

MINING PLAN FOR COLOUR GRANITE
Over an extent of 1.860 Hectares in Sy. No. 270
Singupuram (V), Srikakulam (M), Srikakulam District, A.P.

For

M/S. DYANA GRANITES
Srikakulam



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

GOVERNMENT OF ANDHRA PRADESH

Letter No.35799/MP.I/2003

Dated.19 -11-2004

From	To
P. Dayashankar, M.Sc., M.Sc (Tech), Ph.D. Director of Mines & Geology, 3 rd Floor, BRKR Offices Complex, Hyderabad - 500 063.	M/s Dyana Granites Prop: Smt.S.Radhika W/o Satva Naravana DTO - 1-538, Govt. Hospital Road Balago Srikakulam - 532 009.

Sub- Approval of Mining Plan - Quarry Lease for **Colour Granite** over an extent of **1.860 Hectares** in Sy.No. 270 of **Singupuram** Village Srikakulam Mandal, **Srikakulam** District in favour of **M/s Dyana Granites** - Mining Plan - Approved - Regarding.

- Ref - 1. DMG Proceedings No.31626/R1-3/2002, dated 19.11.2002.
2. Letter dated. 01.10.2004 along with 4 sets of Mining Plans from Sri V.T.Chandar, RQP.

In exercise of the powers conferred as per Sub Rule 5 of Rule,17 of Granite Conservation and Development Rules,1999, I hereby approve the Mining Plan for **Colour Granite** over an extent of **1.860 Hectares** in Sy.No. 270 of **Singupuram** Village Srikakulam Mandal, **Srikakulam** District in favour of **M/s Dyana Granites**. This approval is subject to the following conditions:-

This Mining Plan is approved without prejudice to any other laws applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority.

It is clarified that this approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957 or the Mineral Concession Rules, 1960 and any other laws including the Forest Conservation Act, 1980.

Encl:- (AMP - 2 No.)


Yours faithfully,
Sd/- P.DAYASHANKAR
DIRECTOR OF MINES AND GEOLOGY

Copy to the Asst. Director of Mines and Geology, Srikakulam with AMP.
Copy to Sri V.T.Chandar, RQP

#202, Mahalaxmiganapathi Complex,
P&T Colony, Dilsukhnagar,
Hyderabad.

Copy to the Regional Controller of Mines, IBM, Sultanbazar,
Hyderabad.

Copy submitted to Director of Mines Safety,
Bhubaneswar Region
Plot No. L-1, Nayapalli
P.O. RRL Campus,
BHUBANESWAR - 751 013..

//f.e.l.b.o//

SUPERINTENDENT

CERTIFICATE

This is to certify that Mining Plan in respect of Quarry Lease area over an extent of 1.860 Hectares spread over in Sy. No. 270 of Singupuram Village, Srikakulam 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 : 20th September '2004

Place : Srikakulam

For M/S. DYANA GRANITES

S. Radhika
Proprietor



CERTIFICATE

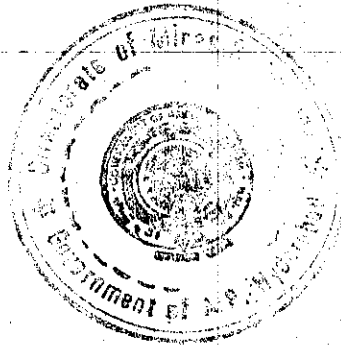
The provision of guidelines and under Rules 12 (5) (iii) of A.P.M.M.C '1966 have been observed in preparation of Mining Plan for Coloured Granite over an extent of 1.860 Hectares spread over in Sy. No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District, Andhra Pradesh., for M/s. Dyana Granites, Srikakulam.

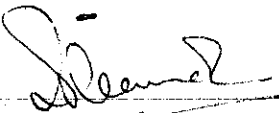
Whenever specific permissions are required the applicant will approach the concerned authorities.

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 : 20th September '2004

Place : Hyderabad

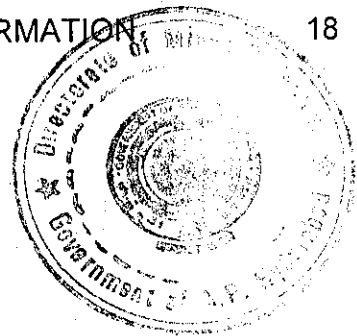



RQP

(V. T. CHANDER)

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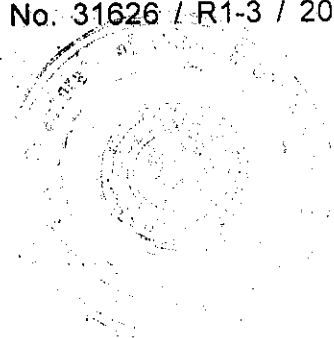


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LIST OF ANNEXURES

- I Copy of the DMG, Hyderabad, Notice No. 31626 / R1-3 / 2002 dated 19 - 11 - 2002.



MINING PLAN FOR COLOUR GRANITE
Over an extent of 1.860 Hectares in Sy. No. 270
Singupuram (V), Srikakulam (M), Srikakulam District, A.P.

For

M/S. DYANA GRANITES
Srikakulam

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.....
35797/NL-3/2003... dated 19-11-2002

1.0 INTRODUCTION

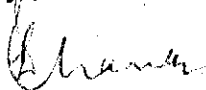
M/s. Dyana Granites, Srikakulam, a Private Firm was granted Quarry Lease for Colour Granite over an extent of 1.860 Hectares spread over in Sy. No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam Dist. A.P. for a period of 20 Years. Vide Director Mines Geology, Hyderabad, Proceedings No. 31626 / R-1-3 / 2002 dated 19-11-2002. The quarry lease was executed by the Asst. Director, Mines and Geology, Srikakulam on 26-11-2002, vide Proceedings No. 4197 / Q / 2002 dated 26-11-2002.

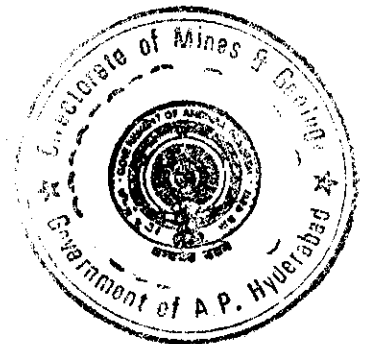
M/s. Dyana Granites, Srikakulam, after establishing the quality of the deposit the firm has applied for grant of quarry lease in the above said area.

M/s. Dyana Granites, Srikakulam, approached Sri V. T. Chander, Consultant Geologist and RQP (RQP / DMG / HYD / 02 / 2001) for preparation of Mining Plan in the above mentioned quarry.

Accordingly Mining Plan is prepared as per the guidelines and under Rules 12 (5) (a) (iii) of A.P.M.M.C '1966.

APPROVED


Dr. P. DAYASANKAR
DIRECTOR
DEPT. OF MINES & GEOLOGY
GOVT. OF A.P., HYDERABAD.



2.0 GENERAL

- 2.1 Name and address of the applicant : M/s. Dyana Granites,
Prop. Smt. S. Radhika,
W/o. Satya Narayana,
DTO - 1-538,
Govt. Hospital Road,
Balago,
Srikakulam - 532 009.
- 2.2 Status of the applicant : Private Firm (Proprietor Concern)
- 2.3 Mineral for which applicant intends to mine : Coloured Granite
- 2.4 Name and address of the RQP who prepared the mining plan : 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 : M/s. Dyana Granites,
Srikakulam
- 2.6 Details of the area

The applied area falls in the Survey of India, Toposheet No. 65 N / 15 and is bounded East Longitude : 83° - 53' - 40" and North Latitude : 18° - 21' - 20". It is situated 1 Km West of Singupuram (V), 11 Km North East of Srikakulam Town (Mandal & District Head Quarters). The road leading from Srikakulam to Kolkatta (NH - 5) passes 1.5 Kms due East of the applied area. A diversion at Singupuram due West will lead to the 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	Srikakulam	Singupuram	270	1.860 Hectares	Govt. Land

- 2.7 Period for which Quarry Lease granted = 20 years

Cadastral Map certified by the Asst. Director of Mines & Geology, Srikakulam in favour of M/s. Dyana Granites, is given as Plate No I I.



2.8 Infrastructure and Communication

Availability of Water	The Ground Water level is about 6 to 7.0 Mts. below ground level at the foot hill.
Availability of Electricity	Electricity is available at the Quarry area.
Communication Network	It is situated 1 Km West of Singupuram (V), 11 Km North East of Srikakulam Town (Mandal & District Head Quarters). The road leading from Srikakulam to Kolkatta (NH - 5) passes 1.5 Km due East of the applied area. A diversion at Singupuram due west will lead to the area. Amenities like Post & Telegraph Office, Police Station, Primary Health Center etc., are available at Singupuram.
Road Network	The road leading from Srikakulam to Kolkatta (NH 5), passes 1.5 km due east of the applied area. A diversion at Singupuram village due west will lead to the area.
Nearest Rail Head	Nearest Rail Head is located at Amudalavalsa (Srikakulam Road Station), which is located at the distance of 16 Kms.
Port Facility	Vishakapatnam Port is about 150 Kms from area.
School	Primary school is available at Singupuram. High school colleges are at Srikakulam town.
Medical Facility	District Hospital and Private Hospitals are located at Srikakulam.

Boundaries

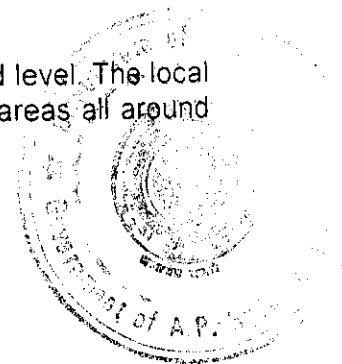
North	Road & Barren Lands
South	M/s. Lalitha Impex
East	Barren Lands
South West	M/s. Devi Narayana Exports
North West	M/s. C. L. Naidu Granites

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.

3.0 GEOLOGY & EXPLORATION

3.1 Physiography

The applied area is a part of rugged terrain with 20 M above ground level. The local relief is due North & North East gently slopping. The surrounding areas all around the license area are applied areas for quarrying.



PHOTOGRAPH SHOWING THE VIEW OF LEASE AREA (PART)



PHOTOGRAPH SHOWING THE VIEW OF THE FOOT HILL AREA (INDICATING THE POSITION OF THE LEASE AREA WITH REFERENCE TO GROUND LEVEL 25 M)



The area falls under Vamsadhara river command area, the river is located 4 Km North East of the quarry, the distributaries of Bhairi canal irrigate the area. Numbers of small to medium tanks are located around the area.

Topography

The applied area is located on the northern side of the hill with highest peak of 20 M sloping towards North. The colour of the granite is varying from medium to light blue colour. The outcrops of Granite boulders are embodied in the soil burden

The low level hill appears as Tors, with Boulders of massive thickness, the horizontal sheet joints present in the boulders give shape as sheet.

3.2 Regional Geology

The Eastern Ghat Mobile Belt (EGMB) is more than 600 Km in length from Srikulam 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 20Km in the South, it has broad arcuate trend with westward 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 :

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 wide 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 Coast line.

Local Geology

PORPHYROBLASTIC GRANITE DEPOSITS occurring particularly in Srikukulam Mandal in Singapuram village. The presence of euhedral feldspar phenocrysts ranging in size from 0.5 Cm to 6 Cm in length and with an average width of 1 Cm to 3 Cm in a ground mass of whitish grey and occasional dark gray (resembles a group of fish floating in blue water and some feldspars crystals being transparent giving bright bluish tinge. Hence, the commercial name Flash Blue is coined) looks beautiful after polishing and these deposits are exploited and used for table tops, flooring, monuments and in making flower vases.

The commercial name coined is "Flash Blue" Granite.

3.3 Details of Exploration

3.3.1-1 Prospecting operations carried out

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 : 500 Scale prepared (Plate - III).

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 : 500 Scale.

3.3.1-2 Exploratory Mining

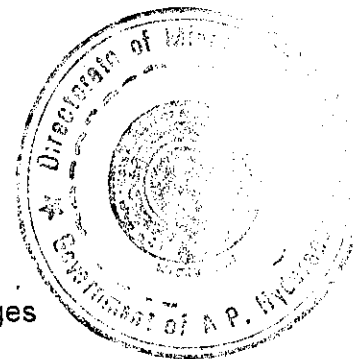
An Escarpment of 120 M x 20 M was developed along in southern part of the applied area and large boulders were removed forming a pit of 3 M, quarrying started from the South and advanced towards North. NW - SE aligned bench of 4 Mtrs Height developed facing SW wards. The rubble and small boulders were cleared for quarrying. They are separated from the sized burden using blasting. Since the quarrying is restricted to larger side boulder separated by soil the excavator was used to remove the boulders from the embedded in soil and resorted to drilling and splitting of rock. After dressing the following 326.226 M³ of rough block retrieved and 207.961 M³ blocks were dispatched.

Exploratory Mining reveals the recovery of Market Grade rough block from the Rock Mass is 35%.

Man Power Deployed

Supervisor	1 No's
Compressor Operator	2 No's
Tipper Drivers	2 No's
Hitachi Operators	1 No.

Besides 20 No's unskilled labourers are employed on daily wages



Machinery Used

Excavator	1 No.
Compressor	1 No.
Tipper	1 No.
Jack Hammers	3 No's

3.4 Estimation of Geological Reserves

3.4.1 Geometry of Deposit

Geological traverses and the study exposures on the hill facilitated to assess the shape and size of the deposit in the area. It is in irregular shape. The surface of sheet rock is wavy and irregular. The estimation is made by volumetric method.

3.4.2 Method of Estimation of Reserves

The exposed deposit is found to be irregular in shape as it is exposed on hill, the Cross Sectional area method was adopted for estimation of insitu geological reserves, and 7 Cross Sections were drawn at equal distance. The cross sectional area is multiplied with sectional influence to obtain the total rock mass available in the particular section, adding all the volumes of these sections giving the total geological reserves

3.4.2-1 Categorization of Reserves

The deposit that is exposed on hill is classified under "Proved"

Section	Sectional Area (M ²)	Sectional Influence	Volume (M ³)
A - A1	2345.25	63	1,47,750.75
B - B1	2162.25	50	1,08,112.5
C - C1	2791.32	50	1,39,566.25
D - D1	2676.5	50	1,33,825
E - E1	2177	50	1,08,853.25
F - F1	2463.35	50	1,23,167.5
G - G1	3042.87	50	1,52,143.
Total Insitu Rock Mass			9,13,418.75

Total Rock Mass estimated, Anticipating Soil Creep, Undersized Boulders, etc @ 40%

Total Recoverable Rock Mass @ 60% = 5,48,051.25 M³

Retrievable Blocks @ 35% = 1,91,818.1125 M³



3.4.2-2 Total Mine able Reserves

As the deposit is on the steeply sloping hill covering the crest of the hill. Hence, no deposit will be blocked under Safety Slopes.

Market Grade Reserves @ 35% Recovery Total Reserves are = 1,91,818 M³

3.4.2-3 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.

Economic Marketable Reserves = 1,91,818. M³

Life of the Mine = 1,91,818. M³ / 320 = 599 Years

4.0 MINING

4.1 Opening of Mine

The Coloured Granite in this quarry, will be mined out by open cast, semi-mechanized method. Presently the soil mixed weathered boulders are removed in this quarry and the quarrying operations are in progress. The details are as follows :

The Mining / Extraction started all over the lease area by extracting only the loose boulders of sizes 2 - 5 M which are all most floating in nature. They were subjected to primary splitting and dressing and dispatched to the market. It was reported that recovery % was nearly 35% from these Boulders. The sheet is likely to be occurring below ground level.

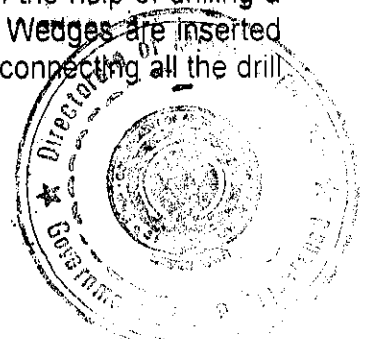
4.A Brief description of method of future mining

a) Over Burden Removal

The over burden and the side burden will be extracted with the help excavator of 300 LC capacity. After, loosing the compact weathered rock by blasting and drilling, the excavator will be deployed to remove the material and to load into the tippers for transporting to dumping yard.

b) Primary Splitting

- After removal of over burden & side burden. The excavator will remove the boulders. The under size, weathered and defective boulders will be hauled to dumping yard.
- The large sized boulders will be subjected to splitting with the help of drilling a series of holes 30 – 40 Cm apart to a depth of 3 – 4 M. Wedges are inserted into the holes and are hammered till a crack is developed connecting all the drill holes.



- With the help of excavator this cracked portion of rock mass will be dislodged from the boulder.
- The irregular shaped boulder is transformed into a Cuboid.
- The waste portions are separated forming rectangular blocks. Bulges will be removed if any found.
- If the sheet rock under lying the boulder is exposed this will be tackled by developing benches, working faces, etc, along the lineation benches of 3 – 6 M will be developed. The drill holes will be drilled closely at regular intervals of 30 – 40 Cm apart up to 2 – 3 M depth with the help of feathers, wedges and hammering and the holes are charged with Agract chemical compound for 6-7 hours to form a crack connecting all the drill holes releasing the block from the mother rock / boulder. The block thus released will be shaped into rectangular block and hauled to dressing yard for further process.
- The sizes of the primary blocks vary from batch to batch because of quality of rock mass, average sizes range from 4.5 x 3 x 2.5 to 3 x 2 x 1.

Dressing

Dressing is the final phase wherein the secondary rough blocks are squared into perfect rectangular shape i.e. all the sides will have 90° angle. These blocks will be made into different sizes for marketability using jackhammers, feathers and wedges and sledgehammers.

4.B Drilling & Blasting

As the rock is showing the porphyro blastic texture with large variation in grain sizes make the rock susceptible for splitting in an irregular form due to blasting. Hence no blasting is required, the exploratory mining in this area has confirmed this. Blasting is not applicable in this particular rock as the blasting will develop multi Fractures / Fissures

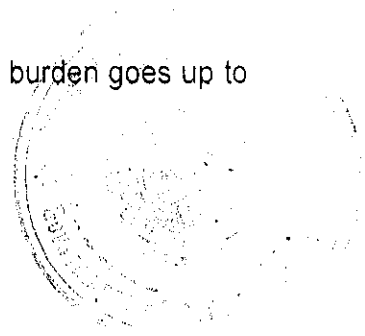
However little blasting will be required to remove side burden wherever required but the requirement is very less / negligible.

- a. Drill hole pattern for primary and secondary smooth holes of 6 M depth will be drilled in a single row with spacing of 3-6 inches and burden of 6 Mts or more shall be maintained uniformly. This arrangement will yield rock size of 6 M x 6 M x 6M cross section.
 - i) Drill Hole Diameter 32 MM up to 6 M Long
 - ii) Depth and Inclination of Drill Hole

Generally drilled vertically in an alignment, however in primary cutting in the absence of sheet joints to develop bottom level horizontal holes also are drilled.

- iii) Spacing and Burden

The spacing shall be about 0.1 M to 0.3 M from hole to hole and burden goes up to 6 M for the splitting of the rock.



- iv) Stemming & charging of bore hole : AGFRACT Powder is poured into drill holes and kept for 6 to 7 hours for consolidation to take place so as to split the entire sheet under influence.
- v) Explosive Type : gun powder only used for separation of large boulders from rock mass.

4.C Details of production so far mined from the quarry

Dimensions (Cm)	Stock at Quarry (M ³)	Dispatches (M ³)
270 x 180 x 150	131.248	199.989
250 x 160 x 140	151.565	Nil
200 x 120 x 60	326.222	207.961
Total	203.035	207.961

4.D Mining programme for the next 5 years

It is proposed to produce 1,518 M³ of rough blocks during the next five years on an average per year @ 306 M³ per year utilizing an area of 1,255 M².

1st Year

In the first year mining starts from South of the escarpment in grids N 75 – N 125 & E 25 – E 50 pit towards South, a bench of 6 M Height will be formed in 2 stages covering an area of 180 M².

There by total volume of 1,080 M³ of rock will be obtained. From which 60% (648) M³ of recoverable rock mass will be generated and 35% market grade rough blocks (227 M³) are produced, generating 853 M³ of rock debris.

2nd Year

In the second year the mining starts from East of 1st year workings along the escarpment already developed, a bench of 6 M Height will be formed in 2 stages between E 25 – E 75 in the grids N 75 – N 125 and covering an area of 225 M².

There by total volume of 1,350 M³ of rock will be obtained. From which 60% (810) M³ of recoverable rock mass will be generated and 35% market grade rough blocks (284 M³) are produced, generating 1,066 M³ of rock debris.

3rd Year

In the third year mining extends further East of 2nd year workings, a bench of 6 M Height will be formed in 2 stages in the grids E 50 – E 100 and N 50 – N 100 covering an area of 300 M².



There by total volume of 1,800 M³ of rock will be obtained. From which 60% (1,080) M³ of recoverable rock mass will be generated and 35% market grade rough blocks (378 M³) are produced, generating 1,422 M³ of rock debris.

4th Year

In the fourth year the mining extends further East of previous year bench with a 6 M Height will be formed in 2 stages in the grids E 50 – E 100 and N 50 – N 150 covering an area of 250 M².

There by total volume of 1,500 M³ of rock will be obtained. From which 60% (900) M³ of recoverable rock mass will be generated and 35% market grade rough blocks (315 M³) are produced, generating 1,185 M³ of rock debris.

5th Year

In the fifth year the mining shifts to North in the grids N 75 – N 100 and E 100 – E 125. Mining will advances North East with faces towards South West and bench of 6 M Height will be formed in 2 stages covering an area of 300 M².

There by total volume of 1,800 M³ of rock will be obtained. From which 60% (1,080) M³ of recoverable rock mass will be generated and 35% market grade rough blocks (378 M³) are produced, generating 1,422 M³ of rock debris.

The year wise production of Economic grade as follows (Mine Layout Plan and Mine Layout Sections shown in Plates - V & VI)

Year	Grid	Dimensions L x W (M)	Bench Height (M)	Total Rock Mass (M ³)	Recoverable Rock Mass @ 60% (M ³)	Market Grade @ 35% (M ³)	Waste (M ³)
1	E 100 - 150 N 100 - 150	20 x 9 = 180 M ²	6	1,080	648	227	853
2	E 50 - 100 N 100 - 150	215 x 15 = 225 M ²	6	1,350	810	284	1,066
3	E 50 - 100 N 100 - 150	20 x 15 = 300 M ²	6	1,800	1,080	378	1,422
4	E 00 - 50 N 150 - 200	25 x 10 = 250 M ²	6	1,500	900	315	1,185
5	E 00 - 50 N 150 - 200	30 x 10 = 300 M ²	6	1,800	1,080	378	1,422
Total				7,530	4,518	1,518.3	6,011.7
Average				1,506	903.6	316	1,202.34

Quantum of Excavation

In the next five years it is proposed to produce a total of 1,518.3 M³ of commercial grade rough blocks, to obtain this at the rate of 20% recovery, a huge mass of rock waste will be generated. It is estimated that a total of 6,011.7 M³ waste will be generated for the next 5 years period with an average of 1,202.34 M³ of waste / year.

5.0 MARKET ANALYSIS

The company has established its deposit in the international market. The flash blue rough blocks of gang saw size are having good demand in the international market with prices ranging from \$ 500 – 600.

6.0 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 316 M³ per year can be easily achieved in a single shift with sufficient men and machinery.

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 firm doesn't possess a processing plant

C. Organizational Chart

Man Power at Quarry

Manager	1 No's
Production Manager	1 No's
Supervisors	2 No's
Compressor Operator	2 No's
Tipper Drivers	2 No's
Hitachi Operators	1 No

Besides 20 No's unskilled labourers are employed on daily wages

Machinery Proposed

Excavator	1
Tipper	1
Compressors	2
Jack Hammers	6
Tractor with Tanker	1

D. Site Services

Rest Rooms, First Aid Room, Shelters, Lavatory, Bore well for Drinking water are available at Quarry Site.

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 6,011.7 M³ of waste is expected to be generated with an average of 1,202.3 M³ per annum.

ii) Dumping site particulars :

For dumping of waste generated during mining will be dumped in the dump located between the grids N 150 – N 200 & E 25 – E 75.

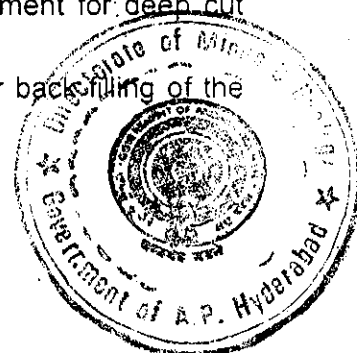
iii) Estimated waste quantity that will be generated in the entire period :

At the rate of 1,202 M³ per year the volume of waste generated during lease period i.e. 20 years is estimated to be 24,040 M³.

Year	Waste Generated (M ³)
1 st	853
2 nd	1,066
3 rd	1,422
4 th	1,185
5 th	1,422
Total :	6,011

iv) Utilisation of Waste if not Prevented :

- Soil can be utilised for reclamation of degraded area.
- Weathered rock if it is sufficiently soft and devoid of rock fragments can be utilised 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 backfilling of the mine pit after completion of mining.



8.0 ENVIRONMENTAL MANAGEMENT PLAN

8.1 Baseline information

a. Existing Land Use Pattern

The applied area is located on part of a hill, with sparse vegetation small bushes form the vegetal cover. The mining is active on the hill by other entrepreneurs; the deposit is occupying entire lease area. The surrounding hills and mounds are active with Stone crushers for road metal. The foothill areas are agricultural lands

b. Water Regime

R. Vamsadhara is 4 Km NE of the applied area, number of small to medium tanks are present all around the quarry.

c. Flora & Fauna

Vegetation is Moderate, No wild animals reported.

d. Quality of Air, Ambient Noise Level and Water

- Air quality is good. As the quarrying is limited in this particular belt not much of dust is expected.
- The noise generated due to blasting, drilling, vehicular traffic, which is minimum as the production is very less. Hence, the noise pollution is comparatively negligible. However, suitable precautions will be maintained by the lessee for protecting the workers by providing suitable protective gear.
- Granite mining will not affect water quality.

e. Climatic Conditions

The area is falling under semi-arid tropical zone. 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.

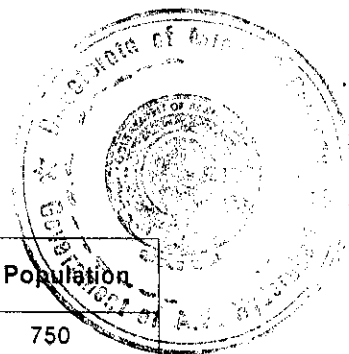
f. Human Settlement

The human settlements located near around the lease area are

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

S. No.	Village	Direction	Distance (Km)	Population
1.	Singupuram	East	1	750
2.	Tandemvalasa	West	1	300
3.	Mamidivalasa	South	2	300

In addition to these at least 25 small to medium dwellings / settlements are located in the 5 km radius.



g. Public Buildings, Places & Monuments

No public buildings important places and monuments are seen in and around the area.

h. The samples are collected for polishing from the existing working Quarry. The same is shown in Plate IV.

i. Does area (Partly or Fully) fall under notified area under water (Prevention and Control of Pollution) Act 1974.

Not Applicable

8.2 Environmental Impact Assessment

1) Land Degradation

Granite Mining will alter the physiographic scene; a small portion of the hill will alter its shape as a small escarpment of the present shape and dump with a volume of 24, 000 M³ will be formed along the slopes in the North Eastern boundary between the grids N 150 – N 200 & E 25 – E 75.

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

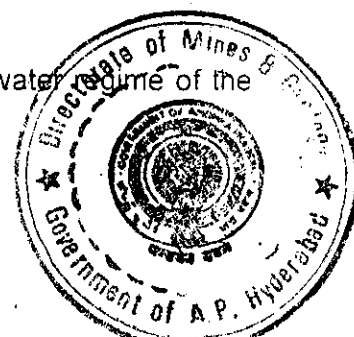
Base Level	Allowable Level
SPM = 140 $\mu\text{g}/\text{m}^3$	360 $\mu\text{g}/\text{m}^3$
RSPM = 60 $\mu\text{g}/\text{m}^3$	120 $\mu\text{g}/\text{m}^3$
SO ₂ = 40 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$
NO ₂ = 40 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$
CO = 1.0 $\mu\text{g}/\text{m}^3$	5.0 $\mu\text{g}/\text{m}^3$

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 course 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

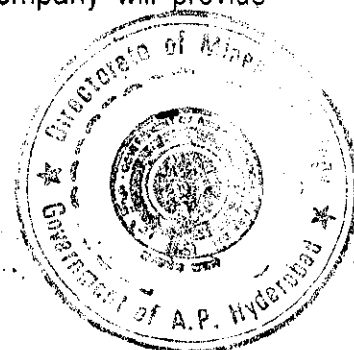
1. Compressor - 84 to 98 dB(A)
2. Tipper Empty - 88 to 91 dB(A),
Tipper Loaded - 95-103 dB(A)
3. Poclaim - 90 to 96 dB(A)
4. Blasting - 89 to 95 dB(A)

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 d B (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

It is proposed to use low explosives and less quantity to minimise the effects so that the vibration generated will be feeble within 8 Hz

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

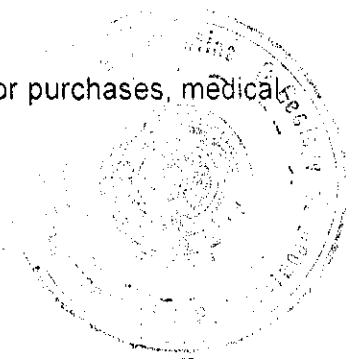
The mining in this area does not involve any hazardous methods. The mining is simple and open cast mining method. In this the possibilities of small injuries is anticipated. This applicant will be providing First Aid facilities at quarry site.

13) Human Settlement

The nearest village Singupuram is situated 1 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 Srikakulam Town for purchases, medical & recreation.



8.3 Environmental Management

i) Temporary utilisation of top soil :

The soil that will be generated during quarrying will be utilized for roads and spreading on the dumps for afforestation. The rubble will be used for laying roads.

ii) Year wise proposal for reclamation of Land effected by mining activities in first 5 years :

Since the quarry is active with mining and located on a Hill. Hence, no reclamation is envisaged.

iii) In case of abandoned Quarries / Pits are proposed to be used as Reservoir, their size, water holding capacity and proposal for utilisation of such water be given :

Granite Mining will alter the physiographic scene, deep pits will be formed after completion of the quarry license period. These pits will not be useful for water harvesting structures.

iv) Program of afforestation year wise for the initial five years indicating number of plants with name of species to be afforested under different areas in hectares :

Suitable trees will be planted all along the buffer zone in North & East of the lease area.

v) Stabilisation and vegetation of dumps along with waste dump Management year wise for first five years :

Since the waste generated is only rock debris and boulders vegetal growth is not possible on the waste dumps.

vi) Measures to control erosion / sedimentation of water courses :

Not Applicable.

vii) Treatment and disposal of water from Mines :

Not Applicable

viii) Measures for Minimising adverse effects on water Regime :

No adverse effects on water regime is anticipated.

ix) Protective Measures for Ground Vibrations :

It is proposed to use low explosives and less quantity to minimise the effects so that the vibration generated will be feeble.



- x) Measures for protecting Historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity :

No historical monuments exist in the area and as the human settlements are far away from the mining area no disturbances are likely to be fore seen.

- xi) Socio - Economic benefits arising from the Mining:

- Employment generation.
- Infrastructure development viz roads, power & water supply, medical facilities in villages etc.

9.0 ANY OTHER 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.

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

Mining Plan Approval Letter No.....

35799/N.F./2004, dated 9-11-2004

[Signature]
RQP

For M/S. DYANA GRANITES

(V.T. CHANDER)

S Radhika
Proprietor

APPROVED

[Signature]

Dr. P. DAYASANKAR
DIRECTOR
DEPT. OF MINES & GEOLOG
GOVT. OF A.P., HYDERABAD.



ANNEXURE - I

GOVERNMENT OF ANDHRA PRADESH
PROCEEDINGS OF THE DIRECTOR OF MINES AND GEOLOGY :: HYDERABAD
(PRESENT: SRI. T. DEVENDRANATH, M. SC., DIRECTOR)

Proceedings.No. 31626/R1-3/2002,.

Dated: 19-11-2002

Sub: Mines and Quarries - Quarry lease for Colour Granite - Extent 1.860 hectare - S.No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District- Application of M/s Dyana Granites - Granted - Orders - issued.

- Ref: 1. Quarry Lease application dt:26-8-2002 from M/s Dyana Granites Prop: Smt.S.Radhika.
2. ADM&G, Srikakulam Lr.No. 4197/Q/2002 dt: 3-9-2002
3. Lr.no. 5370/Q/99, dt: 10-10-2002 from the ADM&G, Srikakulam.
4. Lr.No. 4197/Q/2002,dt: 22-10-2002 from the ADM&G, Srikakulam.
5. Lr.No. 5162/Q/2000, dt: 29-10-2002 from the ADM&G, Srikakulam.
6. Lr.No. 4197/Q/202,dt: 6-11-2002 from the ADM&G, Srikakulam.

Through the reference 1st cited, M/s Dyana Granites, Prop: Smt.S.Radhika has applied for grant of Quarry Lease for Colour Granite over an extent of 2.00 hectares in S.No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District for a period of 20 years with relevant documents. This said Q.L. application is received by the Asst.Director of Mines and Geology, Srikakulam on 26-8-2002.

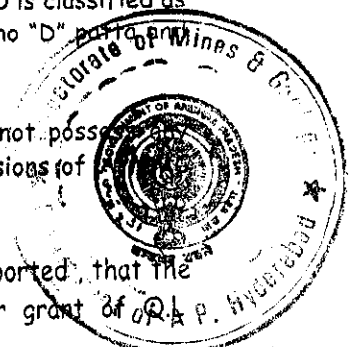
Through the reference 2nd cited the Asst.Director of Mines and Geology, Srikakulam has reported that, the applied area is covered with number of hillocks. The mounds are formed of perphyroblastic granite gneiss with Quartz, Feldspar, Biotite Hornblende and other mafic minerals. The rock is coarse grained, hard and compact with prophyrite texture. The crystals of Feldspar are light to dark grey and looks predominantly in the black back ground with random orientation. The rock is useful for cutting and polishing for decorative purposes.

Further the Asst.Director of Mines & Geology, Srikakulam has reported that S.No.270 of Singupuram Village, Srikakulam Mandal, Srikakulam District is a Government land. After survey and demarcation the area has come to 1.860 hectare. The applicant has given consent to the reduced extent and signed on the surveyed sketch. The Asst.Director has reported that the proposed area does not overlapping with any other existing leases or applied areas or recommended areas. There are no pending applications and existing Quarry leases on this area.

The Mandal Revenue officer, Srikakulam vide D.Dis No: 930/02 dated:28-9-2002 has issued No Objection Certificate for grant of Quarry lease for Colour Granite over an extent of 1.860 hectares in S.No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District in favour of M/s Dyana Granites. The land is S.No. 270 is classified as "Hill Promboke" with a total extent of 184.20 acres. Further there are no "D" patta lease patta in the proposed area.

The applicant has submitted an affidavit stating that they do not possess Quarry leases/ Prospecting Licences and Mining Leases under the provisions of Rules, 1966 and M.C.Rules 1960.

Through the references 3rd to 6th cited, the Asst.Director has reported that the gramapanchayat Singupuram has also issued Panchayat resolution for grant of Q.L. P. Hyderabad



7. The grantee shall submit the scheme of Prospecting within a period of one year and Mining Plan within a period of Two years from the date of execution of Quarry lease deed failing which the lease will be cancelled without giving any opportunity. He should submit an undertaking to that effect to the Asst. Director of Mines & Geology, Srikakulam before execution of the lease deed.

NOTE:- The grant is liable for cancellation should it be found that it was grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.

Sd/- T. DEVENDRANATH
DIRECTOR OF MINES & GEOLOGY.

Encl: APPENDIX.

//Attested//

for Director of Mines & Geology

To:

M/s Dyana Granites, Prop: Smt.S.Radhika,
W/o Satyanarayana, DTO-1-538,
Govt. Hospital Road, Balago,
Srikakulam - 532 009.

(BYRPAD)

Copy to the Dy. Director of Mines and Geology, Visakhapatnam.

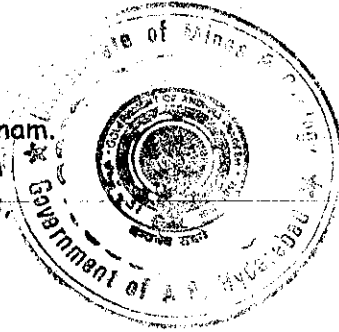
Copy to the Asst. Director of Mines & Geology, Srikakulam

along with File No. 4197/Q/2002, Cf 1 to pages.

and NF 1 to pages.

(By RPAD)

Copy to the Stock file.



APPENDIX TO PROCEEDINGS NO: 31626/R1-3/2002, DATED: 19-11-2002.

-ooOoo-

- 1) The grantee shall erect and maintain at their own expenses boundary pillars of sub-substantial material as per Rule 12(5)(h)(v) of APMMC Rules, 1966.
- 2) The grantee shall without delay send to the ADM&G., concerned a report of any accident involving death or injury to any person which may occur in and around the lease area and shall observe all the rules for the time being in force regarding the working of lease.
- 3) The grantee shall not assign, sublet, transfer or otherwise dispose of the area under lease without obtaining the previous sanction in writing of the Director of Mines and Geology.
- 4) The grantee shall obtain permission of the ADM&G., concerned before he/she /they would erect on the areas under lease any building or structure for quarrying purpose if the area belongs to Government.
- 5) If in the course of quarrying any mineral not specified in the lease is discovered the grantee shall at once report such discovery to the DM&G concerned so as to obtain necessary orders for Quarrying the same.
- 6) The grantee shall carryout Quarrying/ Mining Operations in accordance with the Mining Plan approved for the entire duration of the lease with annual program and plan for excavation on the precise area year to year for 5 years. The scheme of Mining for the next 5 years and so on should be submitted and got it approved as per Rule 18 of Granite Conservation and Development Rules, 1999.
- 7) The grantee shall stack the non saleable granite rejects, small granite blocks suitable for possible use in manufacturing of bricks, Flooring, wall tiles, etc., dumping of to soil, over burden, waste material as per Rule 22 of Granite Conservation and Development Rules, 1999.
- 8) The grantee shall prepare all plans, Sections and tracings or copies there of and kept the same at the quarry and submit the same to the State Government or any person authorised in this behalf as when required as per Rule 27 & 28 of Granite Conservation and Development Rules, 1999.
- 9) The grantee shall take all possible precautions for protection of the environment and control of pollution while conducting the quarrying as per the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the Environment (Protection) Act, 1986 (29 of 1986 and Granite Conservation and Development Rules, 1999.
- 10) The grantee shall submit the notice of intimation of opening quarry/mine and intimation of existence of quarry of mine, abandonment of surrender of quarry, temporary discontinuance of work in quarry, intimation of reopening of a quarry, quarterly and annual returns, certain appointments / resignation /Termination/ changes of address and records of bore holes as per Granite Conservation and Development Rules, 1999.