FOR CLAY MINING ON ERF 561 WELLS ESTATE, IN THE  
MUNICIPALITY OF PORT ELIZABETH, DIVISION OF UITENHAGE**

1. Attached herewith, please find a copy of the Scoping Report received from Eastern Province Brick Mining (Pty) Ltd.
2. Please forward any written comments or requirements your department may have in this regard, to this office no later than **26 December 2009**. Failure to do so, will lead to the assumption that your department has no objection(s) or comments 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**





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# E.P. MINERALS OPENCAST MINE

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## SCOPING REPORT

This report is an addendum to a mining right application for a proposed open pit mining operation in the Swartkops River Valley (owned by E.P. Minerals ), intended to supply clay for the brickmaking industries in the Nelson Mandela Bay Area in the Eastern Cape. This report is undertaken in compliance with the Minerals and Petroleum Resources Development Act, Act 28 of 2002.

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November 2009

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## E.P. MINERALS OPENCAST MINE

### 1. INTRODUCTION

Algoa Consulting Mining Engineers (ACME) has been commissioned by **Eastern Cape Brick Mining (Pty) Ltd**, trading as **E.P. Minerals Opencast Mine**, a newly formed mining company, to apply for a mining right for general clay. This Scoping Report has been conducted in terms of the Mineral & Petroleum Resources Development Act, Act 28 of 2002. E.P. Minerals Opencast Mine plans to mine the general clay and sell it to local clay brick manufacturers in the Nelson Mandela Bay area. Historical mining activities for minerals such as general clay, building sand and salt is commonly found in this area.

#### 1.1. Mine Ownership

**Eastern Province Brick Mining (Pty) Ltd** (Co. No 2009/009347/07), trading as **E.P. Minerals Opencast Mine**, is owned partly by a natural person (Me Evelyn Mali) and partly by a legal entity, The Wells Estate Property Trust. The shareholding certificates of **Eastern Province Brick Mining (Pty) Ltd** are distributed as follows :

Nr	Shareholder / Owner	% Shareholding	Proxy / Director / Trustee
1	The Wells Estate Property Trust Reg. nr. IT 2171/97	74 %	John Desmond Martin I.D. nr 5211065115089
2	Mrs Bulelwa Evelyn Mali I.D. Nr. 5710100864082	26 %	Mrs Bulelwa Evelyn Mali I.D. Nr. 5710100864082
	<b>TOTAL</b>	<b>100 %</b>	

The beneficiaries of The Wells Estate Property Trust are :

Nr	Beneficiary	% Ownership
1.	John Desmond Martin I.D. nr 5211065115089	33 ⅓ %
2.	Bruce Anthony Martin I.D. nr 5704115132088	33 ⅓ %
3.	William John Martin I.D. nr 5107025038082	33 ⅓ %
	<b>TOTAL</b>	<b>100 %</b>

## **E.P. MINERALS OPENCAST MINE**

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### **1.2. Physical Address of Mine**

ERF's 20 & 21 (ERF 561) of Wells Estate, Eastern Cape ; R102 - Regional Road ; Old Grahamstown Road ; Swartkops ; Port Elizabeth ; 6000

### **1.3. Postal Address of Mine**

P O Box 7560 ; Newton Park ; Port Elizabeth ; 6055

### **1.4. Primary telephone numbers of Mine**

041 466 2727

### **1.5. Other contact Details of Mine**

Fax. Nr. 041 466 2887

Cell. Nr. 082 730 5530

e-mail epbrick@cybertrade.co.za

### **1.6. Location & details of the Land**

See in Annexure 1 : Plans Contemplated in Reg.2(2), 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. All mine planning has been done using these plans. E.P. Minerals Opencast Mine is applying for mining rights over an area where there is currently a quarry, which had been mined in the past to supply clay to Eastern Province Brick cc , a clay brickmaking factory. The mining area extends over approximately 14,5 hectares and is located at longitude 33° 50' 03" S and latitude 25° 36' 15" E.

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The parcel of land on which the mine is located is Erf 561, Wells Estate, which is situated in the Nelson Mandela Bay Municipal area, in the administrative district of Uitenhage. The total area of the ERF is 24,3585 ha. of which only 14,5 ha. will be utilised for the mining right area. The title deed details are shown below:

Title deed	Extent	Owner	Administrative district	Local authority
T42474/1988	24.3585	Wells Estate Property Trust	Uitenhage	Nelson Mandela Bay Municipality

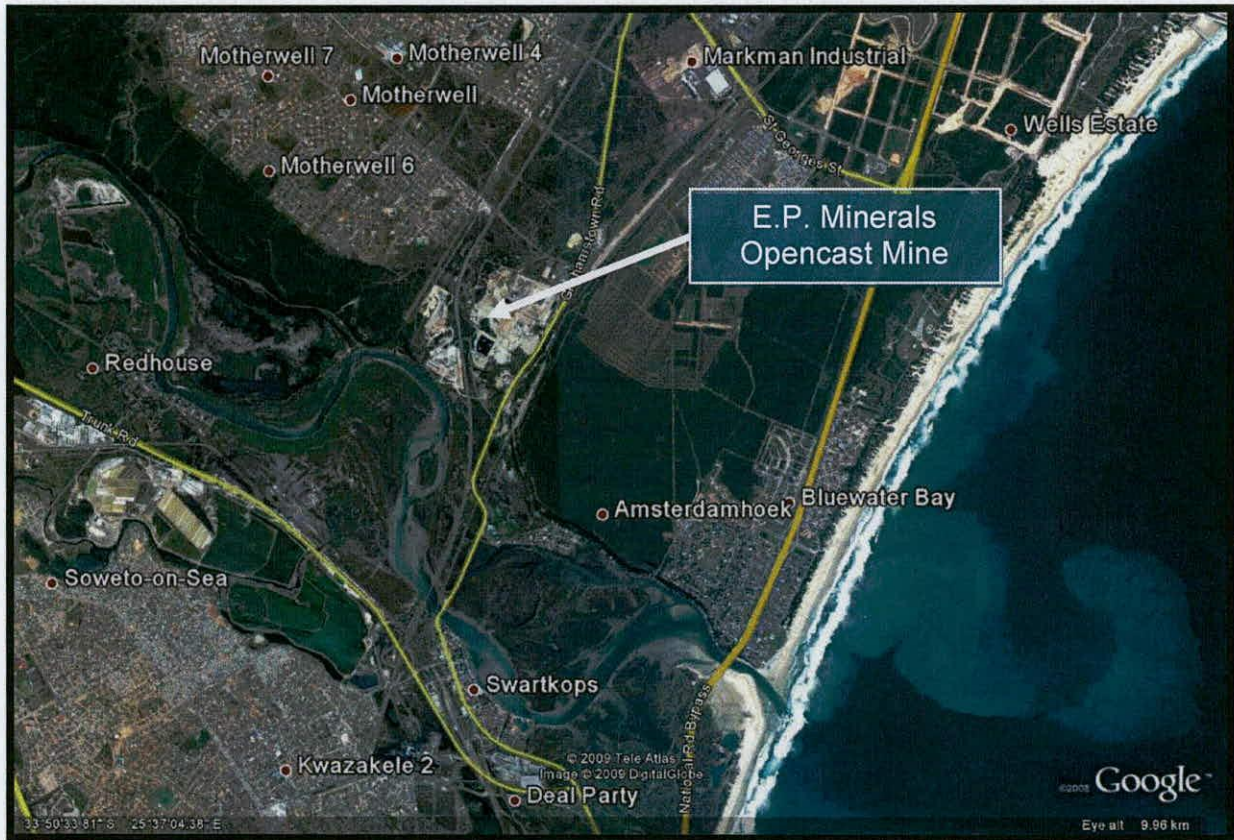
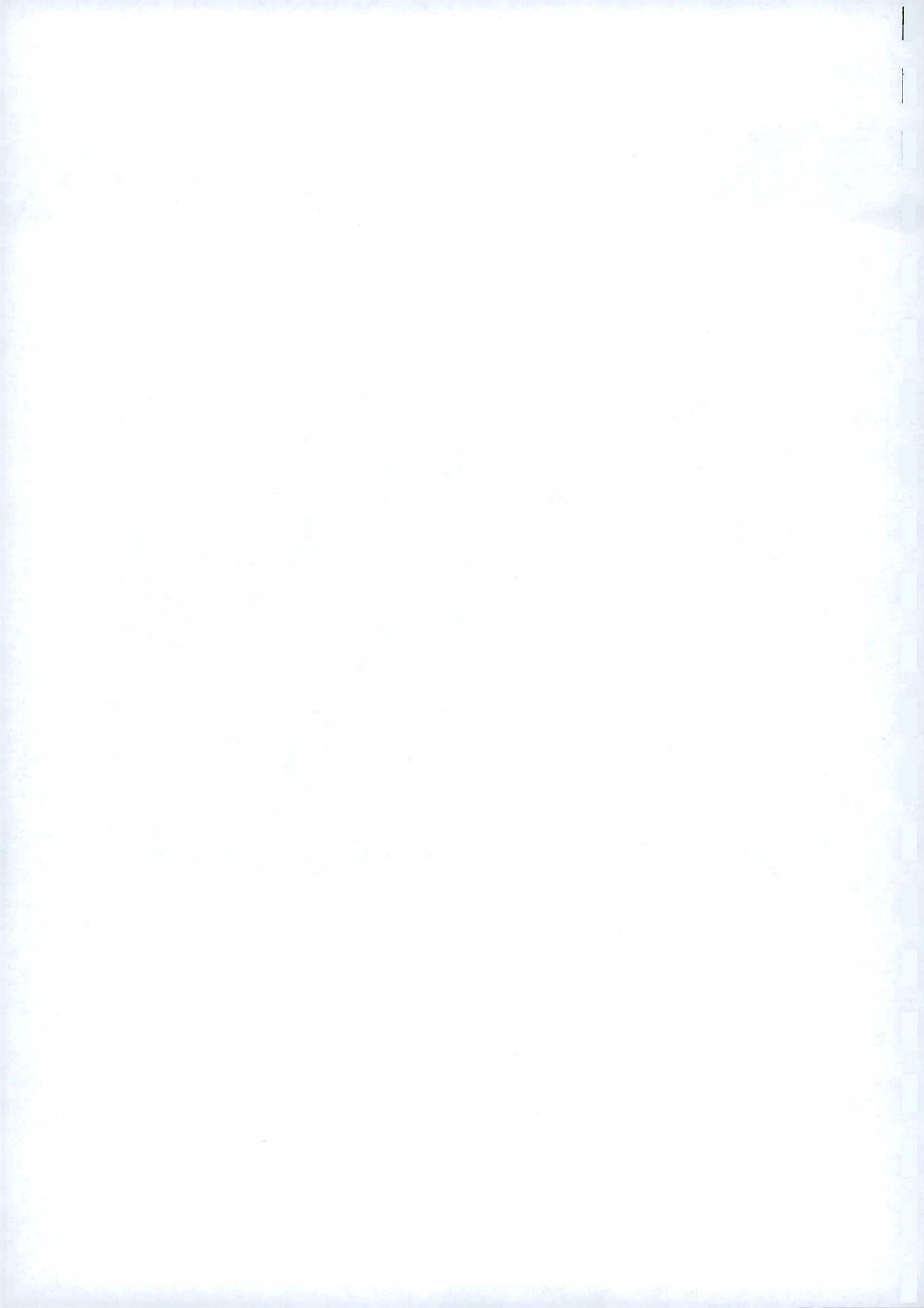


Figure 1: Locality of the proposed mining right area shown on a Google earth image

### 1.7. Methodology to Conduct Scoping

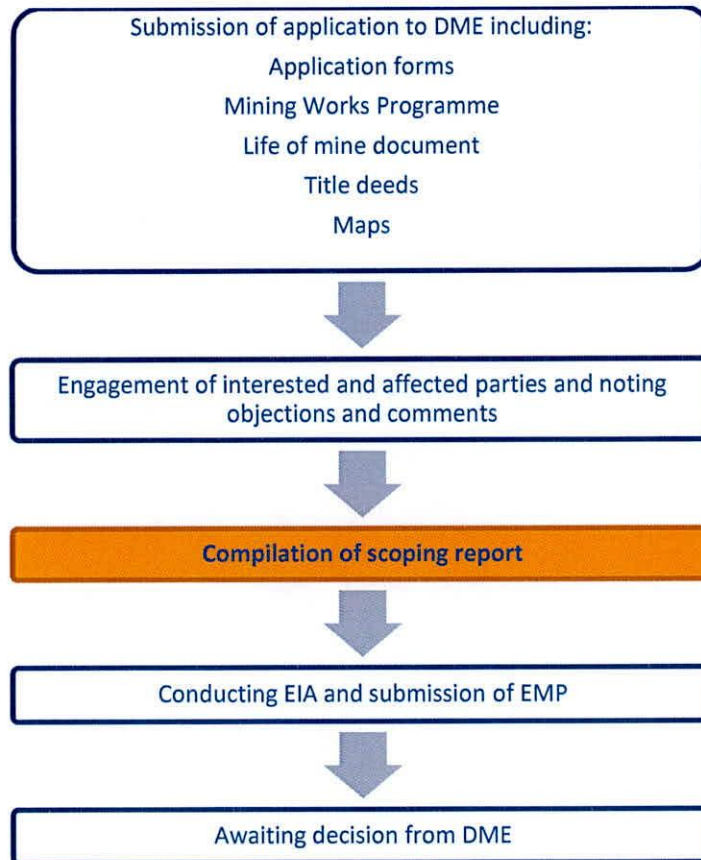
The methodology has been to detail the environment prior to mining and thereby to assess the impacts of the pre-mining environment. The scoping is undertaken as part of a application for mining rights, which includes an environmental management plan. The broader process of which the scoping report is a part is outlined below for clarity:





## E.P. MINERALS OPENCAST MINE

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The detailed methodology for the scoping includes the following steps :

1. Site visits to investigate possible environmental impacts
2. Reviews of previous environmental studies undertaken for mining operations in the area
3. Determination of pre-mining environmental and socio-economic conditions for the site and the local area including specialist studies
4. Evaluation of the extent, duration and severity of the environmental impacts using well established risk assessment methodologies to determine the risk associated with the respective environmental impacts
5. Determination and evaluation of alternative land use options as well as alternative mining methodologies and the associated environmental impacts
6. Developing recommendations for environmental management programmes for the proposed mining venture to minimise impacts on the environment

7. Engagement through notices and registered letters of interested and affected parties

## 2. THE AFFECTED ENVIRONMENT

### 2.1. Location and Land Uses

E.P. Minerals Opencast Mine is applying for mining rights over an approximate 14,5 hectare area where there is currently a quarry, which had been mined in the past to supply clay to Eastern Province Brick cc , a clay brickmaking factory. The Open Pit is situated approximately 3 km inland from the coast and access is along the regional R101 Old Grahamstown Road. It lies approximately 15 km from central Port Elizabeth, although the Motherwell & Swartkops areas abuts to the Aloes Industrial area.

The open pit quarry at E.P. Minerals occurs on a flat plateau formed by the Sundays River formation, to the North of the Swartkops River. The surrounding land is generally formed by a calcrete capping on top of the Sundays River formation, which is a residual clay formation. The area is zoned for industrial use and surrounding land uses include :

1. Mining of clay about a kilometre due west
2. Hazardous waste disposal dumping sites north and south
3. Heavy Industry & manufacturing to the west ; far north and far south
4. Warehousing to the far north and far south
5. Low income & informal residential areas in proximity of the abovementioned areas

### 2.2. Climate

The Eastern Cape region lies at the junction of the temperate (winter rainfall) and subtropical (summer rainfall) climatic regions. Rainfall seasonality is thus relatively unpredictable and irregular, averaging approximately 400 to 600 mm per annum. The

## E.P. MINERALS OPENCAST MINE

average monthly rainfall is 51,1 mm. Rainfall is bimodal, with spring and autumn peaks. The mean daily temperatures (data for Addo) vary from an average of 32°C in January to 13,5°C in July, with temperatures exceeding 40°C frequently recorded in summer. The mean minimum temperatures are 16,4°C in January and 5°C in July, with rare frosts during the winter months. The wind regime is vigorous and strong throughout the year. Winds come predominantly from the South-West, but include significant Easterly components in spring and summer and North-Westerly winds in autumn and winter. The windiest conditions occur from August to December, and the calmest conditions from March to May. The mean monthly evaporation for the Port Elizabeth weather station is 118 mm per month for the years 1959 to 1988. The mean annual evaporation is 1500 to 1600 mm. There is a low incidence of extreme weather conditions in the region. Drought is a fairly frequent event in the region, due to unpredictable rainfall patterns. High winds are quite common, as described above, but frosts and hail are rare.

According to the Köppens classification the climate occurring within the region of the proposed development is classified as subtropical (Cfb'), with all months between 10 and 22 degrees Celsius and all months with at least 60 mm of rain. Weather data were collected from an automatic weather station at Port Elizabeth. The Port Elizabeth weather station (station number 0035179 5) is located 330 59' S and 250 36' E, at a height of 60 metres above mean sea level.

Table 1: Rainfall data for Port Elizabeth

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>Average Daily Temperature</b>	21.7	21.6	20.7	18.7	16.6	14.7	14.3	14.7	15.7	17.0	18.5	20.3	<b>17.9 °C</b>
<b>Mean Monthly Rainfall</b>	36	40	54	58	59	62	47	64	62	59	49	34	<b>Total 624 mm</b>

### 2.3. Air Quality

The ambient air quality in the area proposed mining area is considered reasonable to good with moderate background dust or other pollutants. Much of this is due to the

south-neighbouring Swartkops Valley channelling and compressing south-western winds as well as from activities from neighbouring industrial operations which have been cleared of vegetation.

### **2.4. Topography and Land Description**

The title deed of ERF 561 of Wells Estate has been zoned as "industrial" ground and borders onto similar grounds (owned by Waste Tech) that house hazardous waste disposal dumping sites. Only a western portion of the ERF 561 - land comprises of the mining right. A servitude which houses an overhead electricity cable network from Eskom crosses adjacent to the mining right area over the property as a North-South corridor.

The open pit area for clay mining operations lies between approximately 70 to 40 m.a.m.s.l. The mine falls in the Swartkops River catchment's zone. The Swartkops River flows South-East in its course towards the Indian Ocean approximately 750 m south-west of the mining area at about 2 m.a.m.s.l. The Swartkop River catchment is approximately 90 km long and 15 km wide, with a total area estimated at about 1395 km<sup>2</sup>. The catchment falls within the 650 to 750 mm rainfall isohyet and the mean annual volume of runoff for the river is approximately 56 million m<sup>3</sup>, giving the river an average flow of 2 m<sup>3</sup> per second (CSIR, 1997).

### **2.5. Topsoil**

The soil type is determined by the underlying alluvial sediment. The fertile soil layer is very shallow with a slightly high pH due to the presence of weathered calcareous material found within the marine sediments. Topsoil will only be removed temporarily only to be returned once mining has been completed. No topsoil will be removed from the mining area indefinitely. This soil type is endemic to the Sundays Valley Thicket vegetation type found on the mining area.

## 2.6. Geology

The geology is defined by an onshore post Karoo Mesozoic deposit. This is due to the occurrence of the Algoa basin, which is a half-graben-type basin with diverse sediment fill. The quarry falls into the Sundays River formation which can have thickness of over 2000m in parts and is denoted as the pink coloured areas with a "Ks"- abbreviation in Figure 2. It overlies and grades into the very similar Kirkwood formation, which is denoted as the yellow coloured areas with a "J-Kk"- abbreviation in Figure 2. The Sundays River formation consists of thin, grey sandstones, siltstones and mud-rocks.

See below a geological map indicating the sedimentary deposits and the general clay (CS) that could be mined. The map indicates that historical mining activities had been conducted in these areas by former brickmakers, such as Corobrik, Ngqura Brick and E.P. Brick.



Figure 2: Geological Map of surrounding area at EP Minerals Opencast Mine

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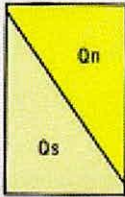
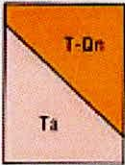
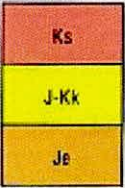
GROUP GROEP	SUBGROUP SUBGROEP	FORMATION FORMASIE	
ALGOA		*Schelm Hoek	
		Nahoon	
		Salnova	
		Nanaga	
		Alexandria	
UITENHAGE		Grahamstown	
		Sundays River Sondagsrivier	
		Kirkwood	
		Enon	

Figure 3: Legend pertaining to the Geological Map of EP Minerals Opencast Mine

The Sundays River formation comprise of clays, which were deposited during the Cretaceous period of the Mesozoic Era, which was expected to have warmer climates and higher sea tides, just prior to the breakup of the super continent Pangaea. The Cretaceous period is well known for deposits of chalk (limestone) and in this case the calccrete layer is found lying above the clay sediments in places. The formation is often fossil - bearing. The layers with higher calcite cementation form prominent cliffs in the area, whereas the clay is soft and erodes easily. The clay deposit sought after for mining are formed from tertiary deposits of erosion and weathering of the Alexandria formation and Blue Water Bay formation. The greenish-grey mudstone underlying the tertiary clay deposits is most suitable for brick making as this material can be left to weather to finer clay, after mining. Much of what could be mined currently is clayey material, which was dumped onto the site when the neighbouring hazardous waste dumping site was excavated.

### 2.7. Surface Water & Groundwater

As the mine is situated within the Swartkops catchment area all stormwater drainage is down the slope towards the Swartkops River. . Drainage has been severely altered through the historical quarrying activities and infrastructure such as roads and railway lines. The Swartkops River receives effluent from multiple sources including the sewage treatment plant upstream from the river. The river water quality at the time of assessment is unknown however anecdotal evidence suggests poor management of the river water quality as indicated by the overgrowth of alien vegetation (Water hyacinth) at the altitude just higher than the tidal interface found about 3km upstream.

The groundwater in the area is slightly brackish and is not fit for potable use. The mudstone underlying the Sundays River formation is not a good source of potable groundwater and generally reveals very poor reserves of brackish water due to its marine origin. The weathering of this mudstone creates an impervious layer below the mining and industrial land uses, preventing any contamination of deeper groundwater resources. Hence the location for a hazardous waste disposal site on the neighbouring properties of the mine.

### 2.8. Vegetation

Due to the surrounding land use, infrastructure development and economic development, the vegetation in the mining area had been severely disturbed. However, some stands of the Sundays Valley Thicket occur mostly on deep, usually red, loamy - to clayey soils that are derived from the Sondagsrivier and Kirkwood formations. Some woody trees, shrubs and the succulent component are still present, with the majority of the 96 species spinescent to the Sundays Valley Thicket removed. No distinct strata can be differentiated within the vegetation, as the lower and upper canopy species are intertwined, often together with a wide variety of liana species linking the understory species with the canopy. Few species emerge from the canopy, with *Euphorbia grandidens* and occasionally *Cussonia spicata* the only exceptions. The *Aloe africana*

and *Euphorbia ledienii* found are typical and reliable indicator species of this unit. The Sundays Valley Thicket vegetation is currently not vulnerable.

### 2.9. Fauna

A number of the animal species that live in thickets are dependent on undisturbed vegetation, for example, those that lay their eggs on litter or are arboreal such as chameleons and tree snakes. Fabricius (1997) indicates that these species are the most sensitive to land degradation and require dense Xeric Succulent Thicket for their survival. Further, Fabricius (1997) indicates that arthropods, which are obligate herbivores, are associated with well-vegetated localities. As the vegetation had been severely disturbed by human intervention, most of the medium- to big mammal life had been removed from this area. The Eastern Cape has the most diverse land tortoise fauna in the world (Branch 1988) and the common Padloper ( *Homopus areolatus* ) could occur. The general area is disturbed and the level of human activity on the surrounding properties would make large areas of surrounding area and the development site unattractive for many wild species. Although no animals were noted during field investigations, the area probably supports a diversity of rodents, reptiles, birds and amphibians.

### 2.10. Socio-Economic Status

The data from Census 2001 shows that the population for the ward in which the mining is proposed (ward 60 Nelson Mandela Bay Municipality) to be 12480 people. 37% of the population has some secondary education with 38% having completed grade 12. 14% of the population has a higher education. 7% of households reported no income with 22% reporting an income of less than R19 200 per annum (about R29 000 in 2008 value). 46% of the households had an income of greater than R76000 (about R125000 in 2009 real terms).



## 2.11. Cultural and Heritage Aspects

No historic building is found on the property. No other sites or objects of cultural and historic significance were noted during the site visit. Specialist studies into paleontological - & archaeological heritage were carried out. These reports are attached under **Error! Reference source not found..**

## 3. PUBLIC PARTICIPATION PROCESS

In accordance with MPRDA regulations, 49(1), a public participation process must be described in the scoping report.

### 3.1. Identification of Interested and Affected Parties

Public participation was undertaken by the following means:

1. Personal contact with direct neighbours and land owners
2. Placement of an advert in the local media
3. Notices prominently displayed at the offices of the DME

All persons contacted have been given 30 days to make submissions regarding objections and / or comments on the proposed mining operation.

Table 2: List of interested and affected parties engaged with.

Organisation	Name, Surname	Contact nr.	Address
EnviroServ	Stuart McMullan	0827796364	stuartm@enviroserv.co.za
Zwartkops Trust	Jenny Rump		zwartkops.trust@iafrica.com
Zwartkops Trust	Mike Spearpoint	0834527090	P.O. Box 75 ; Swartkops ; 6210
Nelson Mandela Bay Municipality	Me Jill Manuel	0415061332	P.O. Box 834 ; P.E. ; 6000

### **3.2. Comments from Interested and Affected Parties**

See Annexure 2 : Proof of Public Participation for details of people who wish to be registered as an interested and / or affected party to this mining venture.

### **3.3. Response to Interested and Affected Parties**

Significant comments have been addressed in section 4.5.2 and will be further addressed on compilation of the EMP for the proposed mining right. Responses to these comments are included in Annexure 2 : Proof of Public Participation indicating the details regarding the proof of engaging interested and affected parties to the project. Where justifiable, these comments have been used to highlight the significant environmental and social impacts which need to be dealt with via the creation of an Environmental Management Programme.

## **4. SCOPING ASSESSMENT**

The following is a preliminary assessment of the anticipated possible ecological -, social - and economic impacts this mining venture could have including the cumulative impacts :

### **4.1. Possible Direct Impacts**

- Extraction, erosion and removal of topsoil
- Loss of soil fertility
- Removal of vegetation
- Change in height of landscape
- Loss of indigenous vegetation cover
- Loss of threatened plant species
- Increase in alien invasive plant species
- Loss of terrestrial habitat for fauna

- Pollution of water resources by hydrocarbons
- Pollution of surface water resources by poor waste management
- Increase in turbidity of surface water features due to silt run-off
- Draw down of groundwater
- The liberation of airborne dust
- Creation of disturbing or excessive noise
- Loss of heritage sites
- Loss of important paleontological sites

### **4.2. Possible Cumulative Impacts**

- Impacts from multiple mining operations resulting in general degradation of the floodplain of the Swartkops River system
- Increase in alien vegetation due to removal of indigenous vegetation and lack of management of invader plant species

### **4.3. Positive Impacts**

- Increased employment in the sector
- Sustainability of current down-stream operations
- Supply of raw materials to brickmaking industry
- Supply of bricks to construction industry
- Revenue input into local economy

### **4.4. Risk Assessment Procedure**

The risk assessment has been carried out in two manners : Firstly, the I&AP's have been called upon to make comments and assess the environmental- and social risks of the project. This allows for an observation of perceived risk to the IAP's as individuals as well as the broader community in general. Secondly, a risk assessment process has been developed and carried out, which addresses all impacts the quarry is expected to have from a professional assessment. This risk assessment uses a rating system and

defines the most significant risks, in terms of extent, duration, severity and constancy. The process involves assessing primary risk without any mitigation and subsequently assessing the residual risk after mitigation measures have been implemented. This allows for identification of areas where mitigation and management attention must be focussed. Should it become apparent that more detailed studies need to be undertaken in the assessment, then specialist would be engaged to assess risks to be included in the mine's EMP.

The significant environmental and social aspects and the impacts are dealt with separately in the next section.

#### **4.5. Summary of Environmental - & Social Risks**

##### **4.5.1. Risks Identified through Risk Assessment Process**

###### **A. Soil Removal**

Soil removal will be dealt with by pre-stripping of soil using an excavator and stockpiling of soil prior to mining of the clay. Topsoil stockpiles should not be higher than 2m and the soil should be covered with vegetation cover to prevent the loss of fertility and to combat erosion.

###### **B. Vegetation Removal (Loss of Cover)**

Vegetation removal will be mitigated by seeding and planting of replaced soil. This will require the selection of species, which in this case should exclude Kweek (*Cynodon Dactylon*) grass to allow for other species to establish. Some species may require germination in seedling trays, in a nursery.

###### **C. Lowering of Landscape**

This is usually an unavoidable consequence of mining. However, the pit scheduling had been planned not to break the skyline, but instead create a cavity that could be utilised in future as another hazardous waste disposal dump site. In

addition, the internal slopes of the pit must be made gentle. This will ensure slope stability control to be utilised as a reservoir later on.

***D. Loss of indigenous and threatened species***

The Sundays Valley Thicket vegetation system is not vulnerable at this stage and given the existing status and the small impact area of only 14,5 hectares, the risk would not be negligible. Another important factor for ensuring survival of the greater Sundays Valley Thicket vegetation system is to ensure that alien plant species are eradicated and controlled.

***E. Increase in alien vegetation***

This can only be mitigated by an ongoing programme to eradicate the alien plant species. This should be done in combination with the mining rehabilitation schedules as mining of areas opens the opportunity for alien plant infestation. Subsequently the schedule to replant the indigenous Sundays Valley Thicket vegetation system once mining has been completed should run concurrently with the mining process.

***F. Nuisance Dust***

Nuisance dust is expected to predominate from haul roads. This risk will be mitigated firstly, by mining the clay over a short period within intermittent quarterly cycles, thus reducing the repetitiveness ; secondly, to stop work during windy periods ; thirdly, utilising dust suppression applications along the haul roads.

***G. Disturbing Noise***

Nuisance noise will be managed by ensuring that production work is limited to day time 07h00 to 18h00 only.

**4.5.2. Risks Identified through Public Participation**

No additional risks had been identified from public participation and all the comments and concerns raised by interested and affected parties have been assessed to be incorporated into this preliminary EIA. All of the risks identified and the mitigation measures will be incorporated into the mine's EMP.

**5. PROJECT ALTERNATIVES**

**5.1. Motivation for Mining Operation**

**5.1.1. The Eastern Cape in the South African Economy**

Even though the South African economy had been affected by the world wide recession, it recovers well and has still performed positively averaged over the last ten years, due to proper fiscal management resulting in lowering of interest rates and strengthening the Rand against other major currencies. One of the major contributors to the determination of exchange rates is the evaluation of real estate in each country. The building industry has been one of the better performers in this period due to the accessibility of lower income groups to housing bonds at low bond interest rates. The Eastern Cape Province property market is in a second growing phase and statisticians predict an annual increase, over the next three years in residential property prices of no less than 35%. With the growing industrial development zones in Coega and East London, this trend is expected to continue and the economy is expected to boom.

The clay brick market fluctuates in correlation with the building and construction sector. However, the clay brick manufacturers of the Port Elizabeth area are all sustainable businesses for the past decades and have lived through all the ups & downs. Rival surrogate products in the cement block making industry is not taken into consideration for the reason that clay bricks are always perceived by the market as being the building material of choice and these surrogate products of similar quality do not compete financially. The supply of building bricks and specifically clay plaster- and face bricks

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will therefore continue to be used as preferential material for architectural aesthetics. Still, some clay brick products are currently selling in excess of R2500 per 1000 bricks in Port Elizabeth.

Pending the approval of this Mining Right Application, a long term supply & off-take agreement would be contracted between E.P. Minerals Opencast Mine and E.P. Brick cc ; that E.P. Minerals Opencast Mine will supply clay to E.P. Brick cc to manufacture clay fired bricks, specifically plaster bricks. This equates to a minimum of 6 000 tonnes of clay per month. E.P. Minerals Opencast Mine currently investigates other users of clay minerals, which they could supply.

### **5.1.2. Economic Motivation**

With a Capital Investment of R 250 000-00, E.P. Minerals Opencast Mine projects to recuperate the capital outlay within 5 years. Therefore a growth is projected in excess of the projected inflation rate. With this mining right application E.P. Minerals Opencast Mine has the opportunity to develop the mineral resources of South Africa economically to contribute towards the country's GDP. At the rate of extraction as described in section 6 , the life of the mine is in excess of 30 years.

### **5.1.3. Strategic Motivation**

Although the direct job opportunities created in the mining activities are minimal, an additional 50 permanent job opportunities are sustained and created in the brickmaking industry and a further 300 in the down-stream construction industry. The majority of these job opportunities will be unskilled and semi-skilled labour coming within the Nelson Mandela Bay area. As E.P. Minerals Opencast Mine has pledged their support to the Mining Industry Forum of Port Elizabeth pending the approval of this mining right application, the mine's Social & Labour Plan indicates that significant development will be achieved in terms of poverty eradication, training , social development, SMME development and infrastructure development. This mining economic development will incorporate a 26% BEE stakeholder and make it possible for Historically Disadvantaged South Africans and specifically women to participate in the mining industry.

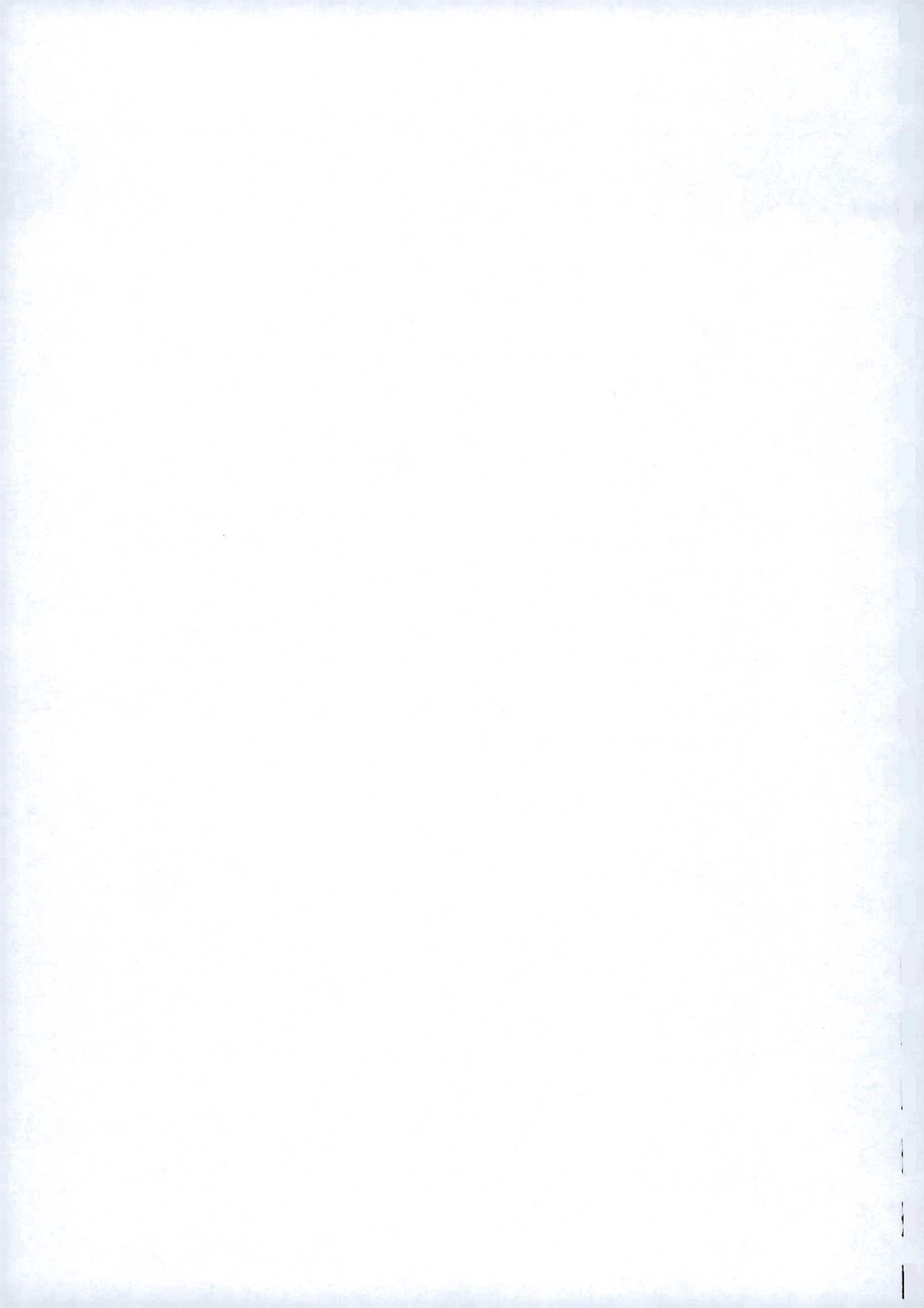
## **5.2. Alternatives to the Proposed Mining Operation**

The clay reserves in the Swartkops valley are depleting on due to ongoing mining operations. As the current shortage of housing places an increasing demand on the supply of construction materials, the only other alternative to this project is another similar project of similar scale and capacity elsewhere within the Nelson Mandela Bay area.

## **5.3. Alternatives within the Proposed Mining Operation**

E.P Minerals Opencast Mine is applying for a thirty year mining right, in order to cater for an ever growing market. The traditional approach to mine planning is to start mining at one boundary of the mine and advance towards the boundary on the other side. However, there is more than one possible sequence of face advance as shown in the figure below. The first option would be to continue where the old mining activities had stopped as it followed the guidance of an approved old order EMPR – yet, a document detailing the impact assessments well. This option would minimise the liberation of dust and noise. The second option would be to make a new access on the lower level of the embankment of the terrace. This would severely impede on the skyline.





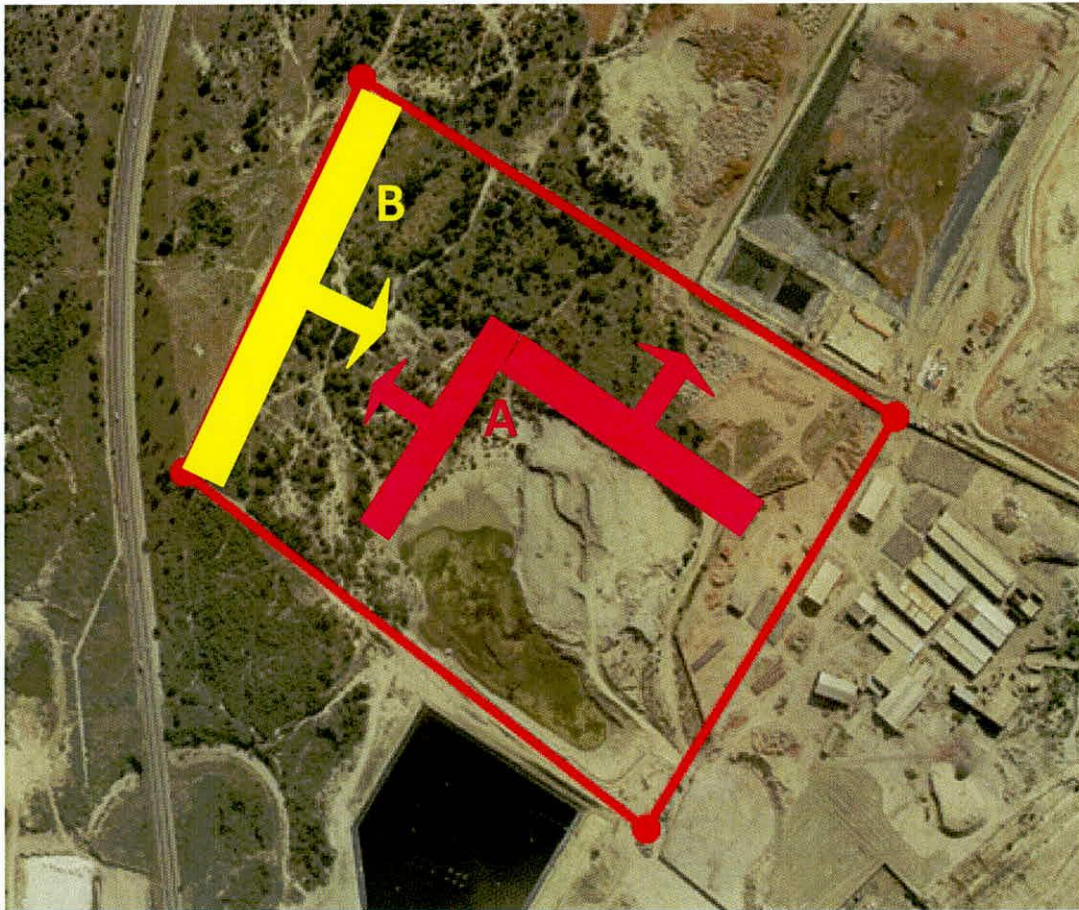


Figure 4: Alternative face advances of EP Minerals Opencast Mine.

The optimal face advance is the direction indicated as "A" due to the following reasons :

- Least overall environmental impact from wind and skyline view ;
- Minimise physical risk to workers from dust inhalation ;
- Ease of access from existing haul roads and accesses ; and
- Continuation of approved old order EMPR methods.

#### 5.4. No - Mining Operation Alternative

Should this mining right application not be approved and should E.P. Minerals Opencast Mine decide not to mine the clay, then E.P. Brick cc will have to rehabilitate the existing pit and the opportunity will be forfeited to utilise the pit as a reservoir for a possible future hazardous waste disposal dump. Should E.P. Brick cc decide to continue with their clay brickmaking operations, then they will have to conclude a new

## E.P. MINERALS OPENCAST MINE

supply & off-take agreement with a different clay producing mine in the Port Elizabeth area. This would have a severe impact on the business of E.P. Brick cc as a different mineralogical clay content would change the aesthetics of the E.P. Brick product ranges – something the consumer specifies in the market place today. Needless to say, some 350 households would also have no income.

### 6. LIFE OF MINE PLAN

E.P. Minerals Opencast Mine plans to mine the clay found on ERF 561 of Wells Estate and to supply it to users as a raw material. The reserves have been calculated in accordance with the SAMREC Code 2007 as follows :

Table 3: Mineral resource and clay ore reserve calculations for EP Minerals Opencast Mine

Category	Estimated Volume	Units
Inferred Clay Mineral Resource	6 000	m <sup>3</sup>
Indicated Clay Mineral Resource	1 476 537	m <sup>3</sup>
Measured Clay Mineral Resource	1 255 057	m <sup>3</sup>
Proven Clay Reserve	894 228	m <sup>3</sup>

The mine would have a 30 year lifespan using a mining production rate equivalent of 120 m<sup>3</sup> per day. See Annexure 3 : Life Of Mine Plan for full details of the planned lifespan of E.P. Minerals Opencast Mine.

### 7. OBJECTIVES FOR MINE CLOSURE

The first goal for future land use after mining has ceased would be to utilise the hole as another hazardous waste disposal dump. Should the mining cease and the affected areas not prove to be utilised for this purpose, then the affected area will be rehabilitated as best possibly as what the conditions were prior to the commencement of mining.

Provisions have been made for mine closure as rehabilitation of the open pits will be done in conjunction with the mining sequence. A financial guarantee will be issued in favour of the DME should E.P. Minerals Opencast Mine not be able to execute the rehabilitation activities. The mining sequence complements the rehabilitation of the worked-out quarry and then carries on further to rehabilitate the new ground to be exploited. The final benches to be rehabilitated will be 2,5 metres high and 8 metres wide, giving an overall slope stability of 17° with the horizontal. These benches will be re-vegetated with indigenous vegetation currently found in the Swartkops Valley.

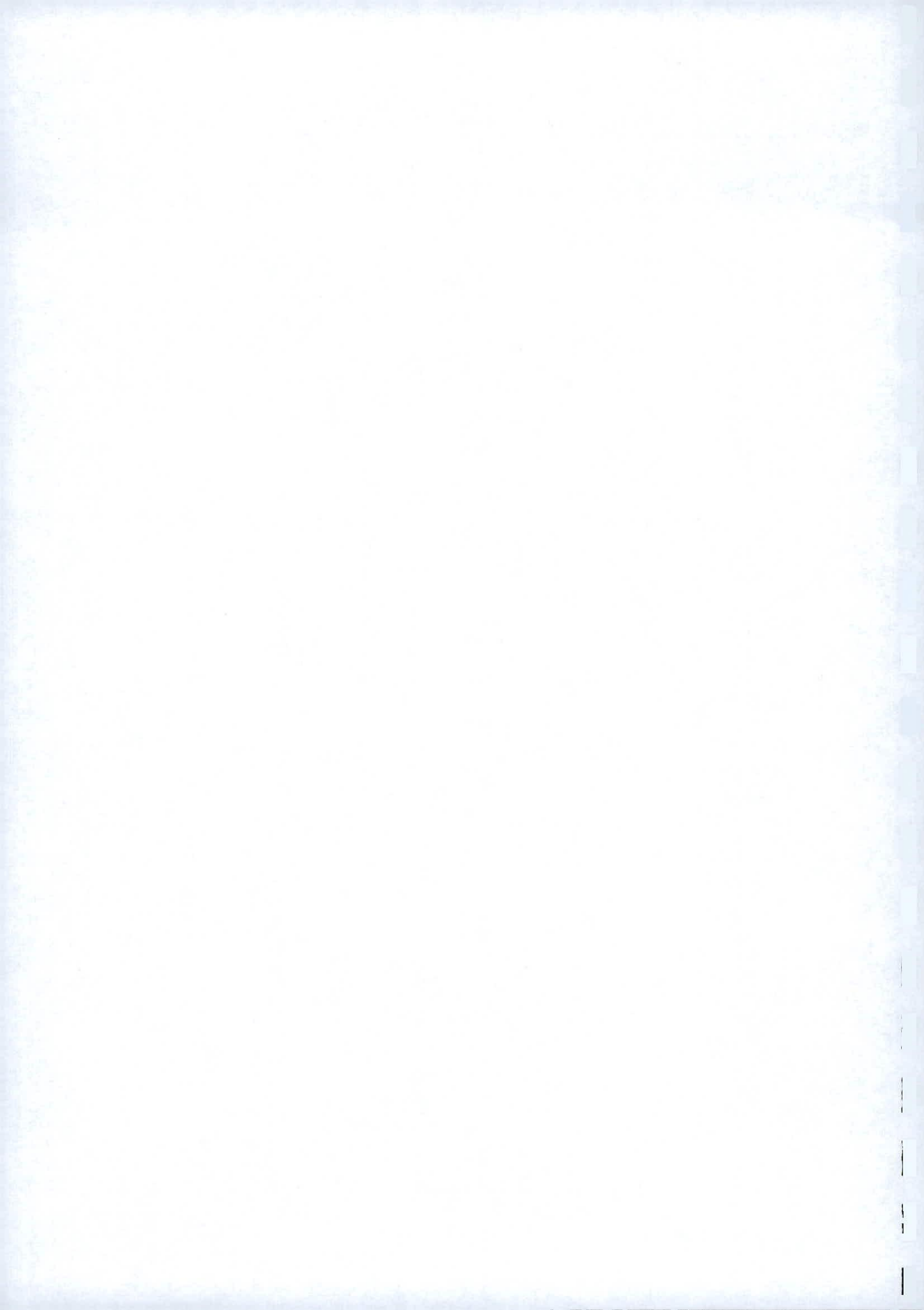
## 8. CONCLUSIONS

This scoping report has highlighted the risks posed by the mining operation to the surrounding environment and social conditions. In light of the fact that E.P. Minerals Opencast Mine has ties with E.P. Brick cc that had mined the clay on the property in the past who has been responsible in the past, supports this mining right application. Furthermore, mining in the area shown in the Regulation 2(2) plans is justified because :

1. The fauna & flora in the mining area is of such a degraded nature that mining cannot impact on biodiversity.
2. The entire mining area falls within the boundaries of one land owner, who has mutual ownership and direct management of E.P. Minerals Opencast Mine.
3. The track record of successful rehabilitation by the proposed manager of E.P. Minerals Opencast Mine shows that the applicant is responsible regarding environmental rehabilitation.
4. Compromises can be made to address the needs of interested and affected parties especially with regard to :
  - a. Noise and dust from mining by keeping a buffer zone as boundary pillars
  - b. The skyline would not be broken as the mining would first level the top part of the topography and then sink a hole within leaving a boundary pillar intact.

**9. ANNEXURE 1 : PLANS CONTEMPLATED IN REG.2(2)**

**10. ANNEXURE 2 : PROOF OF PUBLIC PARTICIPATION**



# CERTIFICATE OF PUBLICATION

Newspaper House  
19 Baakens Street  
Port Elizabeth 6001

Tel: 041 - 504 7911  
Fax: 041 - 586 2927



Tel: 041 - 504 7911  
Fax: 041 - 586 3315  
041 - 582 1794

Telegrams "Newhouse"

We certify that the attached advertisement appeared in the issue of  
The Herald/~~Weekend Post~~ dated 28 October 2009

11

LEGALS

11010

Legals

## NOTICE OF CONSULTATION PROCESS WITH INTERESTED AND AFFECTED PARTIES

Notice is hereby given in terms of Sections 10 & 39 of the Mineral & Petroleum Resources Development Act 28 of 2002 of intent to carry out the following activity:

EASTERN PROVINCE  
BRICK MINING (PTY) LTD intend to establish a mining right quarry on a portion of ERF 561, Wells Estate, in the Nelson Mandela Bay Municipal district.

In order that you are identified as an interested - and/or affected party, submit your name ; contact information ; details of your interest and your comments in the matter to Mr Rudi Gerber by 13 November 2009. Submissions should be made in writing to Algoa Consulting Mining Engineers ; PO Box 16501; Emerald Hill; 6011; or by facsimile to 086-657-7703.

THE HERALD  
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Kinderbediening  
Amor Bezuidenhout  
Fawiljoensaal by  
St. Georges Cricket  
Ry in by hoofinging vir  
Vullige parking  
Sonskyds Marlasaal, Alexandria  
09:30 Henk Greeff  
Ons wil die Here met Skrifgetroue  
bediening verkeerlik

270 NG KERK

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**SOMERSTRAND**  
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Liesl: 041 583 5115)

Sondag,  
25 Oktober 2009

09:00  
Dr. Chris van Wyk  
Herworingdiens  
Ps 15: David - om met die  
rege waars te leef

18:30  
Ds. Rethle van Niekerk  
Josua -  
moenie bang wees nie.

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PATMOS**  
Kaapweg 79,  
Port Elizabeth  
041 373 4419  
nool jou vriendelik uit om  
saaam met ons te kom  
aanbid.

09:00 - Ds. Armand Crous  
18:30 - Ds. Armand Crous

**DIE NG KERK  
SIONSRAND**  
Bransfonteinweg 18,  
Linton Grange,  
nool u hartlik uit om saam  
met ons die Here te aanbid.

09:00 - Ds. Jan Coetzee  
(Herworingdiens)  
19:00 - Ds. Jan Coetzee

Samesaam begin 15 minute  
voor aandienste.  
Navrae: 041 360 4374

**Ned. Ger. Gemeente  
KENSINGTON**  
H.v. Kiplingweg en Mary  
Boydlaan

09:00 - Ds. Ledewyk  
van Vuuren  
Kinderdiens in kerksaal

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ONS**

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Lofprysing, Aanbidding  
en Woord  
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08:30  
"Om te kan SIEN Here!"  
Mark. 16: 46-52  
Ds. Johan van Rooyen

10:00  
Christan Family Church  
Past. Linnelle van Niekerk

**AANDIENS  
18:00**  
Geleentheid vir gebed,  
lofprysing en "fellowship".

Belofte van God  
Jer. 31: 7-9  
Ds. Johan van Rooyen  
Navrae:  
Ds. Johan van Rooyen  
082 564 6764/041 585 4731

800 Algemeen

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Skakel 041 503 6111  
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7 Gelukwensings

**VAN NIEKERK  
FRANS**  
23/10/1941

Vandag is jou 68ste  
verjaarsdag by ons Hemelse  
Vader. Baie geluk,  
Liefde Frieda, kinders en  
kleinkinders.

8 Sterfgevall



**NOOI U HARTLIK UIT NA  
DIE EREDIENSTE**  
09:00 - Nagmaal  
Ds. F. Marais  
18:30 - Belydenisaflegging  
Ds. F. Marais

**DIE NG GEMEENTE  
UTENHAGE**

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DIE EREDIENSTE  
09:30 - Ds. Esterhuysse  
18:30 - Ds. Esterhuysse

272 GEREFORMEERDE KERKE

**DIE GEREFORMEERDE  
KERK ADCOCKVALE**  
H.v. Southey- en  
Brunsvickstraat

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DIE EREDIENSTE  
09:30 - Ds. Theuns Potgieter  
(Nagmaal)  
18:30 - Ds. Theuns Potgieter  
Tel. 041 373 3447

**DIE GEREFORMEERDE  
KERK JEFFREYSBAAI**  
Nauliusstraat, Jeffrey'sbaai  
09:00 - Ds. D.F.J. Erasmus  
Tel. 042 296 2382

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KERK UTENHAGE**  
H.v. Gibb- & Lambstraat

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DIE EREDIENSTE

09:30 - Ds. L.M. Kruger  
Tel. 041 966 1959

284 VOLLE EVANGELIE KERKE

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GEMEENTE**  
Suttonweg Stewell, PE

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Kinderbediening  
Past. D. v.d. Merwe  
18:30 - Spesiale aandienis  
Past. D. v.d. Merwe

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Huis van Jesus Liefde  
Despatch**

Eredienste om 09:00 & 18:30

10 Gevind



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medium size, brindle,  
found in Humewood.  
14348 Cross Breed, female,  
very young, small, brown  
with white chest,  
found in Glenhurst.  
14350 Cross Breed, male,  
medium, brown, with green  
collar, found in Glenhurst.  
14356 Cross Breed, female,  
medium size, black and tan,  
found in Bluewater Bay.  
14357 Cross Breed, female,  
medium, black, tan and  
white, found in Kunene Park.  
14383 Border Collie, male,  
found in Walmer.  
14389 Cross Collie, female,  
white and tan, medium size,  
found in Walmer.  
14391 Dachshund, female,  
4/5 months old, brown,  
found in Lorraine.  
14355 Cross Foxie, female,  
black and white spots,  
found in Lorraine.  
14380 German Shepherd,  
male, found in Morningside.  
14360 Husky, female, black  
and tan, found in Seaview.  
14384 Husky, female,  
found in Sherwood.  
14387 Husky, female,  
found in Westering.  
14365 Jack Russell, male,  
white and tan,  
found in Westering.  
14405 Jack Russell, male,  
found in Uitenhage.  
14406 Jack Russell, male,  
found in Kabega.  
14399 Miniature Dob,  
female, black and tan,  
found in Framesby.  
14359 Maltese, female, old,  
matted coat,  
found in Summerstrand.  
14367 Cross Pom, in season  
female, black and tan,  
found in Arcadia.  
14390 Sharpei, male, white,  
found in Cotswold.  
14362 Staffie, male, brown,  
white chest, blue collar,  
found in Walmer.  
14353 Cross Bred/Staffie,  
male, 4/5 months,  
found in Holland Park.  
14368 Cross Terrier, female,  
young, small, white and  
brown, found in Sherwood.  
14369 Cross Terrier, female,  
very young, small, brown,  
found in Sherwood.

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Sal die persoon wat die  
stoele by mnr. Dorling  
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ons aso, dringend kontak  
anders sal die stoele  
verkoop word om kostes te  
deig  
Skakel 072 142 6754.

24 Aan-kondigings

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Die volgende dier moet  
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2009 by die DBV-terrein in  
Schonlandstraat, Uitenhage  
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dit nie voor Saterdag,  
31 Oktober 2009 gelos  
is nie, sal dit opgeveel  
word. Die veiling wat op  
Saterdag, 24 Oktober  
2009 gehou so word, is  
tot 09h00 op Saterdag,  
31 Oktober 2009 uitgestel  
en sal op die DBV-terrein  
plaasvind:

**1 x swart donklemerrie**  
Dié donklemerrie is om  
12h35 op Saterdag, 26  
September 2009 in Van  
der Rietstraat, Uitenhage  
geskut.

Verw. 333 (Fos 08400135)

26 Ontspanning & Vermaak

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Fluffy ginger tabby female  
found in Algoa Park.  
White and tabby intact male  
found in Central 2 months  
ago.  
White and black male, found  
in Sidwell.

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041 366 1860

22 Persoonlik

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NICOLENE**  
Alle voorspoed en  
sterkte met jou  
Matriek-eindeksamen.  
Onthou Filippense 4:6  
Lief Jou Mamma, Pappa en  
Stefan.

43 Matte

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hangerties, ens.  
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108 Geld en Lenings

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**OORLEGPLEGTING MET BELANGHEBBENDE & GEAFFEKTEERDE PARTYE**

Kennis geskied hiermee kragtens Artikels 10 & 39 van die Minerale & Petroleum Hulpruonontwikkelingswet 28 van 2002 om die volgende aktiwiteite uit te voer:

**EASTERN PROVINCE BRICK MINING (EDMS) BPK**  
is van voorneme om 'n mynreg oopgroeifnyn te vestig op 'n gedeelte van Erf 561, Wells Estate in die Nelson Mandelabaai Munisipale Distrik.

Ten einde te verseker dat jy as 'n belanghebbende en/of geaffekteerde party geidentifiseer word, stuur jou naam, kontakbesonderhede, besonderhede van jou belang en enige opmerkings in die saak aan mnr. Rudi Gerber teen 13 November 2009. Voorlegging moet skriftelik gerig word aan Algoa Consulting Mining Engineers, Posbus 1501, Emerald Hill 6011, of per faks na 086 657 7703.

7882291(19GULHQ) 23/10/(180)

19GULHQ-231009-OS-eb-kennis

**NOTICE OF CONSULTATION PROCESS WITH  
INTERESTED AND AFFECTED PARTIES**

Notice is hereby given in terms of Sections 10 & 39 of the Mineral & Petroleum Resources Development Act 28 of 2002 of intent to carry out the following activity :

**EASTERN PROVINCE BRICK MINING (PTY) LTD intend to establish a mining right quarry on a portion of ERF 561, Wells Estate, in the Nelson Mandela Bay Municipal district.**

In order that you are identified as an interested - and/or affected party, submit your name ; contact information ; details of your interest and your comments in the matter to Mr Rudi Gerber by 13 November 2009. Submissions should be made in writing to **Algoa Consulting Mining Engineers ; P.O. Box 16501 ; Emerald Hill ; 6011 ;** or by facsimile to **0866577703.**

**KENNISGEWING VAN OORLEGPLEGING MET  
BELANGHEBBENDE & GEAFFEKTEERDE PARTYE**

Kennis geskied hiermee kragtens Artikels 10 & 39 van die Minerale & Petroleum Hulpbronontwikkelingswet 28 van 2002 om die volgende aktiwiteite uit te voer :

**EASTERN PROVINCE BRICK MINING (EDMS) BPK is van voorneme om 'n mynreg oopgroefmyn te vestig op 'n gedeelte van ERF 561, Wells Estate in die Nelson Mandela Baai Munisipale distrik.**

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 Gerber teen 13 November 2009. Voorlegging moet skriftelik gerig word aan **Algoa Consulting Mining Engineers ; Posbus 16501 ; Emerald Hill ; 6011 ;** of per faks by **0866577703.**

ATT. MR R. GERBER.

0 of 2

I hereby acknowledge receipt of the notification as Interested – and/or Affected Party to the new mine development.

Hiermee erken ek ontvangs van die kennisgewing as belanghebbende – en/of geaffekteerde party tot die ontwikkeling van die nuwe myn.

Nr	Date	Name	Signature
1	26 OCT 09	M. Spearpoint.	M. Spearpoint
2		Z.T. P.O. Box 75	
3		Zwartkops. 6210.	
4		(C) 0834527090	
5		Zwartkops Trust is an interested &	
6		Affected Party.	
7			
8			
9			
10			
11			
12			
13			
14			
15			

## Rudi Gerber

---

**From:** Mike Spearpoint [mSpearpoint@aspenpharma.com]  
**Sent:** 30 October 2009 12:16 PM  
**To:** rudi@algoacme.co.za  
**Cc:** Jenny Rump  
**Subject:** EP Brick Mining (Pty) Ltd

Dear Sir,

As Chairman of the Zwartkops Trust I am responding to the information passed on by EP Brick i.r.o. the application for a mining right. The ZT is the oldest Environmental organization of its kind in SA and was established over 40 years ago. Our objectives are to preserve (and or improve) the Estuary, the surrounding area including the two reserves as well as the Swartkops River for all.

The river and the surrounding environment is under enormous threat various sources including Industry.

Our comments in respect of the above application are:

- 1) Will adequate protection be taken to ensure that excess rain water will not erode and carry with it sand/gravel and any other contaminates from vehicular operations such as oil/fuel into the river. Traps and catch pits should prevent the carryover of any harmful debris into the river.
- 2) Will any methods be employed to prevent continuous wind eroding sand/fine dust from the open cast mining and can rehabilitation not be put in place once the area has been excavated. We would like to see some dampening of the ground once work has been completed.
- 3) Will the funds lodged to rehabilitate the are at some future date be sufficient to cover the work if performed in 20 or 30 years time.
- 4) Will continuous monitoring by independent person/s be undertaken on a regular basis for the entire life cycle of the operation. (We are involved with Enviro-serve where we meet every 3 months to review the operations and monitor any unfavourable or out of conditions)

Yours sincerely.

**M Spearpoint**

For and on behalf of the Zwartkops Trust  
P O Box 75,  
Swartkops  
6210

**ALGOA CONSULTING MINING ENGINEERS cc**

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  
Telefax: National (086) 657 7703  
International +27 86 657 7703  
e-mail : rudi@algoacme.co.za

**Ref. nr. : E.P. BRICK MINING (Pty) Ltd - 29 October 2009**

**PLEASE RETURN BY FAX OR REGISTERED MAIL TO THE ABOVE CONTACTS.**

**Contact details of Interested & Affected Party :**

Name : Jenny Rump  
Property / Organisation : Zwartkops Trust  
Postal Address : 17 Nautilus Dr Bluewater Bay  
Telephone : 041-4661815 Fax No. : 0866281864  
Mobile No : 0828530700 E-mail : zwartkops.trust@icfnia.com

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

1.	I spoke to Mr John Martin yesterday. I understand that
2.	the change is a technicality and nothing new that
3.	we as an environmental organisation need worry
4.	about.
5.	

or

I have no comments on the proposed project.	Signed : <u>JRump</u>
---	-----------------------

I, Jenny Rump confirm that I have received the Public Consultation Notice.

JRump                      4808200029082                      13/11/09  
Signature                      I.D. Number                      Date

*Name and contact details of alternate / nominated person to be contacted instead :*

Name : .....  
Property / Organisation : .....  
Postal Address : .....  
Telephone : ..... Fax No. : .....  
Mobile No : ..... E-mail : .....



30 October 2009

Attention : Mr. Rudi Gerber  
Fax : 0866577703

Request to register consultation process as an interested / affective party re Eastern Province Brick Mining (Pty) Ltd intends to establish a mining right quarry on a portion of Erf 561, Wells Estate, in Nelson Mandela Bay Municipal district.

Stuart McMullan  
Enviroserv Waste Management  
Wells Estate  
Port Elizabeth  
6012

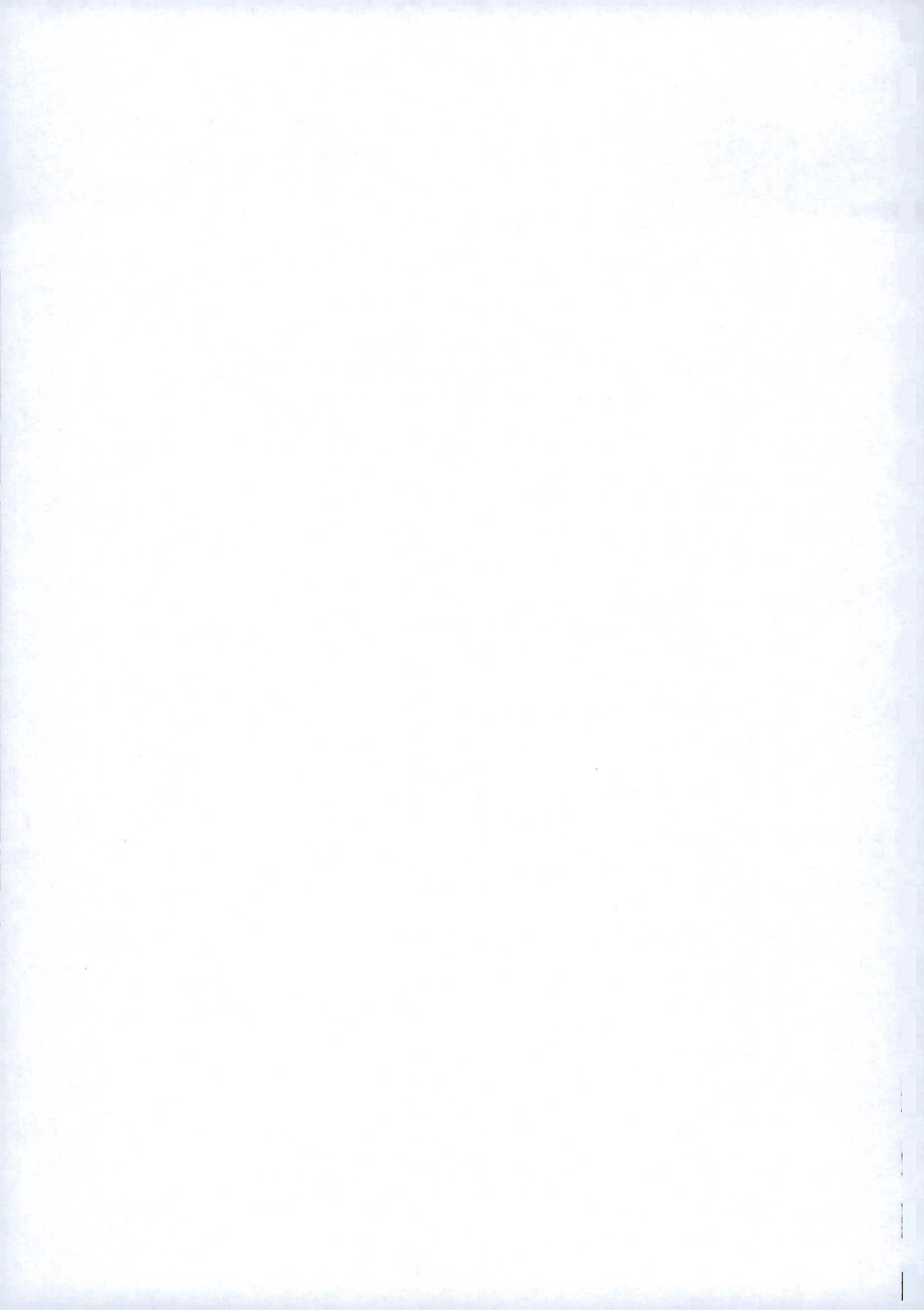
Office number : 041 4662741  
Mobile Number : 082 779 6344  
e-mail : [stuartm@enviroserv.co.za](mailto:stuartm@enviroserv.co.za)

Thank you and Kind Regards  
Stuart

EnviroServ Waste Management (Pty) Ltd, Brickfield Road, Meadowdale, Germiston, 1401.  
Old Grahamstown Road, Wells Estate, Port Elizabeth, 6001. PO Box 9028, Estadeal, 6012.  
Tel: +27 41 466-2741. Fax: +27 41 466-2745. Email: [info.pe@enviroserv.co.za](mailto:info.pe@enviroserv.co.za). Website: [www.enviroserv.co.za](http://www.enviroserv.co.za)

Directors: A. McLean (Brit) (Chairman), D.K. Gordon (CEO), C.L.A. Coppings, K.M. Geoghegan, E. Gombault, D.F.N. Krügel, D. Lavarinhas (Alt),  
E.K. Motebang, R.P. Rocher,  
O. Deftereos (ACIS.CA(SA)) (Company Secretary)

Reg No 1790070417/07



**11. ANNEXURE 3 : LIFE OF MINE PLAN**





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# E.P. MINERALS OPENCAST MINE



## LIFE OF MINE

This report is an addendum to an application for a mining right, intended to mine and retail run-of mine general clay to the brickmaking industry. This report is undertaken in compliance with the Minerals and Petroleum Resources Development Act, Act 28 of 2002.

**September 2009**

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## 1. INTRODUCTION

The Life of Mine document is a planning document for E.P. Minerals that reports on the extent of its reserves; the technology to mine and process the clay ore; the markets that purchase the products and the subsequent expected lifespan of the enterprise. This document details the mineral resources and clay ore reserves in accordance with the SAMREC Code 2007. The financial viability and forecasts are quantified and qualified.

## 2. LOCALITY

E.P. Minerals Opencast Mine is located at 33° 50' 03" S and 25° 36' 15" E. The open pit mine lies West of the Old Grahamstown Road (R102) to the North West of the suburb of Blue Water Bay, which is one of the northern suburbs of Port Elizabeth.

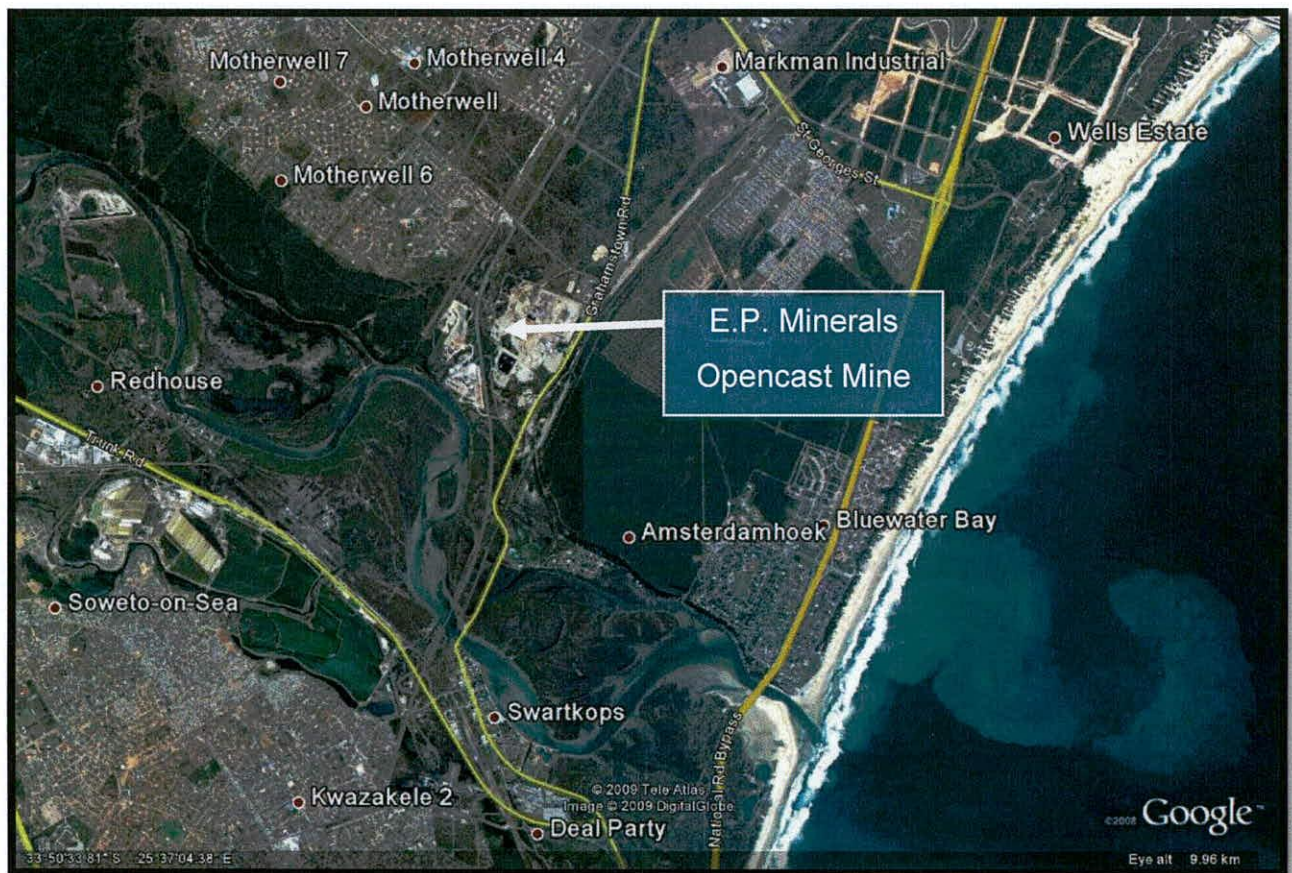


Figure 1: Locality of EP Minerals Opencast Mine shown on a Google earth image

### 3. TOPOGRAPHY AND DESCRIPTION OF LAND

The open pit quarry at E.P. Minerals occurs on a flat plateau formed by the Sundays River formation, to the North of the Swartkops River. The surrounding land is generally formed by a calcrete capping on top of the Sundays River formation, which is a residual clay formation. The area is zoned for industrial use and surrounding land uses include :

1. Mining of clay about a kilometre due west
2. Hazardous waste disposal dumping sites north and south
3. Heavy Industry & manufacturing to the west ; far north and far south
4. Warehousing to the far north and far south
5. Low income & informal residential areas in proximity of the abovementioned areas

### 4. GEOLOGY & STRATIGRAPHY

The geology is defined by an onshore post Karoo Mesozoic deposit. This is due to the occurrence of the Algoa basin, which is a half-graben-type basin with diverse sediment fill. The quarry falls into the Sundays River formation which can have thickness of over 2000m in parts and is denoted as the pink coloured areas with a "Ks"- abbreviation in Figure 2. It overlies and grades into the very similar Kirkwood formation, which is denoted as the yellow coloured areas with a "J-Kk"- abbreviation in Figure 2. The Sundays River formation consists of thin, grey sandstones, siltstones and mud-rocks.

The Sundays River formation comprise of clays, which were deposited during the Cretaceous period of the Mesozoic Era, which was expected to have warmer climates and higher sea tides, just prior to the breakup of the super continent Pangaea. The Cretaceous period is well known for deposits of chalk (limestone) and in this case the calcrete layer is found lying above the clay sediments in places. The formation is often fossil - bearing. The layers with higher calcite cementation form prominent cliffs in the area, whereas the clay is soft and erodes easily.

See below a geological map indicating the sedimentary deposits and the general clay (CS) that could be mined. The map indicate that historical mining activities had been conducted in these areas by former brickmakers, such as Corobrik, Ngqura Brick and E.P. Brick.

E.P. MINERALS OPENCAST MINE

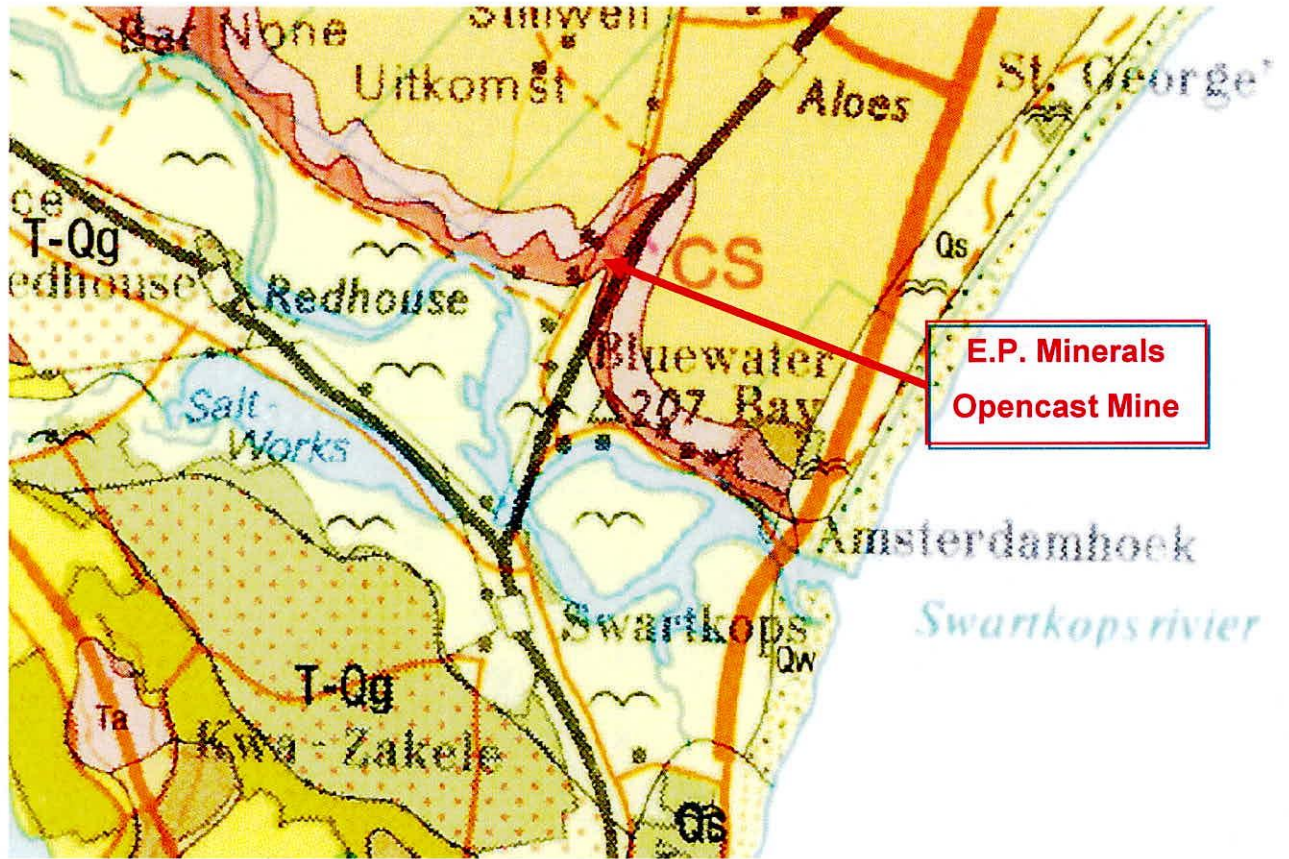


Figure 2: Geological Map of EP Minerals Opencast Mine shown with legend

GROUP GROEP	SUBGROUP SUBGROEP	FORMATION FORMASIE	
ALGOA		*Schelm Haek	Qsc
		Nahoon	Qn
		Salnova	Qs
		Nanaga	T-Qn
		Alexandria	Ta
	UITENHAGE		Grahamstown
		Sundays River Sondagsrivier	J-Kk
		Kirkwood	Je
		Enon	

## **5. MINERALOGY**

The clay deposit sought after for mining are formed from tertiary deposits of erosion and weathering of the Alexandria formation and Blue Water Bay formation. The greenish-grey mudstone underlying the tertiary clay deposits is most suitable for brick making as this material can be left to weather to finer clay, after mining. Much of what could be mined currently is clayey material, which was dumped onto the site when the neighbouring hazardous waste dumping site was excavated.

## **6. ECONOMIC USES OF THE MINERALS**

The clay deposits have value for the manufacturing of clay fired bricks. The Eastern Cape brick makers have utilised clamp kilns, as has been taking place by the neighbouring EP Brick cc since 1936. This clay deposit has immediate value for retail as run-of-mine raw material to EP Brick cc for the manufacturing of clay fired bricks.

Calcareous material, which forms overburden, has been used for extraction of lime for cement making in other areas around Port Elizabeth. The calcrete layer at EP Minerals Opencast Mine is neither of suitable thickness & quantity, nor of acceptable quality to justify economic viability for limestone mining. Therefore the calcrete would remain a limestone resource and not an ore.

## **7. MINING PRACTICE**

The mining method to be used is opencast open-pit by means of a truck - shovel operation. No blasting with explosives is envisaged and all minerals are free dug by means of mechanical excavators and loaders. The hydraulic excavator breaks out the clayey mudstones and loads it onto articulated dump trucks. The dump trucks transport the materials from the pit to the customer's processing plant for retail as run-of-mine raw material product. The basic mining operations follow the sequence of:

**1. Topsoil removal and stacking**

Topsoil is removed by scraping of the first 200mm of material with a bull dozer or excavator. The calcrete within the topsoil stockpile remains until rehabilitation to maintain the pH thereof for re-vegetation.

**2. Stripping off of minerals**

The clay minerals are mined by excavator in benches, or slopes, to maintain the stability of the overall slope created during the mining phase.

**3. Replacing of Topsoil**

Once mining is complete, the slopes will be flattened out to an angle from horizontal of 17°. This will enable the placement of soil in such a way that no erosion can occur.

**4. Rehabilitating the affected areas**

Placed soil will be seeded and planted with indigenous grasses and plant species to rehabilitate the site.

**8. MINING SEQUENCE AND SCHEDULING**

The whole mining area will be regarded as one mining block due to simplicity of mineral and mining method; however, initially the clay material dumped by Waste-tech will be mined out. Once this material is exhausted, mining will take place from the Eastern side towards the Western side, in benches. Each bench will be mined separately, towards the Western side of the clay pit. A haul road will be maintained on the eastern side of the mine accessing the appropriate bench depending where mining is taking place. The main haul-road entering the pit will remain in its current position and would enter from a gate on the South- Eastern corner of the quarry.

**9. MINERAL PROCESSING**

No mineral processing will take place, as E.P. Minerals Opencast Mine will retail run-of-mine clay to local brick manufacturers as raw materials.