

## **Appendix G: Mining Work Programme**

Operations:  
Coalfields, Commercial Rd/R33  
Dundee, KwaZulu Natal  
P.O. Box 684, Dundee, 3000  
Tel: + 27 (0)34 212 1455  
Fax: + 27 (0)34 212 1232

Head Office:  
Woodlands Park, Portion 3<sup>rd</sup> Floor,  
Building 13, Cnr Woodlands & Kelvin Drive,  
Woodmead, 2052  
P.O. Box 72, Woodlands, 2062  
Tel: +27(0)11 656 3210

**ZINOJU**  
COAL (PTY) LTD

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## **Magdalena Colliery – Phase 4**

### **MINING WORK PROGRAMME**

- A) **Particulars of applicant:-** Zinoju Coal (Pty) Ltd  
P.O.Box 684, Dundee, 3000  
Tel No. 034 218 1367 Fax No. 034 212 1232
- B) **Plan:- See attached plan titled :-** ZINOJU COAL (PTY) LTD  
Magdalena Colliery – Phase 4  
APPLICATION FOR A SECTION 102  
(Annexure 3 :-Plan prepared as contemplated in Regulation 2(2) of  
MPRDA, Act 28 of 2002 and drawn to a scale of 1:23 000)

C) **Registered description of land:-**

**Portion 1** of the farm **Mooidoorn Hoek No. 3722**, in extent 113,0963 hectares.  
The farm **Kemps Hoek No. 4271**, in extent 50,5858 hectares.  
The farm **Mourne No. 9168**, in extent 406,3221 hectares.  
The farm **Slieve Donald No. 9229**, in extent 490,7420 hectares.  
The southern **Remainder** and **Portions 5, 6, 11 – 20** of the farm **Mount Johanna No. 10987**, in extent 246,9451 hectares.  
The Farm **Alleen 2 No 4280** in extent 405,5554 Ha.

**Total extent of area applied for :- 1713,2454 hectares**

Magisterial Districts: Dannhauser and Dundee

Region: KwaZulu-Natal

The State holds the rights to the mineral (coal) which forms the basis of the application.

**Location:-**

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Directors: ND. Ntombela (MD), S. Theron, M. Campbell, K. Mattison, B. Lamont, M. Nienaber



**FORBES COAL**

A member of the Forbes & Manhattan Group of Companies

Company Reg. No: 2001/011130/07

Vat Reg. No : 4790202651

The area referred to above lies to the North East and North of the farms Mourne No 9168 and Slieve Donald No. 9229 , being the farms on which the Zinoju Coal (Pty) Ltd registered Magdalena Colliery is currently operational. ( MR 198).

**D) Details of identified mineral deposit.**

(refer to attached 'PLAN SHOWING MINEABLE IN SITU COAL' and accompanying TYPICAL Lithological Section - ANNEXURE 1 & 2)

Magdalena Colliery is situated 25km to the north of the town of Dundee, KwaZulu-Natal and within the jurisdiction of the Ngisana Tribal Authority.

• **GENERAL LITHOLOGICAL PROFILE**

The major surface area of the coal resource consists of an elevated plateau capped by a thick Ingogo dolerite sill, a member of the "Karoo Dolerite Suite", which intruded into the sediments at the commencement of the Jurassic Period (150 – 190 ma)

The Coal Seam horizons belong to the Middle Ecca (Vryheid Formation) deposited under fluvio-deltaic conditions into the Karoo Basin(260-270 ma)

This is underlain by ± 20m of silty lenticularly laminated turbidities which represent the base of the Upper / Middle Ecca transition zone.

Followed by ± 7m of coarse grained pale grey feldspathic, micaceous cross-bedded sandstone.

± 6m of interbedded, lenticularly laminated black mudstone and grey medium to coarse grained sandstone.

± 3m of fine to medium grained micaceous, grey, finely starkly banded sandstone.

± 4m of fine to medium grained feldspathic, micaceous, intricately wave-ripple cross-laminated sandstone.

± 10m of fine to medium grained micaceous, grey, finely starkly banded sandstone.

± 10m of interbedded, lenticularly laminated, laterally bioturbated black mudstone with sub-ordinate grey medium to coarse sandstone.

± 8m of coarse grained, feldspathic, micaceous, grey, planar to ripple laminated sandstone

± 25cm Upper (Fritz) Coal Seam

± 15m of coarse grained, pale grey, feldspathic, micaceous, planar cross-bedded sandstone with sub-ordinate lenticularly laminated black mudstone interbeds.

± 3m of interbedded black, micaceous siltstone, mudstone.

± 4m Top (Co-joined Alfred – Gus ) Coal Seams VIABLE MINING UNIT  
(Separated in places by a variably thick silty sandstone parting.)

± 3m of intensely rootlet bioturbated, silty, micaceous, current laminated sandstone

± 18m of coarse grained pale grey, feldspathic, micaceous, cross-bedded sandstone.

± 1.2m Bottom (Dundas) Coal Seam with thick in-seam shale and sandstone interbeds which render the horizon non-viable.

+ 2m medium to coarse grained, feldspathic, micaceous, sandstone with intensely vertically (siphonocnus ecccaensis) bioturbated zones.

The extreme northern part of the property comprises a steeply eroded valley where the sedimentary strata is aerially exposed to within 40m of the top of the Alfred/Gus viable seam units.

Numerous near vertical dolerite dykes traverse the area with the occasional fault.

#### • ***COAL SEAMS***

##### • *FRITZ (Upper)*

Non-viable, attenuate, 15 to 30 centimeters in thickness.

##### • *ALFRED / GUS (Bottom)*

Over approximately 50% of the property these coal seam horizons are co-joined or separated by a very thin 1cm to 30cm shaley parting. The remaining area has a 0.5m-10.0m sand stone inter-burden between the Alfred and the Gus

The upper (Alfred ) horizon is largely a ±2m thick mixed vitrain banded to lustrous dull coal with minor thin mudstone interbeds.

The lower (Gus) horizon, ±2m, is more predominantly vitrain banded with a thin shale parting near the roof and a thin sandstone parting near the floor of the unit.

The Alfred and Gus seams split due to localized palaeo-subsidence of the lower (Gus) coal unit with infilling by high energy pro-delta sediments followed by a period of static deeper water conditions preceding re-growth of plant material constituting the upper (Alfred) unit.

##### • *COAL ROOF ZONE*

The coal seam roof consists of a moderately to poorly competent siltstone / mudstone unit averaging around 2.5m in thickness. As with current practice in the underground of the adjacent Magdalena operation, positive roof support will have to be maintained.

• COAL FLOOR ZONE

The coal seam floor consists of a moderately too fairly competent silty sandstone which should only present problems if very wet.

• **RESERVES:- (Insitu – Resource tons)**

Reserves have been separated into two categories based on volatile matter content at an ash value of 11to15 % as these parameters are critical to marketing strategy.

Underground Resource		Opencast		TOTAL Insitu-resource	APPROX. ROM Reserve
Co-joined	Split	Co-joined	Split		
23 350 000	37 450 000	0	1 645 000	62 445 000 ton	31 962 750 ton

• **QUALITIES (11 - 15% ASH PRODUCT):**

Category	Yield	H2 O	Ash	Vol.	F.C	T.S.	G.C.V
+16% V.M	70.3	1.8	11.2	22.5	64.5	1.84	31.10
-16% V.M	78.2	1.8	15.0	16.0	67.2	1.84	29.50

**E) Details of the Market :- Market Requirements and Pricing**

<b>MARKETS</b>	R. O. M. beneficiating agent or contractor.
<b>MARKET PRICING</b>	Sold to R. O. M. beneficiating agent for R 200.00 per R. O. M. ton.
<b>ECONOMIC VIABILITY OF PROJECT</b>	<p><b>Effect on Economy:-</b> Local economy will benefit greatly as the site is located in an economically poor area.</p> <p><b>Effect of the inflation rate:-</b> Any increase in the inflation rate will affect the price of the commodity, but because of the project’s location to the market place, this will remain a very competitive product.</p> <p><b>Demand determination of product:-</b>The market has been secured as the mine has been operating since 2003. Product is sold both locally and exported abroad.</p> <p><b>Market geography and demography:-</b> This product will be sold within RSA and abroad as a steam coal .</p> <p><b>Alternative use of product:-</b> There is no alternative use for this product other than to be solely used for home heating and cooking.</p> <p><b>Relationship to employment:-</b>The Company’s commitment to BEE will ensure that as many local people as possible be employed thereby ensuring the up liftment of the community as a whole.</p>

## **F) Details with regard to Timeframes and Scheduling of the Mining Phases.**

Mining has been taking place at Magdalena Colliery by Zinoju Coal (PTY) LTD since 2003. Currently the workings are restricted to the farms Magdalena No 7574 , Portions of Alleen No1 No.15592, Mount Johanna No.10987, Kemps Hoek No 4271, Portion 1 of the Farm Mooidoorn Hoek No.3722,the farm Slieve Donald No. 9229 and the farm Mourne No. 9168 under mining rights MR 227,MR 213 and MR 198

The purpose of this application is to apply for a further Mining Right over the remaining farm Alleen 2 No.4280 in order to consolidate a contiguous area of mineable coal that will provide for stability of operations over the extended life of the mine – to the benefit of all concerned. The expected life of mine is 20 years i.e. 2033

The time schedules for these extensions are as follows:- (SEE PLAN – ANNEXURE 4)

### **Opencast mining: - (planned at 35 000 R.O.M per month)**

The current opencast reserve on Alleen No 1 No. 15592 will be depleted by February 2014.

The remaining opencast reserve is on Alleen 2 No. 4280.

To allow for continuity of mining, this reserve will need to be worked as from March 2014.

The indicated opencast reserve on Alleen 2 No. 4280 is 1 645 000. tons.

At an extraction rate of 35 000 R.O.M. tons per month the opencast reserve will be depleted in 47 months. The remainder of the resource on Alleen 2 No.4280 will be mined from our adjoin underground working on Slieve Donald No 9229.

Rehabilitation of the opencast workings will take place concurrently with mining, leaving only a final void to be rehabilitated once mining ceases. This will be undertaken immediately after mining ceases.

Thereafter the area will require a two-year rest period before being handed back to the owners for their continued use of the rehabilitated land.

### **Underground Mining:- (planned at 90 000 ton/month with opencast thereafter 125 000 ton per month.**

The coal reserve planned to be extracted from underground workings on Alleen 2 No. 4280 will be mined from the existing workings which stretch from Magdalena No.7574 to under Alleen No. 1 No. 15592, Mooidoorn Hoek No. 3722, Kemps Hoek No. 4271, Mourne No. 9168, Slieve Donald No. 9229 and Mount Johanna No. 10987.

The current underground workings are heading in a northerly and westerly direction. The current working faces are under the farms Mount Johanna No 10987 and Slieve Donald No 9229.

The timing for the start of the exploitation of the Alleen 2 No.4280 reserve has been incorporated into the underground mine plan and is due to commence in 2016.

The inclusion of the Alleen 2 No.4280 resource adds an additional 5years onto the Life of Mine. The combined minable resource will be depleted in the region of year 2033.