

EXECUTIVE SUMMARY

1 PROJECT DESCRIPTION

1.1 INTRODUCTION

M/s.Karnataka Mining Industries is a partnership firm involved in mining, beneficiation & marketing of minerals. The applicant is having other mining leases in H.D.Kote taluk, for Kyanite and Graphite mineral mining. The partners of the firm Mr Naresh Bajaj & Mr Arun Kumar Bajaj are well experienced in the business of mining and processing of Kyanite & Graphite.

Based on the experience gained in commercial exploitation for such low grade graphite ore, the applicant obtained a mining lease for graphite mineral at Shantipura in Heggadadevanakote taluk, which is also found in the same Geological milieu. Kyanite is very intimately associated with graphite in the Shantipura M.L. block.

The earlier lease was granted and executed vide M L NO 2340 for an area over 61.8 acres, further vide notification number DMG/MLS/392/AML 95/2004-05-9839/2340 Dtd 20.10.2004 additional area of 69.2 acres and inclusion of kyanite was granted coterminous to the existing lease No.2340 to M/s Karnataka Mining Industries.

The present outline of Mining Plan concerns the Shantipura graphite-kyanite deposit in Heggadadevanakote taluk, Mysore district. The production of kyanite is 5,000 tonnes / annum; which needs environmental clearance from MoEF, Government of India.

The Mining Plan has been prepared under Rule 22 of MCR 1960 for Kyanite and Graphite. It has been prepared on the basis of the survey and prospecting carried out in the area by the Department of Mines & Geology, Government of Karnataka.

The proposed method of mining is manual collection of kyanite-graphite float from agricultural fields covered under the Mining Lease. The float ore occurs up to a maximum depth of 1.2 m; hence the proposed mining work i.e., the float collection work will be carried out only up to a depth of 1.2 m that too restricted to certain blocks

within the ML hold. The collection of float involves use of crow bars for loosening the soil. Neither any explosives nor excavators are utilized nor are any chemicals used for Mining purpose. Ground-water or surface-water regime will not be disturbed. The proposed method of mining in fact upgrades and improves the soil condition by the removal of kyanite fragments of all sizes. Pollution of any kind is not involved. Afforestation programme will also carried out in this Mining Plan. Mine Closure does not arise as no digging and earth cutting is involved that would alter the topography of the lease-hold area.

1.2 OBJECTIVE OF THE PROJECT

To obtain Environmental Clearance for proposed project of Kyanite and Graphite Ore of Karnataka Mining Industries (Lease area 53.0157 (131 Acre), proposed rate of production 5000 tonnes/ year).

This is not exactly a mining project as it doesn't involve deployment of heavy mining machinery, drilling or blasting. This mining is surfacial because of collection of float ore from the surface and maximum up to the depth of 1 meter. Presently the land is non fertile due to the presence of the ore but it becomes fertile just after collection of the ore. The area after the collection of mineral is immediately given back to the farmers for farming.

So, this mine is 100% environment friendly and it also increases the fertility of the land, so this project also helps in the land development.

1.3 FEATURE OF THE PROJECT:

- This is an **environment friendly** project.
- The land on which this project is proposed is low fertile land. The cultivation of cotton is done but the **yield is very low**.
- Presently most of the Patta land have low fertility due to deposit of float ore the yield for agriculture is very low after collection of float ore land becomes fertile and farmers are able to grow premium crops such as cotton, reggi etc.

- This project is basically the collection of float ore from the surface or at a maximum depth of 1.2 meters. So, this project cannot exactly be called as mining.
- The method of collection of the float ore is completely manual without involving any drilling or blasting.
- The collection of the done in patches i.e. the land from the farmers is taken for the ore for a small period and after collection of ore it is given back to the farmers for farming and after collection of ore the land becomes completely fertile.
- The growth of cotton is 250 to 300 kg/acre, when the mineral is present but as soon as the mineral is collected the growth becomes just double i.e. around 600 to 650 kg/acre.
- During this process of ore collection the farmers will be given employment in this project.
- In other words this **project also helps in land development.**

2 PROJECT DESCRIPTION WITH LOCATION

- The Project is located at village Shantipura, Tehsil H.D. Kote, Distt - Mysore, Karnataka
- The area falls under survey of India GT Sheet 57 D/8 between latitude 12°01' to 12°02'N and longitudes 76°24'45" to 76°25'30"E
- The Mining Lease area 53.0157 (131 Acre) falls on Khasra Nos (patta nas) Sy. Nos.1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 45, 46,47, 48, 49, 50, 51

Executive Summary "Graphite & Kyanite Ore Mine" over an area of 53.0157 Hect or 131 Acres
At village Shantipura, Tehsil H.D. Kote, Distt - Mysore, Karnataka

M/s. Karnataka Mining Industry.

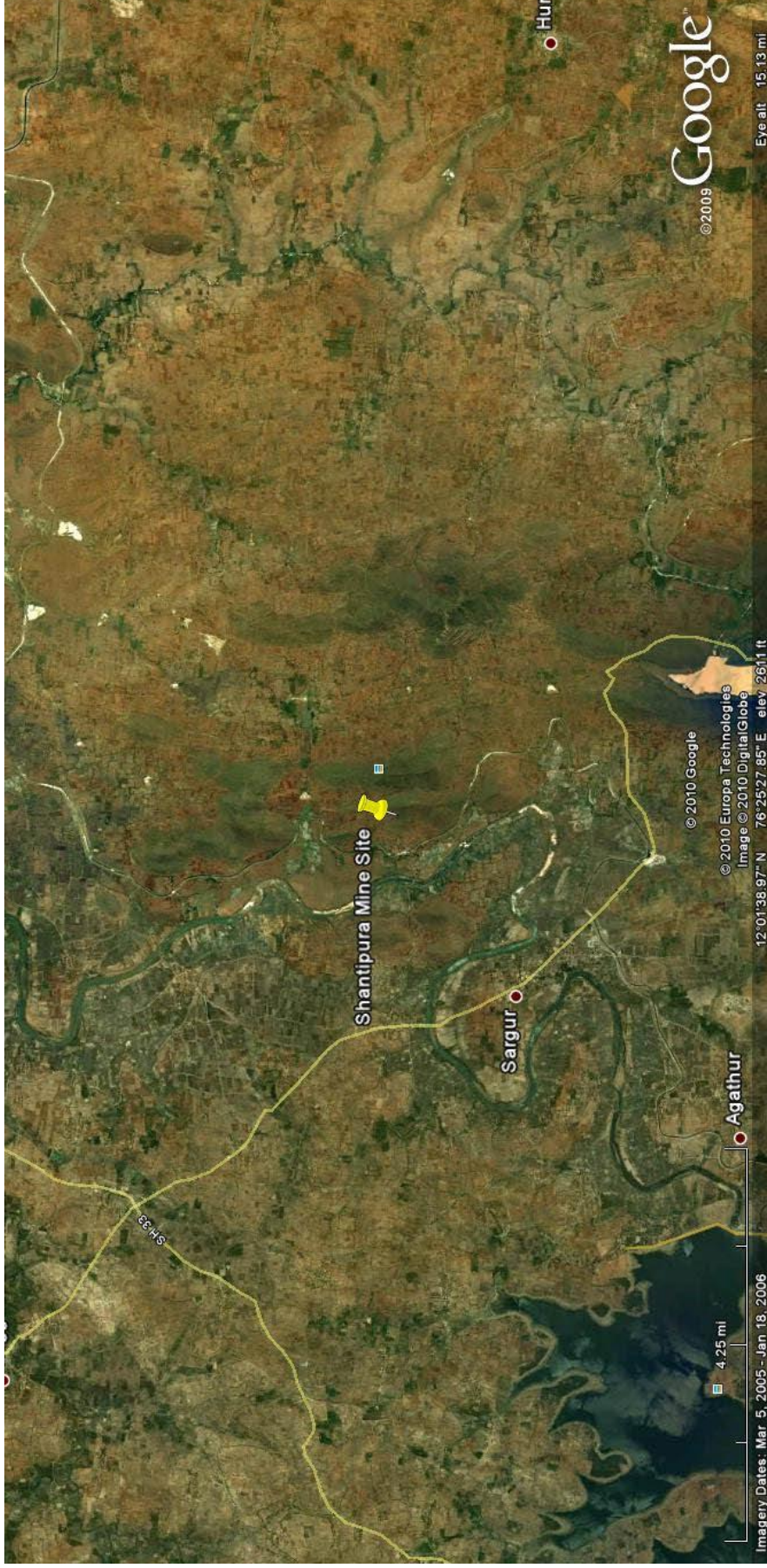


Figure 1: Google Image

Table- 1: General Information

S. No.	Particulars	Details
1.	Name of the project	"Graphite & Kyanite Ore Mine" over an area of 53.0157 Hect or 131 Acres of M/s. Karnataka Mining Industry.
2.	Total Lease Area	131 Acres (53.0157 Hect.)
3.	Locations	Near village Shantipura, Tehsil Heggadadevanakote, Distt - Mysore, Karnataka
	A. Village	Shantipura,
	B. Taluka	Heggadadevanakote (H.D. Kote)
	C. District	Mysore
	D. State	Karnataka
4.	Nearest Railway Station	Mysore Rly. Station 42.97 km (approx.)
5.	Nearest Airport	Bengaluru International Airport – 187.74 km (approx.)
6.	Nearest Water Body	Kabini River, which is approx. 1.2 km from the project site.
7.	Nearest Town	Mysore
8.	Reserve forest/Protected forest/ Wildlife Sanctuary/ Biosphere reserve.	No Reserve Forest/Protected Forest/Wildlife Sanctuary/Biosphere Reserve within 10 km
9.	Defense Installation	Not applicable
10.	Seismic Zone	Zone II

3 PHYSIOGRAPHY

Topographically, the area forms an undulating terrain with a prominent N-S trending ridge, rising to a maximum height of 800 m above MSL in the east of Shantipura. The mining area occupies the western, northern and eastern gentle slopes of this ridge. Three streams (nalas) flow through the lease area, two of which are prominent; one nala flows from south to north along the eastern margin of the M.L. area. The other nala drains the northern part of the M.L. area in East-West direction.

4 GEOLOGY OF THE AREA

Regional Geology

The rock formations occurring in the region are high-grade metamorphic rocks, classified under SARGUR Group which is considered to be the oldest rock formation in the Dharwar Craton of Karnataka.

The region is composed of garnetiferous gneiss, quartzite and graphite-kyanite quartzite and schists. In general the rock formations are folded into isoclinal folds with steeply dipping limbs. The rocks are well foliated, trending N-S to NNE-SSW with steep dips towards east. The meta-sedimentary rocks also have the same bedding attitudes.

Local Geology

The mineral bearing zones of the lease area are dominantly composed of float of graphite-kyanite-quartzite (GKQ), quartzite, mica schist and soil. At two places to the east of Shantipura and falling within the lease-hold area, there are low ground outcrops of graphite-kyanite quartzite. Towards east of the village there is a linear outcrop of graphite-kyanite quartzite. The general trend of foliation and bedding in the meta-sedimentary rocks is N to NNE with steep eastward dips of 55° to 60°. The stratigraphic sequence proposed for the rock formations of the area is as follows:

	Soil / Alluvium

Peninsular Gneissic Complex	Garnetiferous Granitic Gneiss

PRECAMBRIAN AGE Sargur Supracrustals	Mica schist
	Graphite-kyanite quartzite
	Quartzite +/- Garnet +/- Sericite

The Graphite-kyanite-quartzite formation forms the primary source for the deposition of float -ore which consist of fragments of graphite-kyanite quartzite and loose crystals of kyanite along with quartzite pebbles admixed in red sandy soil.

5 DRAINAGE PATTERN

Three streams (nalas) flow through the lease area, two of which are prominent; one nala flows from south to north along the eastern margin of the M.L. area. The other nala drains the northern part of the M.L. area in East-West direction.

6 LAND USE PATTERN:

Table- 2 : Proposed Land Use

Mining	20.80 Hectares
Ore stock yard	1.10 Hectares
Camp Area	0.90 Hectares
Proposed afforestation	5.00 Hectares

Remaining Area	25.2157 Hectares
Total	53.0157 Hectares or 131 Acres

7 DETAILS OF EXPLORATION

Trial pits of dimensions listed in Table-3 given below were sunk in the private lands which are covered by graphite-kyanite bearing float-ore. These pits are numbered **S₁ to S₂₁**. Twenty one (21) samples were collected from these pits. The rocks encountered in the pits are mostly fragments of graphite-kyanite quartzite and barren quartzite associated with red soil.

Table - 3 : Details of Exploratory Pits and Samples

S. No.	Pit and Sample Nos.	Dimension L x W x D (m)	Excavation (Cu.m)	Thickness of Float Ore (m)	Lithology
1.	S ₁	1 x 1 x 0.5	0.5	0.20	Float ore & weathered bed rock
2.	S ₂	1 x 1 x 0.5	0.5	0.10	Float ore & weathered bed rock
3.	S ₃	1 x 1 x 0.5	0.5	0.10	Float ore & weathered bed rock
4.	S ₄	1 x 1 x 0.6	0.6	0.20	Float ore & weathered bed rock
5.	S ₅	1 x 1 x 0.7	0.7	0.25	Float ore & weathered bed rock
6.	S ₆	1 x 1 x 0.6	0.6	0.15	Float ore & weathered bed rock
7.	S ₇	1 x 1 x 0.7	0.7	0.15	Float ore & weathered bed rock
8.	S ₈	1 x 1 x 0.6	0.6	0.20	Float ore & weathered bed rock
9.	S ₉	1 x 1 x 0.6	0.6	0.25	Float ore & weathered bed rock
10.	S ₁₀	1 x 1 x 0.6	0.6	0.27	Float ore & weathered bed rock
11.	S ₁₁	1 x 1 x 0.6	0.6	0.18	Float ore & weathered bed rock
12.	S ₁₂	1 x 1 x 0.6	0.6	-	Float ore & weathered bed rock
13.	S ₁₃	1 x 1 x 0.6	0.6	0.25	Float ore & weathered bed rock

14.	S ₁₄	1 x 1 x 0.5	0.5	0.19	Float ore & weathered bed rock
15.	S ₁₅	1 x 1 x 0.5	0.5	0.22	Float ore & weathered bed rock
16.	S ₁₆	1 x 1 x 0.5	0.5	0.20	Float ore & weathered bed rock
17.	S ₁₇	1 x 1 x 0.6	0.6	-	In soil
18.	S ₁₈	1 x 1 x 1.0	1.0	0.22	Float ore & weathered bed rock
19.	S ₁₉	1 x 1 x 1.0	1.0	0.50	Float ore & weathered bed rock
20.	S ₂₀	1 x 1 x 1.0	1.0	0.40	Float ore & weathered bed rock
21.	S ₂₁	1 x 1 x 1.0	1.0	0.38	Float ore & weathered bed rock

8 Method of Estimation of Reserves

Estimation of Reserves

Since the deposit is dominantly of float ore type and the bedrock is at very shallow depth there is no need for drilling in the area. Therefore, pitting was carried out during geological mapping to draw samples and to estimate the thickness of float ore. However, extensive pitting and trenching could not be done as the proposed mining area is a private agriculture land and the land has been under cultivation. Most of the exploratory pits revealed shallow depth of about 1 metre to bed rock. The proposed mining will be for float ore in the 5 years life of the mine as presently known. *In situ* outcrops of graphite-kyanite bearing ore are limited in their occurrence within the area of the M.L. Therefore, much attention was paid to estimate the reserves of float ore.

9 Method of Estimation of Probable Reserves

Reserve estimation was based on the field observation of distribution of float ore as well as the occurrence of outcrops of graphite Kyanite bearing rocks. The thickness of float ore as exposed in the pits opened during mapping and in nala cuttings was found to be about 1m on the average. Primary graphite-kyanite ore is exposed in the M.L area at two places as shown in the geological plan.

The following parameters were taken into consideration to estimate the probable reserves of float ore and *in situ* ore.

1. Areal extent of the graphite ore layer at the surface.
2. Thickness of the float ore layer
3. Recovery of the graphite-bearing ore in both float and in situ outcrops.
4. Concentration of graphite in the ore and percentage of recovery in such ore.
5. Specific gravity (bulk density)

Out of the total area of 53.0157 hectares, float ore of different grades occurs over an extent of about 20.80 hectares. Within this extent good concentration of float ore of 25% is found over an extent of about 10.43 hectares; moderate concentration of 15% to 20% is found over an extent of 2.4 hectares; and 15% float ore is found over an extent of 7.96 hectares. The area of the spread of the float is calculated by graphical method from the geological plan

Total probable reserves available in area are **98,931 tonnes** and categorized as (121+122) under UNFC code classification.

Reserve of Float Ore:

The total area covered by the float ore is 2, 08,130 square metres (20.80 Hect) (See Plate No.3 and Table 3). The specific gravity (bulk density) of graphite bearing float admixed with soil etc., varies from 1.5 to 2.5. Thickness of float ore layer varies from 1.0m to 0.8m. The total probable reserve of recoverable float ore is estimated at 89,530 tonnes. Please see table 4 for details of the estimate of the reserve of float ore.

**Table- 4 : SHANTIPURA KYANITE-GRAPHITE DEPOSIT
DETAILS OF RESERVE ESTIMATION OF FLOAT ORE
(Extent estimated by graphical method)**

Block No.	Percentage of Recoverable float ore	Area in Hectare	Extent (sq m)	Depth (m)	Total Volume of Ore (Cu.m)	Specific Gravity	Tonnes	Probable Reserve of recoverable float ore in tonnes
1	2	3	4	5	6	7	8	9
A	25%	6.80	67,990	1.0	67,990	2.5	169,975	42,490
B	25%	3.40	36,370	1.0	36,370	2.2	80,000	20,000
1	2	3	4	5	6	7	8	9

C	20%	1.07	10,730	1.0	10,730	2.0	21,460	4,290
D	20%	1.34	13,440	1.0	13,440	1.8	24,190	4,840
E	15%	7.96	79,600	1.0	79,600	1.5	119,400	17,910
TOTAL		20.00	2,08,130					89,530

Reserve of *in situ* ore:

Two blocks have been delineated over *in situ* graphite kyanite quartzite. They are named Block I and Block II. The graphite-bearing quartzite is a steeply dipping tabular body. The two blocks cover an area of 9,796 sq m (See Table 4.). The probable reserve of the graphite-kyanite bearing quartzite body is estimated at 29,380 Cu.m but only 10% of this body is found to contain graphite in besides kyanite. The rest is mainly quartzite and mica schists. Therefore, the recoverable *insitu* reserve of kyanite-graphite ore is estimated at 2,938 Cu.m or 9,400 tonnes.

**Table- 5 : SHANTIPURA GRAPHITE DEPOSIT
DETAILS OF RESERVE ESTIMATION OF IN-SITU GRAPHITE-KYANITE ORE**

Block No.	Extent (Sq m)	Depth	Total Volume of Ore-Bearing Rock (Cu.m)	AT 10% RECOVERY		
				Cu.m X Sp. Gr = Tonnes		
I	2160	3m	6,480	648	3.2	2073
II	7636*	3m	22,908	2290	3.2	7328

* Excluding the dyke area.

The total reserve of both float and *in situ* ore is **98,931** tonnes.

10 Life of the Mine

Since no mine development is involved, the proposed collection of float ore in full measure i.e. 5,000 TPA will begin from the 1st year itself. At the proposed rate of production of about 5000 tonnes per year and the proved reserves 98931 tonnes, anticipated life of the mine is about 20 years.

11 MINING

The float ore occurs up to a maximum depth of 1.0 m, hence the proposed mining work i.e, the float collection work will be carried out only up to a depth of 1.0 m, that too restricted to certain blocks within the ML hold. The collection of float involves use of crow bars for

loosening the soil. Neither any explosives or excavators are utilized nor any chemicals are used for Mining purpose. Ground-water or surface-water regime will not be disturbed. The proposed method of mining in fact upgrades and improves the soil condition by the removal of kyanite fragments of all sizes. Pollution of any kind is not involved. The Lessee will carry out a programme of afforestation as outlined in this Mining Plan. Mine Closure does not arise as no digging and earth cutting is involved that would alter the topography of the lease-hold area.

12 BACK FILLING BY SOLID WASTE

Practically there is no waste generation. All the soil and finer material shall be put back into site and the land levelled for further agricultural use.

13 PRODUCTION DETAILS

The main deposit is a float ore type and maximum depth of the horizon is about 1m that too in low grade (15 to 25%) concentration areas. It is therefore proposed to win the ore by collection of the float by manual labour using simple tools like crow bar, hammers, pick axe, iron pan and sieve etc. The ore produced will be transported by tractor trailer and stocked in the stock yard. The break-up of year-wise production for the first 5 years is shown in given below table 6 and the proposed production during the overall 20 year's of Mine-life is also shown in Table-7.

Table- 6 : YEAR WISE PRODUCTION SCHEDULE FOR THE FIRST 5 YEARS PLANNED PERIOD

Years	Float ore Block No.	Total Production (in Tonnes)
Year 2010 -2011	A Western side	5,000
Year 2011-2012	A	5,000
Year 2012-2013	A	5,000
Year 2013-2014	A	5,000
Year 2014-2015	A	5,000
	Total:	25,000

Table- 7 : YEAR WISE PRODUCTION SCHEDULE FOR TWENTY YEARS OF MINE LIFE

Years	Float ore Block No.	Total Production (in Tonnes)
1 st 5 Years	A	25,000
2 nd 5 Years	A & B	25,000
3 rd 5 Years	B & C	20,000
15 th , 16 th , 17 th years	C, D, E	10,000
18 th to 20 th years	D & E	9,000
	Total:	89,000

It is proposed to commence mining operations from block A in the western Side of the M.L. area where higher concentration (25%) of float ore is found. The optimum production of float ore envisaged is about 20 tonnes per day and 5,000 tonnes per annum at 300 working days. This will be achieved from the very first year itself.

14 EMPLOYMENT POTENTIAL

In order to achieve the target production as envisaged, it is proposed to employ the necessary field staff, field personnel and labour as per statutory rules as detailed below.

Table- 8 : Management and Supervising Personnel

S. No.	Designation	Qualification	No. of Personnel
1.	Mine Manager	Second class Certificate	One
2.	Geologist	M.Sc. (geology)	One
3.	Mine Mate cum Supervisor	Mate Certificate	One
4.	Driver	License	One
5.	Labour	Unskilled local people	Eight

The Mine Manager with Second Class certificate will also act as Mining Engineer as per MCDR 1988 and necessary permission will be sought from the appropriate authorities.

The Organization chart with distribution of Man-power is indicated below:

ORGANISATIONAL CHART:

MINE MANAGER CUM MINING ENGINEER



15 PRESENT ENVIRONMENTAL SCENARIO

The baseline data for meteorology, air, noise, water and soil were collected during the month of October to December, 2010. The air at 6 stations and noise monitoring was done at 10 stations, soil and water at 8 locations. The brief details are given below:

Table- 9 : Details of Environment

S. No.	Parameters	Values
1.	Temperature	
	Max.	39.4°C
	Min.	10.6 °C
2.	Relative Humidity	70 % – 40 %
3.	Average Rainfall	1000 - 1500 mm/annum
	Ambient Air Quality	
4.	PM10	70.8 µg/m ³
5.	SO ₂	<0.1µg/m ³
6.	NO _x	<0.1µg/m ³
	Noise level	
7.	Day time	47.7 dB
8.	Night time	42.0 dB
9.	Water quality	
	Ph	7.35 to 8.96
10.	TDS	104 to 2090 mg/L
11.	Nitrates	0.39 to 34.5 mg/L
12.	Fluoride	<0.02 to 0.84 mg/L
13.	Soil analysis	
	pH	5.99 to 8.28

14.	Organic matter	5.5 to 9.0%
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16 ENVIRONMENT IMPACT ASSESSMENT

16.1 AIR, WATER, NOISE, VIBRATION LEVEL:

There will be no impact on all these parameters of environment as not only the scale of operation is small being 20 tonnes per day and the method involves collection of float ore manually.

16.2 SOCIO-ECONOMIC ENVIRONMENT:

There are a few villages situated within the 5 km radius of the area with population of about 12,166. Presently they are all engaged in seasonal agricultural activity. The mining activity will generate some permanent employment to the local populace. Recovering the graphite--Kyanite float ore from top layers of the agricultural field is expected to increase its fertility resulting in increased production of crops.

17 ENVIRONMENT MANAGEMENT PLAN

17.1 LAND ENVIRONMENT

- The lease area is covered by private dry rain dependent agriculture land.
- Presently, the land is non fertile due to the presence of the mineral but it becomes fertile just after the collection of the mineral.
- The land after collection of ore is immediately given back to the farmers.
- Because of the float ore mining there will little change in the landscape of the area. At the conceptual stage the mined out area will be backfilled to make the land for agriculture.
- Every year it is proposed to carry out afforestation by planting 100 saplings of local varieties plants which may survive better at a spacing of about 3 metres. The total number of saplings proposed to be planted is around 500, covering an area of 5 hectare during five years.

17.2 QUALITY OF AIR, NOISE LEVEL AND SOIL:

There will not be any effect on the quality of air and water as the mining is on small scale and confined to the soil horizon upto a maximum depth of just over a metre. No blasting is

proposed and also no heavy machineries will be utilized for this mining, hence impact on noise level is nil. Soil cover will be retained and reclaimed for agriculture purpose.

17.2.1 Air Environment

There will be no effect on the quality of air and water as the mining is confined to small areal extent. During the manual Mining, generation of dust is expected to be nil, since no drilling and crushing of rock is involved on site. The entire mining operation will be restricted to manual sorting only. However, steps will be taken to spray water on the roads during summer, to avoid rising of dust.

Suitable precautionary measures by water spraying on haul roads and by afforestation to protect the inhabitants and environment will be taken. Considering the quantum of work i.e. manual system of working all environmental parameters will remain within the limits.

17.2.2 Noise environment

There will not be much impact on noise environment by this small scale open cast float mining. The method of collection of ore will be simple manual collection or picking of float. There shall not be any kind of utilization of heavy earth moving machinery and drilling or blasting.

17.3 Solid Waste Management

After recovery of the float ore, the remaining non mineralized pebbles will be kept separately for possible future use for road metal and soil & silt will be backfilled in the worked out area and will be levelled so that area can be used for agriculture. Practically there is no waste left behind and the agriculturist will be benefitted by this mining activity. So no proposal of disposal of waste and no site are located for disposal of waste other than reclamation of the mined out area.

17.4 WATER REGIME:

There are no perennial water courses in the mining area but there are two main streamlets (nalas) which drain during the rainy season. Considering the topography and shallow depth of mining up to a maximum of 100 cm there will be no adverse effect on ground water. Since no drilling and blasting is involved in the mining area, the fracture system in the

aquifer zone will not be affected. However, the minor streamlets dissecting the area at two places will not be disturbed and a safe margin of 15 metres will be maintained from mining zone.

17.5 FLORA AND FAUNA:

The applied area is an agriculture land and it is devoid of vegetation except a few shadow trees here and there at the corner of patta lands. Very rare fowls, crow, fox, wild pigs have been spotted occasionally on the hillocks by villagers.

17.6 HUMAN SETTLEMENT:

There are no human settlements in the ML area. Village Shantipura is adjoining to the area in the north direction. The total population in villages falling in the buffer zone is 12,166.

17.7 STORAGE AND PRESERVATION OF TOP SOIL:

The mineral ore is associated with the soil, which is deposited up to bed rock in area. After mining and separation of the ore fragments from the soil, the rubble free soil is left better preserved. Reclamation work will be carried out continuously and simultaneously after the mineral is depleted as per the conceptual mining plan; it is propose to refill and level area for agricultural use.

Small area of 1 or 2 acre shall be within operation for the purpose of collection of float ore. The land shall be reclaimed for agriculture purpose immediately after collection of ore is completed and given back to the farmers for agriculture.

17.8 AFFORESTATION PROGRAMME:

A programme of afforestation is proposed in the area during the entire duration of the proposed mining. It is proposed to plant around 100 saplings each year at a spacing of about 3 metres. The total number of saplings proposed to be planted is around 500, covering an area of 5 hectare during five years. The programme of afforestation will be taken up in consultation with Forest Department. The necessary steps will be taken up for watering regularly, putting supports, tree guards made up of wooden sticks with wire mesh all round for each sapling to protect for survival. The survival is expected to be 80%. The details of year wise afforestation programme with location etc. are indicated in **Table 10**.

Table- 10 : DETAILS OF PROPOSED AFFORESTATION

Year	Location	No. of Saplings (m)	Spacing	Type of Species	Extent Hectares
1 st 5 Years	PA (A)	100	2	Accacia	1.0
2 nd 5 Years	PA (B)	100	2	Accacia	1.0
3 rd 5 Years	PA (C)	100	2	Accacia	1.0
15 th , 16 th & 17 th 5 Years	PA (D)	100	2	Accacia	1.0
18 th to 20 th 5 Years	PA (E)	100	2	Accacia	1.0

17.9 ENVIRONMENTAL COST

There is no question of rehabilitation in the proposed method of mining. However the lessee will spend the following amounts for afforestation.

Table- 11 : Environmental Cost

S.No.	Activity	Details of Jobs	Capital Cost (Lakhs)	Recurring cost / Annum (Lakhs)
01	Afforestation works	200 saplings	0.75	0.50
02	Dust Control	25 tractor trips of water & Suppression	2.00	0.75
03	Check dams etc.	10 mts	1.00	0.50
04	Environmental monitoring		1.00	0.50
Total Estimate			4.75	2.25

17.10 PROJECT BENEFIT

The main aim of the proposed mining is to mine flaky graphite and kyanite through collection of float material which is found distributed in the soil in agricultural fields. The float ore will be sold to entrepreneurs owning or trading in refractory materials. Though the graphite ore is of very low grade, mining is proposed to be undertaken because the ore carries kyanite in addition to graphite as a useful mineral. The float kyanite-graphite

produced from the mine will be sold to consuming industries such as refractories, paints, lubricants, foundry facing, crucible, electrodes, dry batteries etc.

