

MINING PLAN ON COLOUR GRANITE
Over an extent of 2.869 Hectares in Sy. No's. 201/P, 202/P & 204/P
Narasapuram (V), Santhabommali (M), Srikakulam District. A.P.

For

Sri. S. Ilanchoorian
Tamilnadu



APPROVED

Prepared By

V.T. Chander
Consultant Geologist & RQP
(RQP/DMG/HYD/02/2001)

H.No. 10-1, Flat No. 202, Mahalaxmi Ganapathi Complex,
Sai Baba Temple Lane, Beside Sri Sai Grammar High School,
P & T Colony, Dilsukhnagar, Hyderabad - 500 060.

☎ : 55618351, 24068218 ☎ : 31056234

CERTIFICATE

This is to certify that Mining Plan in respect of Quarry Lease area over an extent of 2.869 Hectares spread over in Sy. No. 201/P, 202/P & 204/P of Narasapuram Village, Santhabommali Mandal, Srikakulam District, Andhra Pradesh. Has been prepared by Sri V. T. Chander, Consultant Geologist & RQP and we agree to follow the same in accordance to the provision of Law

Date :



R. Chander
Applicant

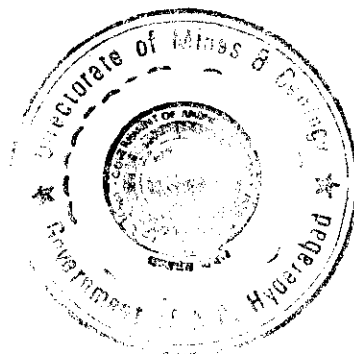
CERTIFICATE

The provision of Granite Conservation and Development Rules 1999 have been observed in the Mining Lease of Coloured Granite over an extent of 2.869 Hectares spread over in Sy. No. 201/P, 202/P & 204/P of Narasapuram Village, Santhabommali Mandal, Srikakulam Dist, Andhra Pradesh. for Sri. S.Ilanchoorian, Tamil Nadu, whenever specific permissions are required the applicant will approach the concerned authorities.

It is also certified that the information's furnished in the above Mining Plan are true and correct to the best of our knowledge

Date : 26th Aug 2007

Place : Hyderabad

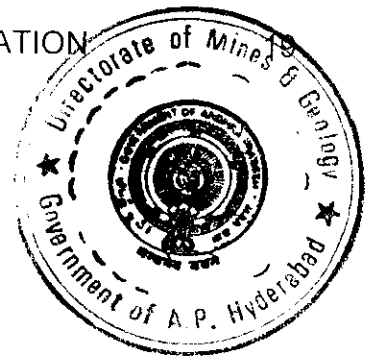


V. T. Chander
RQP
26/8

(V. T. Chander)

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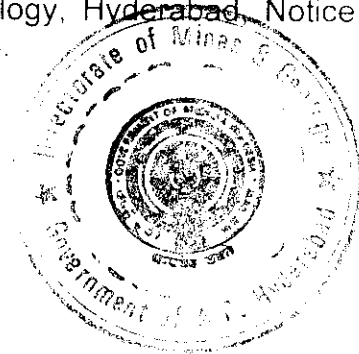


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LIST OF ANNEXURES

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- II Copy of the Permit of Dispatch



1

MINING PLAN ON COLOUR GRANITE
Over an extent of 2.869 Hectares in Sy. No's. 201/P, 202/P & 204/P
Narasapuram (V), Santhabommali (M), Srikakulam District. A.P.

For

Sri. S. Ilanchoorian
Tamil Nadu

By

V. T. Chander
Consultant Geologist & RQP

This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the

Mining Plan Approval Letter No.....
23983/mps/2004 dated *8-9-2004*

1.0 INTRODUCTION

Sri. S. Ilanchoorian, Thiruthani, Tamil Nadu, an Entrepreneur in mining was granted Prospecting License for 2 years for Colour Granite over an extent of 2.869 Hectares spread over in Sy. No's. 201/P, 202/P & 204/P of Narasapuram Village, Santhabommali Mandal, Srikakulam District, Andhra Pradesh. Vide Director, Department of Mines and Geology, Hyderabad. Proceedings No. 5883 / R1-3 / 2002 dated 06-02-2003.

The lease deed was executed on 03-04-2003. Vide Asst. Director Mines & Geology, Srikakulam Proceedings No. 456 / Q / 2002 dated 03-04-2003 for commencing the prospecting operations for a period of 2 Years.

After ascertaining the quality & quantity of the deposit Sri. S. Ilanchoorian, Thiruthani, Tamil Nadu, has applied for grant of Quarry Lease. The Director, Mines & Geology, Hyderabad, after careful examination of the proposals has proposed to grant the quarry lease in the above said area for a period of 20 years. Subject to submission of approved mining plan within 6 months period. Vide Notice No. 21022 / R1-3 / 2004 dated 31-7-2004.

Sri. S. Ilanchoorian, Thiruthani, Tamilnadu, approached Sri V.T. Chander Consultant Geologist and RQP (RQP/DMGHyd/02/2001) For preparation of Mining Plan in the above mentioned quarry. Accordingly Mining Plan is prepared as per the guidelines given by Govt. India. Ministry of Steel & Mines, GCDR Rules 1999.

APPROVED

Chander

Dr. P. DAYASANKAR
DIRECTOR

DEPT. OF MINES & GEOLOGY
GOVT. OF A.P., HYDERABAD.



- 2.0 **GENERAL**
- 2.1 **Name and address of the applicant** : Sri. S. Ilanchoorian,
S.No.78,
Dr. Radha Krishna Street,
Thiruthani,
Thiruvallur District,
Tamil Nadu.
- 2.2 **Status of the applicant** : Entrepreneur
- 2.3 **Mineral for which applicant intends to mine** : Coloured Granite
- 2.4 **Name and address of the RQP who prepared the prospecting report** : V.T. Chander
RQP/ DMG/Hyd/02/2001
H. No. 10-1, Flat No. 202,
Mahalakshmi Ganapathi Complex,
Sai Baba Temple Lane,
Beside Sri Sai Grammar High School,
P & T Colony, Dilsukhnagar,
Hyderabad - 500 060.
☎ : 55618351, 24068218
✆ : 31056234
- 2.5 **Name and address of the prospecting agency** : Sri. S. Ilanchoorian
Thiruthani, Tamilnadu
- 2.6 **Details of the Area**

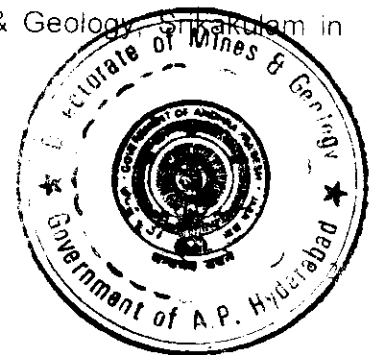
The applied area falls in the Survey of India Toposheet No.74 B/2 and is bounded East Longitude 84° - 11' - 00" and North Latitude 18° - 30' - 50". It is situated 0.5 Km North West of Narasapuram (V). The road leading from Srikakulam to Tekkali and taking diversion at Kotabommali will take to the applied area. The location of the area is indicated in Key Cum Location Map (Plate – I).

The details of the area are as tabulated below :

District State	Mandal	Village	Sy. No.	Extent	Ownership of Occupancy
Srikakulam Andhra Pradesh	Santhabommali	Narasapuram	201/P 202/P & 204/P	2.869 Hectares	Patta Land

Cadastral Map certified by the Asst. Director of Mines & Geology, Srikakulam in favor of Sri. S. ILanchoorian is given as Plate No. II.

- 2.7 **Period for which Quarry lease required = 20 Years.**



2.8 Infrastructure and Communication

Availability of Water	The Ground Water level is about 4 to 5.0 Mts. below ground level.
Availability of Electricity	Electricity is available at the Quarry area.
Communication Network	Narasapuram Village is located 2.75 Km S.E. of Kotabommali Mandal. Kotabommali Mandal is 13 Km South of Tekkali and 36 Km N.E. of Srikakulam Town on NH - 5. (Chennai to Kolkatta). A diversion from Kotabommali due East on Santabommali road will take to the applied area after taking and then diversion due South after Kotabommali will take to Narasapuram Village Amenities like Post & Telegraph Office, Police Station, Primary Health Center etc., are available at Kotabommali.
Road Network	The Kotabommali. Town is located 36 Km North of Srikakulam on NH 5 from Visakhapatnam to Calcutta. The town is well connected with the road network.
Nearest Rail Head	Nearest Rail Head is located at Amudalavalsa (Srikakulam Road Station), which is located 16 Km from the Srikakulam and 36 Km from Kotabommali.
Port Facility	Vishakapatnam Port is about 150 Km from area.
School	Education Facilities from Primary School to College are available in Kotabommali Town.
Medical Facility	Medical Facility available in Kotabommali Town.

Boundaries

North	Agricultural Lands
South	Agricultural Lands
East	Agricultural Lands
West	Agricultural Lands

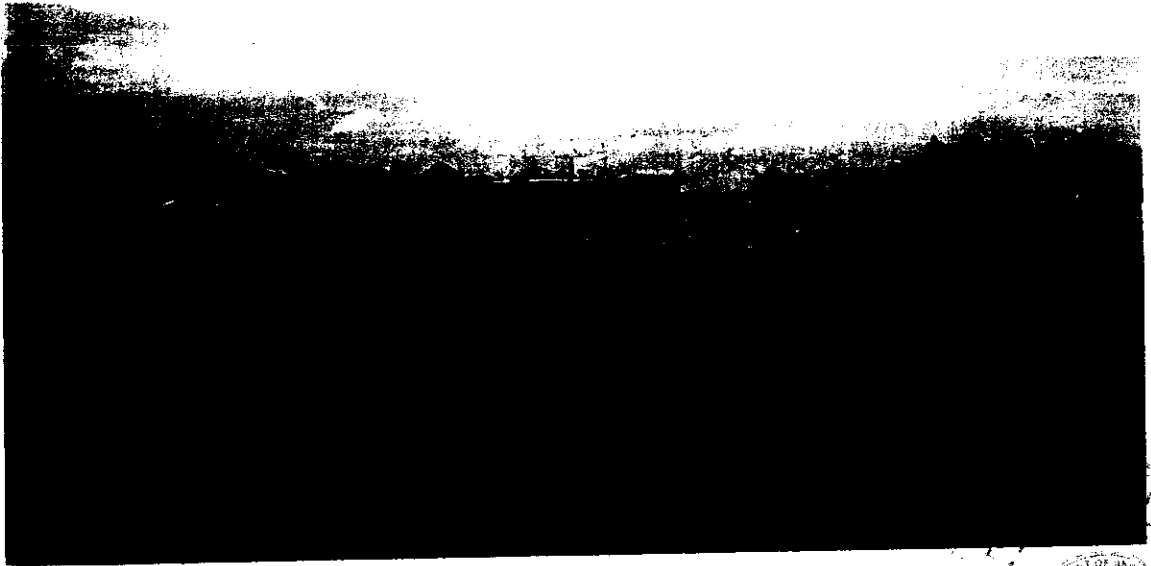
Further vast potential exists for the employment of unskilled labour in the existing Granite Quarries and Allied Small-Scale Industries. The area experiences Semi - arid climatic conditions with an average Annual rainfall of 1000 mm. The local day temperature varies from 25° C in November to 48° C in April & May Months. The general wind direction reported is SW to NE and SE to NW.

Additional Infrastructure that will be created

- Employment to Villagers in the Quarrying as Quarrying of Colour Granites new to this part.
- Development of Roads.



PHOTOGRAPH SHOWING THE VIEW OF THE APPLIED AREA & WORKINGS



PHOTOGRAPH SHOWING THE WORKING PIT



3.0 GEOLOGY & EXPLORATION

3.1 Physiography

The applied area is a part of rugged terrain with low-level ridges. Gently undulating terrain interspersed with a number of hillocks, which contain boulders and sheet rocks. The general trend of the hillocks is N.E – S.W. The height of hillocks, from ground level range from 5 m to 6 m, with a mean seal level of 45 M. The soil is brown to grey and mostly clayey with kankar, at places. The surrounding areas all around the license area are agricultural lands.

3.2 Regional Geology

The Eastern Ghat Mobile Belt (EGMB) is more than 600 Km in Length from Srikakulam in the North to Ongole in the South. This belt is more than 100 Km in Width in Northern part and tapers down to less than 20 Km in the South, it has broad arcuate trend with west ward convexity. The NNE –SSW trend in the southern part of the belt changes NE-SW in the North. EGMB is divided into 3 longitudinal zones viz

1. Western - Charnockitic Zone
2. Central - Kondalite Zone
3. Eastern - Migmatite Zone

While in the Northern parts in Srikakulam, Vizianagaram & Vishakapatnam Districts the central Khondalite Zone occupies major part of the area. where as Western Charnockite Zone occurs in the Southern part. The rocks in this belt are represented high grade Granulite facies of Metamorphism and suffered by complex deformation. The stratigraphic succession of EGMB is as follows :

Stratigraphic Unit	Lithology
INTRUSIVES	Layered Anorthisites and associated Mafics and Chromiferous Ultra Mafics
CHARNOCKITE GROUP	Charnockites with Mega Crystic K- Felspar Charnockite Two Pyroxene Granulite / Amphibolites
KHONDALITE GROUP	Calc-Sillicate-Granulites. Garnet-Silliminite-Quartz-Biotite-K-Felspar-Graphite Gneiss (Khondalite) Quartzite-Garnet-Silliminite
GRANITOID SUITE	Granitoid with Mega Crystic K-Felspar Un Differentiated (with Migmatitic Dia Tectite Augen) Perferoblastic Granite and Gniesses Garnet-Biotite, Homophanus Granite / Gniess Leptinite. Local Charnockite Neosomes and Relics

In Srikakulam district the EGMB is represented by vide range of litho units Viz: Charnockites, Khondalites, Two pyroxene Granulites, Migmatites, Leptinites and Intrusive porphyroblastic Charnockites. Large enclaves of Acid Charnockites, Khondalites and Meta-Basic rocks occur within Migmatites, which are largely seen in the area lying between R. Vamsadhara and Coastline.

Local Geology

Kotabommali Mandal occupied by rocks of the Archaean Metamorphosed belt of the Eastern Ghat Super group. Besides, a few out crops of laterite are found in the southern part of the mandal. The Archaean granulites belt comprises of khondalite and charnockite groups of rocks and their migmatitic derivatives formed due to injections of quartzo – feldspathic material and prophyroblastic gneiss.

Khondalite

The garnet sillimanite gneisses commonly known as 'Khondalite' are seen in Kotabommali Mandal. The Khondalite occurs as main mass of hillocks. It occurs as hillocks in Pattupuram. Small isolated outcrops of Khondalite are recorded within granulite gneissic terrain at Pattupuram and the lower flans of Khondalite hills are occupied by granulite gneisses between Tharlipeta and Kurudu. The Khondalite is brown, pinkish brown, buff coloured and medium to fine – grained.

Topography

The applied area constitutes a part of the open scrub with boulders trending in North South direction. The applied area forms elevated area sloping in East, West and South. NE - SW trending small ridge raising up to 6 M Height in the centrally position of the applied area.

3.3 Details of Exploration

3.3.1 Prospecting Operations Carried Out

The following prospecting operations were carried out in applied area.

3.3.1-1 Geological Traverses and Mapping

The applied area was traversed to demarcate the exposures of the Colour Granite and to record the structural features in the outcrops, the data regarding litho units collected and surface geological map on 1: 000 Scale prepared (Plate - III).

3.3.1-2 Topographic Survey

A micro optic theodolite is used for conducting the topographic survey. An assumed benchmark of 100 M used to measure the elevation differences in the applied area and also to prepare the surface elevation contour map on 1 : 1,000 Scale.

3.3.1-3 Exploratory Mining

As the granite deposit is totally exposed in the area as the small bouldery mound rising to a maximum height of 6 M above ground level in the grids E 150 - 200 & N 150 - 200.

Road was laid from the road leading to Narasapuram to the pit. Site services like shelter to workers, Mess, office and drinking water were created



The Mining activity was taken up in the grids E 100 - 200 & N 100 – 200, the soil cover around the boulders with dimensions of 10M x 3 M x 3 M was removed.

The large sized boulders were subjected to splitting and then wedged out.

This wedged out rock mass was further subjected to splitting into the blocks for the sizes ranging from 300 x 185 x 178 to 123 x 81 x 78.

These blocks were dressed and 53.062 M³ were dispatched

In the trial pit of 40 M x 40 M x 4 M a total of 6,400 M³ of Rock Mass (60% = 3840 M³) with soil, undersized boulders (40% = 2560 M³) were retrieved from the workings and after dressing 200 M³ of Economic Grade Rough Blocks recovered showing the recovery of about >10%.

The following machines are used :

1. Poclairn - 1 No.
2. Compressor - 1 No.
3. Jack Hammers - 5 No's.

With 25 No's of workers (Both skilled and semi-skilled)

4.0 RESERVES

4.1 Geometry of Deposit

Geological Traverses and the study exposures of the mound facilitated to assess the shape and size of the deposit in the area. It is in irregular shape. The surface of the mound is wavy and irregular with two peaks.

4.2 Categorization of Reserves

The deposit is exposed as mound is considered for computing the reserves. The entire deposit exposed on the surface is classified under "**Proved**". The deposit 3 M below this is categorized as "**Probable**". The deposit 2 M below is categorized as "**Possible**".

4.3 Method of Estimation of Reserves

The exposed deposit is found to be irregular in shape as it is exposed on the surface area as a small mound, the volume is computed by cross sectional area method by taking 5 Cross Sections A-A1, B-B1, C-C1, D-D1 & E-E1.

Section	Category	Sectional Area (M ²)	Section Influence (M)	Volume (M ³)
A - A1	Proved	98.2	40	3,928
	Probable	139.3	40	5,572
	Possible	83.5	40	3,340
				12,840
B - B1	Proved	190	40	7,600
	Probable	236	40	9,440
	Possible	141.5	40	5,660
				22,700
C - C1	Proved	852	40	34,080
	Probable	975	40	39,000
	Possible	585	40	23,400
				96,480
D - D1	Proved	513	40	20,520
	Probable	861.5	40	34,460
	Possible	517	40	20,680
				75,660
E - E1	Proved	162.5	22	3,575
	Probable	535	22	11,270
	Possible	321	22	7,062
				22,407

Proved = 69,703M³ + Probable = 1,00,242 M³ + Possible = 60,142 M³ = 2,30,087 M³

Reserves Blocked Under 60° Safety Slopes

Section	Along	Section Area (M ²)	Sectional Influence (M)	Volume (M ³)
A - A1	A	35	40	1400
	A1	30	40	1200
				2600
B - B1	B	35	40	1400
	B1	30	40	1200
				2600
C - C1	C	30	40	1200
	C1	35	40	1400
				2600
D - D1	D	35	40	1400
	D1	30	40	1200
				2600
E - E1	E	No Deposit will be Blocked	22	
	E1		22	
				2600
Grand Total :				10,400

Total Rock Mass	=	2,30,087 M ³ + 10,400 M ³
	=	2,40,487 M ³
Reserves Blocked under 60° Slope	=	10,400 M ³
Mineable Rock Mass	=	2,30,087 M ³
Recoverable Rock mass 30% (70% constitute Soil, Undersized Boulders = 1,53,780 M ³)	=	69,026 M ³
Recoverable Market Grade Reserves @ 20%	=	69,026 M ³ x 0.2 = 13,805 M ³
Life of the Mine	=	13,805 M ³ / 600 M ³
	=	23.01 Or Say 23 Years

4.4 Economic Marketable Reserves

The Granites, having good export market, rough blocks free of defects like fractures, joints, shears, hair line cracks, segregation veins, drastic colour variation and having Gang saw size are mostly preferred by exporters and international buyers. These are known as Economic or market grade. The Srikakulam Blue Granite is totally export oriented. Hence, all the blocks of Gang Saw size are only demanded by the exporters. The estimated quantity of rough blocks from the total rock mass is calculated @ 30% = 69,026 M³. The recovery of marketable grade is further anticipated at 20% from the above. Hence, 20% of 13,805 M³.

Economic Marketable Reserves = 13,805 M³

5.0 MARKET ANALYSIS

i) Assured and expected supply contracts

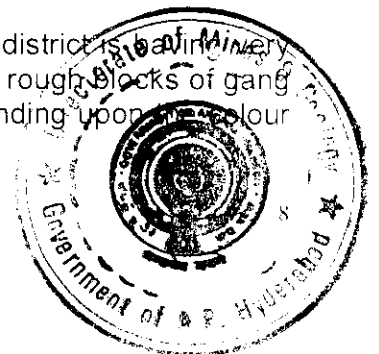
Mining activity in the Tekkali and surrounding areas revealed that only Gang Saw Size of (Economic Grade) Rough Blocks of 2.4 x 1.4 x 1.2 & 3 x 1.9 x 1.8 sizes are required by exporters and will be dispatched to different exporters in Bangalore & Mumbai. The applicant has dispatched 53.062 M³ to the market.

ii) Ability to supply consumer in time

Licensee is having sufficient men and machinery, besides huge and good quality rock at shallow depth. Therefore he is able to supply the material to the consumer in time.

iii) Pattern of demand

Srikakulam Blue Granite/ Bahama Blue of Srikakulam district is having good demand in the international market. The prices of rough blocks of gang Saw size ranging between Rs.8000 to Rs.10000 depending upon the colour of the rock.



Therefore, the material is having good demand and market is already established for the material from this mine.

6.0 MINING

6.1 Type of Mining

Quarrying of Colour Granite in the existing Quarry by Open Cast Semi Mechanized method.

Opening of Mine

The Colour Granite in this area is proposed to be mined by Open Cast, Semi-Mechanized method the Granite deposit in this area is sub-surface and exposed as boulders raising upto 6 M above GL.

The following method of working is proposed :

Stage 1

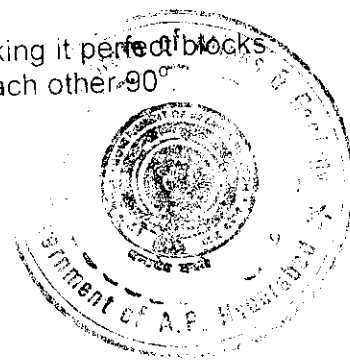
Over Burden / Talus / Side Burden Removal:

Consists of development which includes removal of Weathered, Undersized and Defective Boulders using Proclaim / Excavator and using Tipper, this waste is dumped at dumping yard. A road /ramp already constructed during exploratory Mining will be further developed to reach the working pits.

Stage 2

Extracting Boulder and Cutting them into Blocks with Conventional Methods :

- After removal of Weathered, Undersized and Defective Boulders the fresh boulders exposed will be split into two or three pieces so that blocks can be made out of them.
- As the production is only for gang saw size, the boulders are split to the required size at the insitu stage.
- The undersized and defective blocks are removed. The advantage of natural joints present in the boulders are taken for splitting them or a line of shot holes are drilled vertically and horizontally at 10 – 15 Cm distance and the primary blocks will be wedged / splited with the help of feathers and wedges..
- The separated pieces are examined for defects and lines, then the block or blocks are marked in clear area and holes are drilled along the line of marking, with the help of feathers and wedges the waste portions are separated forming a rectangular blocks.
- Any bulges are removed by drilling and wedging making it perfect blocks. A perfect block is that all the sides shall make with each other 90°.



Dressing

After secondary separation the rock mass will be carefully examined to avoid hairline cracks, mineral segregation's and veins etc. The dressing of the rough blocks will be made by chipping the edges and geometrically equating the edges of the block at the dressing yard. The rough blocks obtained after primary cut it will be dressed for obtaining good geometric shape of coloured granite.

Dressing of dimensional rough blocks for export :

Dressing is the final phase of mining operation, wherein the secondary rough blocks are squared into regular perfect rectangular sizes, thereby avoiding uneven bulge or cavities and other defects. Jackhammers with compressor, feather end wedges and sledgehammers are the equipment generally used for dressing the block.

6.2 Mining Programme for the next 5 Years

6.2.1 Scheme of Mining & Year Wise Production

During mining operations the applicant proposes to produce 4,350 M³ of Coloured Granite during the next 5 years. In order to produce this quantity an area of 6.225 M² will be utilized.

1st Year :

The mining operations will commence from North of the existing Pit No. 1 forming a bench height of 6 M and the bench will advance towards North, during the first year a total area of 425 M² will be utilized.

In the First year it is planed to produce 510 M³ of economic grade rough blocks. To produce this quantity an area of 425 M² (25 x 17 M) will be utilized in the grids N 150 – N 200 & E 100 – E 200. Producing 2,550 M³ of rock from which 20% (510 M³) economic grade rough blocks will be obtained and 80% (2040 M³) of waste rock will be realised.

2nd Year :

In the 2nd year the operations will commence from East of the existing Pit No. 1 and East of 1st year workings forming a bench height of 6 M and the bench will advance towards East, during the first year a total area of 600 M² will be utilized.

In the Second year it is planed to produce 720 M³ of economic grade rough blocks. To produce this quantity an area of 600 M² (30 x 20 M) will be utilized in the grids N 100 – N 200 & E 150 – E 200. Producing 3,600 M³ of rock from which 20% (720 M³) economic grade rough blocks will be obtained and 80% (2.880 M³) of waste rock will be realised.

3rd Year :

In the 3rd year the mining will extend further east of the previous year workings with North West oriented faces advance further east maintaining average of 3 M bench Height. An area of 1360 M² will be covered during this year.

In the third year it is planned to produce 816 M³ of economic grade rough blocks. To produce this quantity an area of 1360 M² (80 x 17 M) will be utilised in the grids N 100 – N 200 & E 150 – E 250. Producing 4,080 M³ of rock from which 20% (816 M³) economic grade rough blocks will be obtained and 80% (3264 M³) of waste rock will be realised.

4th Year :

In the 4th year the mining will continue below the 1st year workings. Maintaining average of 3 M bench Height. An area of 1440 M² will be covered during this year

In the fourth year it is planned to produce 864 M³ of economic grade rough blocks. To produce this quantity an area of 640 M² (32 x 20 M) will be utilised in the grids N 150 – N 200 & E 100 – E 200. Producing 4,320 M³ of rock from which 20% (864 M³) economic grade rough blocks will be obtained and 80% (3,456 M³) of waste rock will be realised.

5th Year :

In the 5th year the mining will extend further East below the 2nd & 3rd years workings. South oriented faces advance further east maintaining average of 3 M bench Height. An area of 2400 M² will be covered during this year

In the fifth year it is planned to produce 1440 M³ of economic grade rough blocks. To produce this quantity an area of 2400 M² (60 x 40 M) will be utilised in the grids N 100 – N 200 & E 150 – E 250. Producing 7,200 M³ of rock from which 20% (1440 M³) economic grade rough blocks will be obtained and 80% (5760 M³) of waste rock will be realised.

YEAR WISE PRODUCTION FOR NEXT FIVE YEARS

Year	Dimensions L x W x Bench Height (M)	Volume (M ³)	Market Grade Rough Blocks @ 20% (M ³)	Waste Generation @ 80% (M ³)
1 st Year	25 x 17 x 6	2550	510	2040
2 nd Year	30 x 20 x 6	3,600	720	2,880
3 rd Year	80 x 17 x 3	4080	816	3264
4 th Year	45 x 32 x 3	4320	864	3456
5 th Year	60 x 40 x 3	7200	1440	5760
Total :		21,750	4,350	17,400
Average :		4,350	870	3,480

The mine layout for production of coloured granite rough blocks first five years is showed in Plate No. V.

6.2.2 Quantum of Excavation

To retrieve 4,350 M³ of Market Grade Rough Blocks a quantum of 21,750 M³ of Rock Mass has to be excavated out of which 17,400 M³ is waste in the form of under size boulder, defective boulder, soil creep and rock debris generated during production of Rough Blocks.

6.2.3 Production Schedule

The production of colour granite continuous to through out year expect during monsoon. That is 10 working months, 20 working days per month are considered. The production of 870 M³ per year can be easily achieved in a single shift with sufficient men and machinery.

The following machines will be used :

- | | | |
|-----------------|---|--------|
| 1. Poclain | - | 1 No. |
| 2. Compressors | - | 2 No. |
| 3. Jack Hammers | - | 6 No's |
| 4. Tippers | - | 2 No's |

With 31 No's of workers (Both skilled and semi-skilled)

a) Magazine Type and Capacity :

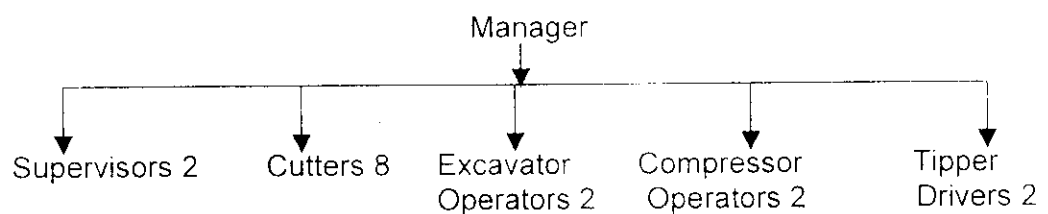
Not Applicable (No permission for storing the blasting material will be granted by the District Administration) The applicant proposes to use AGFRACT Chemical Compound whenever required.

b) Description of Processing Plant :

The applicant does not possess Granite Processing Plant

c) Organizational Chart :

The organogram of the quarry in this area is as follows :



Besides above managerial and skilled staff

- Semi-Skilled of about 10 members.
- Unskilled workers 4 members are required for the quarry work.

d) Site Services :

The company at Quarry Site has already provided Rest Rooms, First Aid Room, Shelters, Lavatory and Bore well for Drinking Water.



7.0 SCHEME OF WASTE MANAGEMENT PLAN (SOLID & LIQUID)

- i) **Solid waste for the first five years** : The granite body exposed to the surface. Hence, the weathering on the surface of the rock closely spaced joints and shears along with inherent defects like Moles, Dark patches and acidic veins contribute a large extent of waste generation during the mining. It is estimated that in the next five years a total of 17,400 M³ of waste is expected to be generated with an average of 3,480 M³ per annum. The year wise waste generation in 5 years is as follows :

Year	Waste Generated (M ³)
1 st	2,040
2 nd	2,880
3 rd	3,264
4 th	3,456
5 th	5,760
Total :	17,400

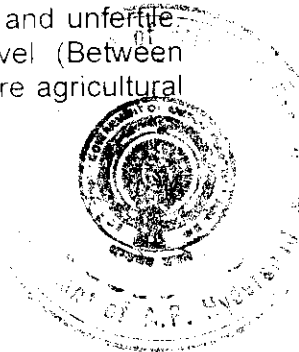
- ii) **Dumping site particulars:** For dumping of waste generated during mining will be dumped along the North Western corner of the lease area between grids N 150 – N 250 & E 50 – E 150 covering an area of 1800 M².
- iii) **Estimated waste quantity that will be generated in the entire period:** At the rate of 3,480 M³ per year the volume of waste generated in balance lease period i.e. 20 years is estimated to be 69,600 M³.
- iv) **Utilisation of waste if not prevented :**
- Soil can be utilized for reclamation of degraded area.
 - Weathered rock if it is sufficiently soft and devoid of rock fragments can be utilized for roads, filling of road side ditches, formation of approach roads to quarries, construction works etc.
 - Large and medium sized waste rock can be used as revetment for deep cut stream sections from preventing from soil erosion.
 - The waste generated during the mining will also be used for back filling of the mine pit after completion of mining.

8.0 ENVIRONMENTAL MANAGEMENT PLAN

8.1 Baseline Information

i. Existing Land Use Pattern

The applied area is a mound sloping on all sides. The whole land is covered by sparse vegetation. The soil existing in the applied area is bouldery and unfertile. The mound is exposed to a maximum height of 6 M above ground level (Between grids E 150 – E 200 & N 150 – N 200). All around the applied area are agricultural lands



ii. Water Regime

A tank exists 500 west of the applied area.

iii. Flora and Fauna

The whole area is occupied by scattered sparse vegetation of thorny trees and small bushes. In the applied area no wild animals are witnessed as per the statements collected from the local population, since 50 years.

iv. Quality of Air, Ambient Noise Level and Water

- Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc
- The noise generated mostly due to blasting, drilling, vehicular traffic
- Granite mining will not effect water quality.

v. Climatic Conditions

The area is falling under semi-arid tropical zone. The area is having dry climate. The temperature recorded in this area is 25°C, in winter and about 48°C, in summer seasons. The wind direction is in SW to NE. The average annual Rainfall of the area is 1000 MM.

vi. Human Settlement

The village Narasapuram is situated 0.4 Km due South East of the area. The population of this village is about 500. The village is surrounded by agricultural lands. The details of the villages in 2 Km, surrounding from the applied area is given in following table.

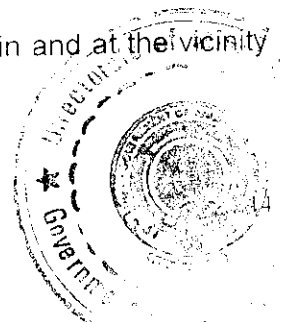
Table No. II : Human Settlement (Plate No - 1)

S. No.	Village	Direction	Distance (Km)	Population
1.	Gopalapuram	South East	0.5	500
2.	Bade Kuppannapeta	South West	0.6	500
3.	Sawarapeta	South East	1.5	500
4.	Yernagulapeta	North East	1.5	300
5.	Kotabommali	North West	1.75	5.000

The main occupation of the local population is agriculture and sheep rearing / Breeding and Quarry labour.

vii. Public Building, Palace and Monuments

No of public buildings, palaces and monuments are witnessed in and at the vicinity of the area.



viii. Quality of Air and Water

The air and water of the area are free from any kind of pollution, since no industries are established in the area.

ix. Whether the area falls under notified area under water act. 1974

The area will not fall under notified area under water Act. 1974.

8.2 Environmental Impact Assessment

1) Land Degradation

Granite mining will alter the physiographic scene; the present mound will be flattened and a pit of 9M will be formed over an area of 6225 M². A dump covering 1800 M² with 5 M Height will form as an artificial mound.

2) Air Quality

Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc. but it will be within the permissible limits by sprinkling water on roads and covering the drill rods with cloth.

Air quality will not be disturbed, as the quarrying is very limited.

AIR QUALITY

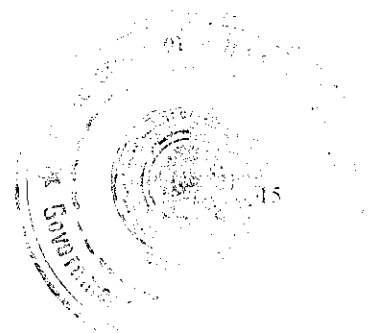
Base Level	Allowable Level
SPM = 140 μ g/m ³	360 μ g/m ³
RSPM = 60 μ g/m ³	120 μ g/m ³
SO ₂ = 40 μ g/m ³	80 μ g/m ³
NO ₂ = 40 μ g/m ³	80 μ g/m ³
CO = 1.0 μ g/m ³	5.0 μ g/m ³

Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc., but it will be within the permissible limits by adopting the following:

- The dust rising due to drilling will be controlled by covering the drill rods with cloth, dust extractors will also be employed.
- Dust suppression on Haul road with sprinkling of water with chemical additives.
- Proper functioning of dust suppression arrangements in the equipment

3) No water course is passing through the area excepting run off streams during monsoon.

The mining of Granite, no adverse effect is anticipated on the water regime of the area.



IS 10 500 - 1944

S.No.	Characteristic	Desirable Limit	Maximum Permissible Limit
1	Colour	5	25
2	Order & Taste	Un Objectionable	
3	Turbidity	5 NTU	10 NTU
4	pH Value	6.5 to 8.5	No Relaxation
5	TDS	500 mg.per ltr.	2000 mg.per ltr.
6	Total Hardness	300 mg.per ltr.	600 mg. Per ltr.

4) Noise Levels

The blasting and the haulage and the drilling of boreholes generate Noise. However, the probable noise level will be within the permissible limits and will not cause harm the applicant will provide suitable protective gear to the workers for minimizing the noise pollution and the machinery will be well maintained. The noise levels for various activities are

1. Compressor - 84 to 98 dB(A)
2. Tipper Empty - 88 to 91 dB(A),
Tipper Loaded - 95-103 dB(A)
3. Poclaim - 90 to 96 dB(A)
4. Blasting - 89 to 95 dB(A)

Permissible noise exposure for different period of time is given below :

Duration Per Day (Hrs)	Sound Level Dba
16	80
8	85
4	90
2	95
1	100
½	105
¼	110
1/8	115

The blasting, haulage, machinery and the drilling of drill holes generate Noise. However, the probable noise level will be within the permissible limits with in 100 dB (A) and will not cause harm.

- The machinery will be maintained properly to reduce the noise
- The protective noise reducing gear like earmuffs, the company will provide earplugs.
- Proper maintenance of equipment

5) Vibration Levels

The vibrations generated are due to the operation of machinery only, which is negligible

6) Aesthetic Environment

There is no aesthetic environment prevailing in and around the applied area.

7) Soil and Land Use Pattern

The soil cover is absent in the high-elevated areas. However, soil mixed with boulders, which are unfertile, is deposited along the buffer zone of the lease area. Hence, the land is not being used for agriculture purpose. Therefore the mining in this area will initiate utility of the land.

8) Agriculture

The applied area is barren land and far away from agricultural lands. Therefore there is no adverse effect on agriculture.

9) Forest

The applied area is not coming under forest zone. However, the applicant is proposing to undertake afforestation in the area.

10) Vegetation

The applied area is covered with scattered vegetation of small shrubs, herbs and Thorny bushes. However, no cutting of trees is involved in mining activity.

11) Socio Economic Environment

5 villages within a distance of 2 Kms surround the applied area. The main occupation of villagers is agriculture and sheep rearing. The commencement of mining activity in this area has improved the socio-economic status of the local people by employment in the quarries.

12) Occupation Health and Safety

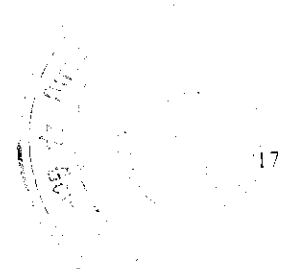
The mining in this area does not involve any hazardous methods. The mining is simple and open cast mining method. In this the possibilities of small injuries is anticipated. This applicant will be providing First Aid facilities at quarry site.

13) Human Settlement

The nearest village Narasapuram situated 0.5 Km from the area. Therefore there is no anticipation of adverse affect on the human settlement.

14) Recreational Facility

The surrounding villages people will go to Kotabommali Town for purchases, medical & recreation.



8.3 Management Plan

1. Soil Conservation Methods

The soil cover is absent. The soil mixed with boulders is unfertile; hence, the land is not being used for agriculture purpose. Therefore the mining in this area will initiate utility of the land. The soil generated from the inter boulders will be spread in the buffer zone for afforestation.

2. Proposed for Reclamation of Land affected by Mining activity during and at the end of mining

It is proposed, to utilize the quarry pit as a water tank after completion of the quarrying activity

3. In case of forest programme for phased compensatory afforestation

The applied area will not come under forest zone.

4. Measures for Dust Suppression

- The dust anticipated during dry seasons, by transportation on road will however be suppressed by sprinkling water on roads. For this purpose, tractor mounted sprinklings will be deployed at this place.
- The dust that rises during blasting will be negligible because of less production and rare blasting.

5. Measures to minimum use vibrations due to blasting and check noise pollution

- The noise generated by compressors, drilling & machinery like proclain / excavators and tippers will be high. Proper maintenance of machinery will reduce the noise pollution.
- The workers in the quarry area will be provided suitable headgear and noise reducing protective gear (like cotton mufflers etc.)

6. Treatment and disposal of water from the mine at beneficiation plant

Granite Mines does not require beneficiation.

7. Measures for minimising adverse effect on water regime

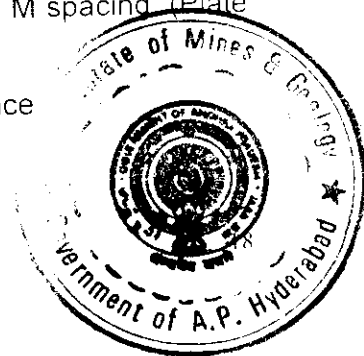
No Streams or Drainage lines exist in and around Quarry Lease area. In this area, the mining is confined to elevated place. Therefore no adverse effect is anticipated to water regime

8. Afforestation Programme

The soil covered area along the western boundary between grids N00-250 & E50-150 will be utilized for plantation, by planting suitable type with 2 M spacing. (Plate V).

9. Preparation of dumping ground for stacking toxic mineral substance

No toxic minerals are present.



9.0 ANY OTHER RELEVANT INFORMATION

All the statutory provisions applicable to granite mining leases, such as Mines & Mineral Concessional Rules, Granite Conservation and Development Rules 1999, Mineral and Mining rules, Indian explosive act, Payment and Wage act, Workmen Welfare act, Employees Provident fund act shall be adhered.

R. Sanyal
APPLICANT

This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the
Mining Plan Approval Letter No.....
213983/MP/L/2004 dated *7-9-2004*

V. T. Chander
RQP

(V. T. CHANDER)



APPROVED

V. T. Chander
Dr. P. DAYASANKAR
DIRECTOR
DEPT. OF MINES & GEOL CC
GOVT. OF A.P. HYDERABAD

**GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MIENS AND GEOLOGY :: HYDERABAD**

NOTICE NO : 21022 /R1-3/2004,

Dated: 31-7-2004

Sub: Mines & Quarries – Quarry lease for Colour Granite Extent 2.869
hects. in Sy.No. 201/P, 202/P, and 204/P- Narasapuram Village,
Santhabommali Mandal, Srikakulam District – ext. 2.869 Hects. –
A/o Sri.S.Ilanchoorian, AMP called for – Reg.

Ref: 1) From Sri.S.Ilanchoorian , Q.L.A. dt: 8-7-2004.

2) From ADM&G, Tekkali Lr.No. 1465/Q/2004, dt; 13-7-2004

Sri.S.Ilanchoorian in the reference 1st cited, has applied for grant of Q.L. for
colour Granite over an extent of 2.869 hects. in Sy.No. 201/P, 202/P and 204/P of
Narasapuram Village, Santhabommali Mandal, Srikakulam District.

The Aest. Director of Mines & Geology, Tekkali in the reference 2nd cited, has
stated that the applied area is held under PL by the applicant. Further the ADM&G,
Tekkali has recommended for grant of Q.L. for colour Granite over an extent of 2.869
hects. in Sy.No. 201/P, 202/O and 204/P of Narasapuram Village, Santhabommali
Mandal, Srikakulam District infavour of Sri.S.Ilanchoorian for a period of 20 years.

The Director of Mines & Geology, Hyderabad after careful examination of the
above proposals of the ADM&G, Tekkali has proposed to grant of Q.L. over an extent of
2.869 hects. in Sy.No. 201/P, 202/P and 204/P of Narasapuram Village, Santhabommali
Mandal, Srikakulam District infavour of Sri.S.Ilanchoorian for a period of 20 years
subject to the submission of AMP within six months from the date of receipt of this
notice.

Therefore Sri.S.Ilanchoorian is requested to submit the AMP for the above area
referred at para 2 for a period of 20 years with in a period of six months from the date of
receipt of this notice for consideration of their Q.L.A and also to submit 2 x 11 polished
stone.

Further he is also informed that if he fail to submit the AMP within a period of six
months from the date of receipt of notice it will be presumed that he is no interest in this
Q.L.A. and further action will be taken based on the material available with the DM&G.

Sd/- Dr.P.Daya Shankar
DIRECOTR OF MINES & GEOLOGY

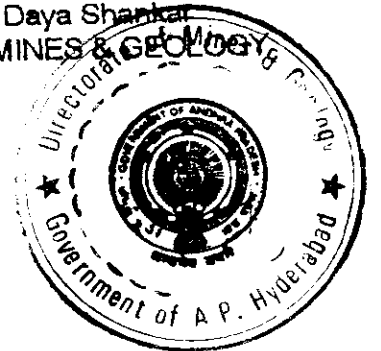
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[Signature]
FOR DIRECTOR OF MINES & GEOLOGY

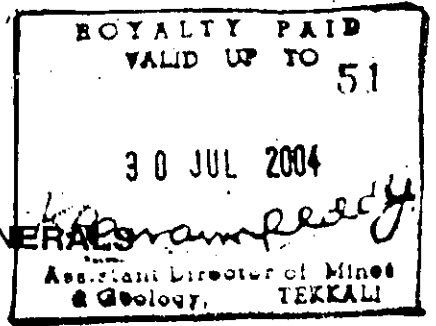
To

Sri.S.Ilanchoorian,
Sy.No. 78, G.R. Radha Krishna,
Thiruthani, Thiruvalluri,
Tamil Nadu.

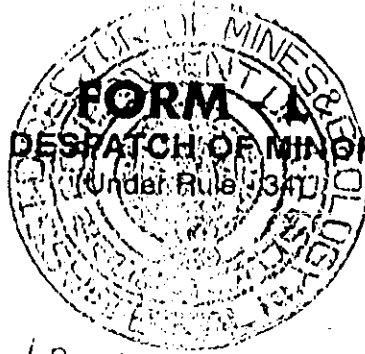
Copy to the ADM&G, Tekkali.
Copy to RQP Mining Plan Section in Head office.



ANNEXURE - II



OUT SIDE THE STATE TRANSPORT ONLY



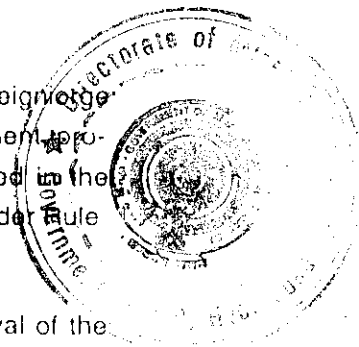
PERMIT OF DESPATCH OF MINOR MINERALS

Permit No.: 323/Q/2004-05

Date: 30-06-2004

Permit is hereby granted to Sri. S. S. Anchooriam to despatch 53.062 CBM of Minor Mineral from his/their quarry Lease situated in survey No. 201/P, 202/P & 204/P of Narasapuram Village Southbhamrah Mandal Srikakulam District in consideration of payment of a sum of Rs. 79,593/- being the Seigniorage fee on the said quantity, subject to the following conditions:

- 1. The Permit is Valid for from 30-6-04 to 30-7-04 and shall expire on 30-7-04
2. The permit is not transferable
3. The quantity shall be brought for booking at Railway station
4. The permit shall be surrendered after the quantity noted there despatched to the Department within a week after the last consignment of despatch along with the despatch particulars by signing the details of the name of the consignee, the date of despatch etc.
5. Holder of the permit shall allow the executive staff and the officers of the Department of Mines and Geology to inspect and check measure the Minor Mineral in all stages of movement.
6. The Department has the right to claim amounts by way of difference of seigniorage fee based on the scrutiny of the sale documents and the check measurement provided the excess quantity is not beyond 10% of the quantity mentioned in the documents. The excess quantity beyond 10% is liable for penalisation under rule 34 (2).
7. Failure to comply with any of the above conditions shall entitle withdrawal of the permit or cancellation of the same.

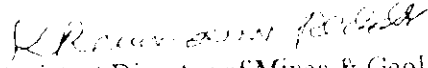


No. of way Bill: 24
S. No. of truck and
date 25

Assistant Director of Mines and Geology
ISSUING AUTHORITY
TEKKALI

OUT OF STATE

S.No.	Way Bill No.	Lessee Code	Dept. Code A.D (T-30)	Measurements L X B X H (in cms)	Volume in CBM
1	01	101	N-01	268 X 120 X 111	3.570
2	02	102	02	244 X 174 X 133	5.647
3	03	103	03	123 X 081 X 078	0.777
4	04	104	4	166 X 113 X 087	1.632
5	06	106	6	137 X 107 X 071	1.041
6	07	107	7	185 X 120 X 100	2.220
7	08	108	8	133 X 111 X 094	1.388
8	09	109	9	148 X 142 X 090	1.891
9	10	110	10	154 X 088 X 067	0.908
10	11	111	11	150 X 088 X 085	1.122
11	12	112	12	189 X 077 X 073	1.062
12	13	114	13	126 X 093 X 099	1.160
13	14	115	14	200 X 105 X 091	1.911
14	15	116	15	154 X 092 X 070	0.992
15	16	118	16	202 X 133 X 123	3.305
16	17	119	17	176 X 116 X 102	2.082
17	18	122	18	192 X 143 X 111	3.048
18	19	124	19	200 X 105 X 094	1.974
19	20	126	20	163 X 120 X 100	1.956
20	21	127	21	181 X 121 X 097	2.124
21	22	130	22	146 X 096 X 086	1.205
22	23	133	23	130 X 108 X 081	1.137
23	24	137	24	122 X 088 X 096	1.031
24	25	139	25	300 X 185 X 178	9.879
TOTAL					53.062


 Assistant Director of Mines & Geology,
 Tekkali (Srikakulam-II)