

052

COMBINED MINING PLAN FOR COLOUR GRANITE OVER AN EXTENT OF
5.43 HECT. IN SY. NO.1 OF ADDUKONDA VILLAGE , TEKKALI MANDAL,
SRIKAKULAM DISTRICT OF ANDHRA PRADESH

(Submitted under Rule 17 of GCDR, 1999)

LESSEE

referred to Shri. K. Tirumala Rao
Sri. K. Tirumala Rao

2-98/3, 10-B, Block -B,

Kakatiyanagar

HYDERABAD - 500 007.

Shri. K. Tirumala Rao

ok

PREPARED BY

B. Sadasiva Rao M.Sc

Recognised Geologist

C-482, N.G.O's Colony

Vanasthalipuram

Hyderabad - 500 070.

Ph: No. 040 - 24241320 (R)

Reg.No.RQP/DMG/HYD/047/2002



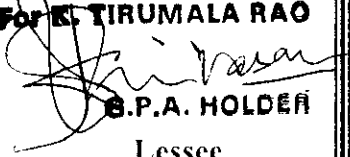
APPROVED

DECLARATION

Certified that the combined mining plan in respect of QL for Colour Granite over an extent of 5.43 Hect. at Sy. No. 1 of Addukonda Village Tekkali Mandal, Srikakulam District of Andhra Pradesh State has been prepared in consultation with me and I have understood its contents and agree to implement the same in accordance with the law.

Date :

FOR M. TIRUMALA RAO


B.P.A. HOLDER


Lessee

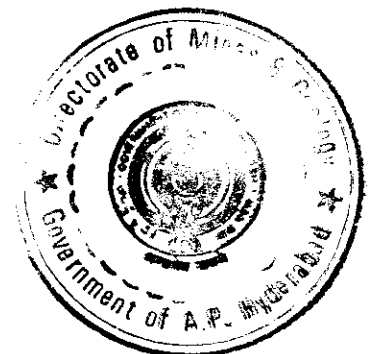
CERTIFICATE

Certify that the provision of mines Act, Rules and Regulation made there under have been observed in the combined mining plan in respect of QL for Colour Granite over an extent of 5.43 Hect. At Sy. No. 1 of Addukonda Village Tekkali Mandal, Srikakulam District of Andhra Pradesh State and where ever specific permissions are required, the applicant will approach the concerned authorities of Director of Mines and Geology Dept. at Hyderabad.

It is also that the information furnished in the mining plan are true and correct to the best of my knowledge.

Date :


B. Sadasiva Rao M.Sc
Recognised Geologist,
C-482, N.G.O's Colony,
Vanasthalipuram
Hyderabad - 500 070.
Ph: No. 040 - 24241320 (R)
Reg.No.RQP/DMG/HYD/047/2002



CERTIFICATE

This is to certify that the provision of Granite conservation Development Rules, 1999 have been observed in the combined Mining Plan in respect of QL for Blue Granite over an extent of 5.43 Hect. At Sy. No. 1 of Addukonda Village, Tekkali Mandal, Srikakulam District of Andhra Pradesh State and where ever specific permissions are required, the applicant will approach the Director General of Mines Safety.

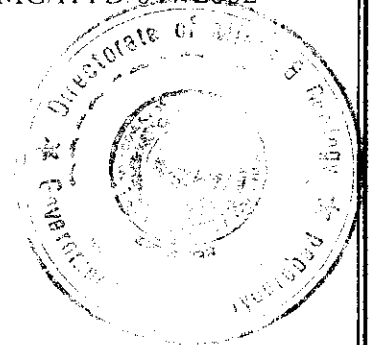
It is also that the information furnished in the mining plan are true and correct to the best of my knowledge.

Date :



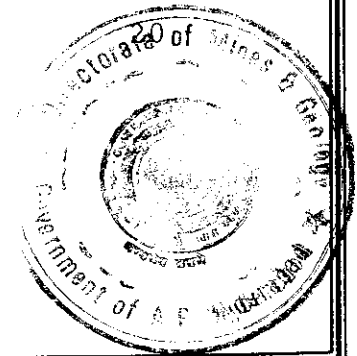
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ANNEXURES LIST

01. Annexure-I P.L. Order Copy of 0.68 Hect.
Annexure-II PL Order copy of 3.60 Hect.
Annexure-III QL order copy of 1.15 Hect.
02. Annexure-IV The Director Of Mines And Geology
Hyderabad Issued a Notice to the
lessee to submit the combined Mining Plan
03. Annexure-V Scheme of five years Production and
Development details.

This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the
Mining Plan Approval Letter No.....
10685/MPI/2004, dated 9-9-2004

**MINING PLAN FOR COLOUR GRANITE OVER AN EXTENT OF 5.43 HECT.
IN SY. NO. 1 OF ADDUKONDA VILLAGE, TEKKALI MANDAL,
SRIKAKULAM DISTRICT OF ANDHRA PRADESH**

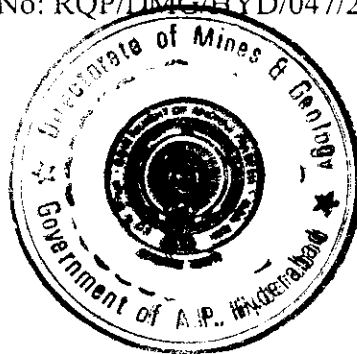
(Submitted under Rule 17 of GCDR, 1999)

Introduction :

The mining plan is prepared with an objective of scientific exploration, exploitation and systematic development of the deposit, which includes details of conservation of the deposit and protection of environment in and around of the quarrying area.

The applicant Sri. K. Thirumala Rao having two prospecting licences for which quarry lease grant proposals had already submitted by the Asst. Director of Mines and Geology, Tekkali over and extent of 0.68 and 3.60 Hectors in survey no 1 of Addukonda Village, Tekkali Mandal, Srikakulam district, A.P. for colour granite wide proceedings no; 11698/R1-3/2002 dated 05-08-2003 by Director of mines and geology, Hyderabad and was executed before Asst. Director of Mines and Geology Srikakulam wide proceedings no.1066/Q/2003 dated 14-08-2003 for a period of two years and wide proceedings no; 32417/R1-3/2001 dated 08-04-2002 by Director of mines and geology, Hyderabad and was executed before Asst. Director of Mines and Geology Srikakulam wide proceedings no.1743/Q/2002 dated 11-04-2002 for a period of two years respectively. Granted quarry lease vide proceedings No.1067/Q/2003, dated 14.08.2003 for a period of 20 years over an extent of 1.15 Hect. for the above said area.

Sri K.Tirumala Rao is an individual and also having experience in granite rough block quarrying and trading in local and abroad. In this scenario, DMG has issued notice to submit combined approved mining plan for the above three quarries for colour granite over an extent of 5.43 Hectares in sy.no 1 of Addukonda village, Tekkali Mandal, Srikakulam District vide proceedings no:39542/R1-3/2003, Dated 13-02-2004 by the Director of Mines & Geology, Hyderabad. Accordingly the mining plan has been prepared by Sri B.Sadasiva Rao, Geologist who is recognised by the Director of Mines & Geology vide Reg. No: RQP/DMG/HYD/047/2002.



APPROVED

Chant

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

I. GENERAL :

- a Name of the Applicant : Sri. K.Thirumala Rao
2-98/3, 10-B, Block-B,
Kakatiyanagar, Hyderabad-7.
- b Status of Applicant : Individual.
- c Granite Type / Colour : Colour Granite.
- d Period of Q.L. Granted : 20 Years.
- e Name of the RQP : B. Sadasiva Rao M.Sc
Recognised Geologist,
C-482, N.G.O's Colony,
Vanasthalipuram,
Hyderabad - 500 070.
Ph: No. 040 - 24241320 (R)
Reg.No.RQP/DMG/HYD/047/2002

II. LOCATION & ACCESSIBILITY :

- a. Location Map : Plate - I
- b. Details of the Area : The Quarry Lease area for colour
granite is lies between
Long.N. $84^{\circ} 12' 38''$ &
Lat. E $18^{\circ} 37' 03''$ and falls on survey of
India Toposheet No.74/B/2.

S.No	District	Mandal	Sy.No & Village	Lease Area in Hectares	Type of Land	ADM&G, Surveyed Map	Remarks
I.	Srikakulam	Tekkali	1. Addukonda	PL-0.68 PL-3.60 QL-1.15 ----- Tot: 5.43	Govt.	Plate -II	Q.L granted for a period of 20 years.



Infrastructure :-

The area is accessible by through a good motorable asphalted road of Tekkali and is about 9 Km. In the direction of North West which is connected with NH-5. The quarry lies of the cart track connecting Borigipeta and Gopalapuram. The District head quarters, Srikakulam is about 68 Km. from the lease area. The nearest railway station is located at Palasa which is at a distance of 30 Km towards North.

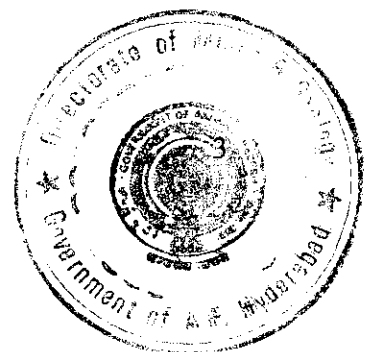
- Amenities like post & Telegraph Office, Police Station, Primary Health Centre etc., are available at Tekkali.
- Visakhapatnam port is about 150 KM from the Q.L. area
- The area is having good ground water potential
- The ground water level is about 6 to 7.0 Mts below ground level.

a) Boundaries

North	-	Sterling Stonex (Pvt.) Ltd.
East	-	M/s. Trinity Granites, Dinesh Granites
West	-	M/s. Gallop Granites.
South	-	Agricultural lands.

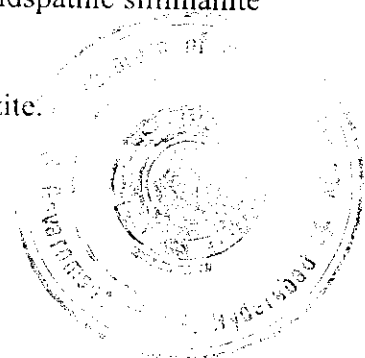
III. GEOLOGY :

- Topography:** Topographically the area is an undulating terrain interspersed with a number of hills and hillocks which are mostly covered by rock boulders. These boulders are of irregular shapes and vary widely in sizes and shapes. The hill feature is a result of weathering and denudation, and rise in height from the general ground level to about 120 meters. The area thus presents a rugged topography.
- Regional Geology:** The area / district form a part of the eastern ghats granulite belt. And is occupied by Quartzite, Khondalite and Calc-Silicate rocks represents, intimately associated with Chornckite and Migmatic Gneisses. All the rock units exhibit unique parallelism in their tectonic grain, irrespective of lineage, i.e.



Stratigraphic sequences established in the area as follows:

Cenozic	Laterite	
Pan African 1000Ma	Pegmatic & Quartz vein charnockite formed due to charnockite saturation process.	Leptynite
Early to Middle proterozoic	Younger Intrusives	Porphyritic
		Garnatiferous
		Garnite, Rapakivi granite
		Porphyritic charnockite
	Migmatite group	Migmatite after charnockite
		Migmatite after khnodalite
-----Unconformity-----		
Archean	Charnockite Group	i. Medium grained, greasy, grey acid to intermediate Charnockites and charnockite gneiss
		ii. Pyroxenegrulite
	Khondalite Group	iii. Calcgranulite, cordierite Silliminite, pyroxenegneiss appirineranulite, garnetiferrous quartzofeldspathic sillimanite of gneiss.
		iv. Quartzite.



c. **Local Geology:** The migmatized charnockite with more or less homogenous structures and texture is being traded as Srikakulam blue granite. The Srikakulam blue granite occurs over an area of 300 sq.km in the north eastern part of Srikakulam district.

The area in and around Tekkali of Srikakulam district is occupied by a segment of the Eastern Migmatite zone of the Eastern ghats group. It comprises Migmatite after Charnockite, Migmatite after khondalite, Charnockite and khondalite. The Migmatite after Charnockite followed by acid to intermediate Charnockite are the predominant litho units. Charnockite, and khondalite occurs as structurally controlled hill masses and rafts within the former. The contact between Charnockite and the Migmatized Charnockite is gradational.

The first phase is represented by tight appressed isoclinal folds with NNE – SSW axial traces. Moderately tight overturned folds with NNE – SSW to NE – SW axial traces constitute the second phase. Open type cross folds with NW – SE to NNW – SSE axial traces are the manifestation of the third phase of deformation. Interface of F_3 over F_1 and / or F_2 folds resulted in dome and basinal structure.

There are three sets of joints ENE – WSW ; WNW – ESE and NNE – SSW with 1 to 3 mtrs wide spacing. Besides sheeting with two three meters spacing is conspicuously seen in foliated and sheet type deposits.

d. **Brief Description of the Litho Units :**

1. There are bouldery and sheeted in nature.
2. It attained commercial importance as dimension stone for its texture and colour. The wavy texture is formed due to lit-par-lit injections. Charnockite enclaves are noticed in the migmatized Charnockite, along the borders of the enclave, hypersthene blocks drawn to garnet and biotite infining retrograde metamorphic process.



3. Minerologically medium grained Migmatite gneiss composed of opalescent blue to blue Quartz, blue to blueish grey potash feldspar and plagioclase feldspar, red to pinkish red almandine garnet, Jet black coloured pyroxenes and migamatite with accessory amounts of greenish black hornblende etc. Intermixing of blue, red and black coloured minerals with sub vireous lustre imparts elegant and pleasing looks to the rock on polished surface. Presence of stromatic, wavy and ptygmatic bendings further enhance the beauty of the stone.

Common defects found in the Srikakulam blue granite are only pathes (undigested Charnockite pathes) black moles (Mafic mineral seggregations) white lines (Quartzofeldspathic veins), black lines (ultra mylonites), green lines (epidote veins), flowers (segregation of coarse Potash feldspars and quartz) and micro fractures.

IV. **EXPLORATION / PROSPECTING:**

The topological expression of the area is in the form of hillocks which are medium bouldry. The boulders are of various sizes and shapes. The gapes between the boulders are filled with morram soil washed down by rain water from surface. This gives the impression that the boulders are embedded in the morram soil.

PRESENT STATUS:

Exploratory pit was open with average length 30 Mtrs., average width 13 Mtrs. and average depth 3 Mtrs. From this development a total volume of 9.787 m³ was recovered with sizes are 306 x 134 x 116 cm. and 274 x 136 x 135 cms.

Migmatized Charnockite sheet rock - 0 to 115 mts.



Future Programme:

- Continue and conduct regular quarrying operations in systematic manner and intensify production of the Colour granite blocks.
- Conduct the prospecting operations simultaneously at various places to study the behavior pattern of the deposit and the textural and colour variations. Based on the study suitable decision relating to commencement of exploratory mining.
- **Locate other suitable buyers local, inland and abroad.**
- Develop afforestation in 7.5 M buffer zone all around the lease by filling up the area with solid waste to support the vegetation on the barren rock zone.
- To maintain safe distance as per mining laws to the public structures adjacent to the leased area.

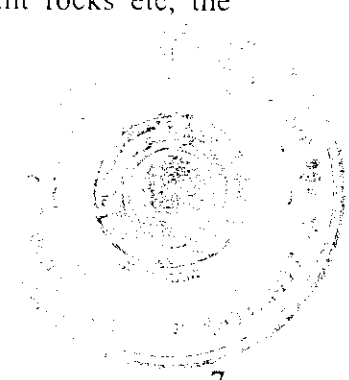
V. RESERVES:

The Calculation of reserves of prospects, deposit and mine is done at every stage, right from preliminary to last stage of exploration and mining.

Here the deposit is in boundary formation penetrated with each other the same may be continued from the top to bottom. The soil is filled with the gap between the boulders. Hence, the soil and over burden is negligible.

The combined QL area forms a hill feature and raise to a height of nearly 120 mtrs. from the ground level while assessing the reserves which are deducted 40% to voids due to boundary formation. The entire reserves are considered as proved from the top of the hill to bottom. From this reserves which are deducted areas under buffer zone and pit slopes comes to mineable reserves.

The reserves are estimated by multiplying the cross sectional area with influenced distance of sections. The recovery factor of 0.1 is taken leaving remaining percentage as waste which includes soil, bands of weather rock, fault rock, , joint rocks etc, the calculations of colour granite are given in the following table.



Category	Section	Inf. Dist. in mtrs.	Sectional area in Sqm.	Volume in Cum.	Recovery @ 10%	Rock waste @ 90%
Proved	A-A'	45.00	13922.00	626490.00	62649.00	563841.00
	B-B'	45.00	13970.00	628650.00	62865.00	565785.00
	C-C'	45.00	16935.00	762075.00	76207.50	685867.50
	D-D'	45.00	18231.00	820395.00	82039.50	738355.50
		Total:			283761.00	

Deducted as voids @ 40% = 113504.40 cum.

Total Geological reserves = 283761.00 – 113504.40 = 170256.40

Non Mineable Reserves

Area under buffer zone = area x influenced distance = 3124.90 x 45 = 140620.50

Dimensional stone reserves = 140620.50 x 10% = 14062.00

Area under pit slopes = area x infl. Dist.

= 12582.78 x 45

= 566225.1 Cumt.

Dimensional stone reserves = 566225.1 x 10% = 56622.51

Total non mineable reserves = Total reserves under buffer zone + total reserves under pit

slopes = 14062.00 + 56622.51 = 70684.51 cum.

Mineable reserves = Total geological reserves – non mineable reserves

= 170256.40 – 70684.51 = 99572.89 m³.



From the table which are calculated after deducting the areas under buffer zone and pit slopes to arrived total mineable reserves of Blue Granite are 99572.89 m³. As the mine is proposed to produce 1500 m³ per year of quarrying operations. The life of the mine is calculated below.

Total Mineable Reserves	99572.89 m ³		
-----	=	-----	= 66.38 years.
Proposed annual production	1500		(Say 66 years)

VI. MINING:

- Type of Mining :** Open Cost – Semi Mechanized
- Method of Working :** To minimize the cost of production and to achieve annual target production. The quarring operation are planned to carry out partly manually and partly deploying machinery. The lessee is having well equipped machineries.

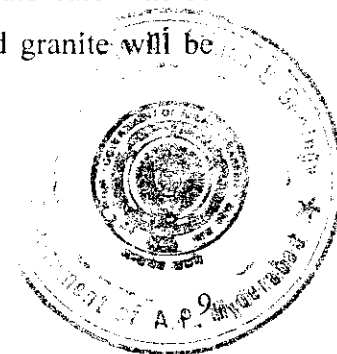
The details of machinery being utilized at mines as follows:-

Sl.No.	Type of Machinery	Capacity	Unit
01	Poclain	1.1 m ³	2
02	Tippers	200 sft	2
03	Jack Hammer Drills		2
04	Air Compressors	190 Cfm	2
05	Sump Pump	5 HP	2

Minor Tools:

Crowbars, heavy duty sledge hammers, pick axes, Spades etc., will be used

The removal of over burden consists of top soil, weathered rocks. The soil cover will be removed with the help of poclains. The weathered material further loosend using blasting by utilizing gun powder as explosive. During blasting adequate care will be taken to protect the dimensional granite. The loosed soil and weathered granite will be loaded in tippers and lifted to dumping yard.



Separation of Primary Blocks Insitu Rock by Pre-splitting

(Primary Cut)

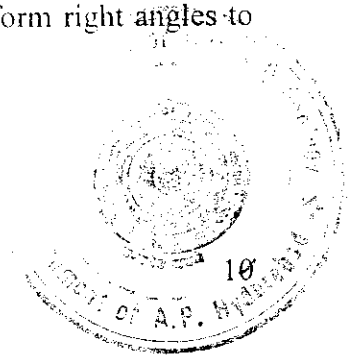
a) Line Drilling Method:

The Lessee Company during the quarry operations the line drilling method has been used.

- 1) Once the weathered waste is removed from the top, the primary cut is taken up and this is done by spaced drilling of holes to dislodge large blocks from the insitu rocks.
- 2) Presently the lessee company is using line drilling method involves drilling of a series of holes which are 15cm with jack hammer at a distance of 15cm away on any of the sides of the joints in a straight line.
- 3) The holes are charged with low explosive cartridge like gunpowder and non delay detonators and blasted (smooth blasting only).
- 4) The use of delay detonators causes fragmentation and cracks in rocks. The non detonating cords are inserted into the holes and the holes are water stemmed or air stemmed and plugged at the mouth and fired.

SUB DIVISION OF LARGE (PRIMARY) BLOCK INTO SECONDARY BLOCK (SECONDARY CUTS)

- i. Once the blocks are dislodged from big boulders, depending upon the dislodged material blocks are cut, fractures, black lines and penetrative cracks are all carefully trimmed and penetrative cracks are all carefully trimmed and removed by this way.
- ii. The commercial blocks will be trimmed so as that the sides form right angles to each other.



iii. The size of blocks could be formed from the ROM of this property will be in the following dimension ranges.

Length : 190 to 380 cm
Width : 140 to 200 cm
Height : 120 to 170 cm

be trimmed so as that the sides form right angles to each

Mining Program for first Five years :-

The scheme of development and production for first five years has been planned taking into consideration of nature of deposit within the lease area. It has been proposed quarrying operations from the existing pit by slicing method i.e. Northern part laying between 195 R.L. to 189 R.L. Projections are made for five years period and year wise figure is enclosed in plate No. IV and annexure-V.

1st Year: -

During first year it is proposed to open quarry face with in the existing excavation and extend the face towards south along the floor R.L. will be 189 R.L. The total area of works out 101.23 Sq.mts. The quarry face length is 82.5 mtrs., with width of 22.00 mts and bench Height 6.00 Mts. In this operation nearly 7500 M³ Rock mass will excavated and based on 10% of recovery 850 M³ saleable Granite expected to be win.

2nd Year :-

During 2nd year also the quarrying operation same as in the first year and maintained floor RL will be 180 RL. This will extend for a length of 82.5 meters and width is 22 mtrs. and bench ht. 6 mtrs. A total volume of 7500 M³ of Roack mass will be excavated out of which 850 M³ will be recoverable granite.



3rd Year :-

The third year operations will involve cutting bench of average height 6.00 mts. Quarrying operations will be carried out from RL 189 to 183 RL towards south with a length of 82.5 Mts. with a width of 13.00. A total volume of 10700 M³ of Rock mass will be excavated out of which 1200 M³ will be recoverable granite.

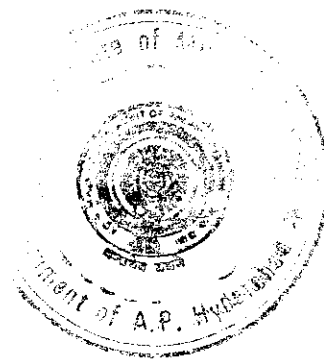
4th Year:-

Here also the quarrying operations will be same as in the third year. And maintained floor RL will be 183 RL. This will extend for a length of 82.5 meters and width is 13 mtrs. and bench ht. 6 mtrs. A total volume of 10700 M³ of Rock mass will be excavated out of which 1200 M³ will be recoverable granite.

5th Year: -

During the 5th year operations will involve cutting of average height 3.00 Mts, Quarrying operations will be carried out from RL 183 to 180 towards south and this will extend for a length of 165 Mts with a width of 8.00 Mts. It is expected that a total of 14700 M³ Rock mass will be excavated with 10% recovery of 1600 M³ of saleable granite.

The above five year operations a total rock mass will be 51,100 M³ will be excavated out of which 5700 M³ granite will be produced.



MAGAZINE TYPE & CAPACITY:

The lessee has proposed to go for a M&S type portable magazine to store explosives required for blasting. An area to locate the magazine has been demarcated by the lessee. The site is located at a safe distance from the quarry, strictly adhering to the rules and regulations laid down for safe storage and handling of the explosive as per the explosives Act the location of the magazine is shown in the plate IV. The lessee at the moment is not in possession of blasting license. However, he has applied for license and it is understood from the lessee that the papers are being processed at the appropriate level and expected to be granted license within 2 months.

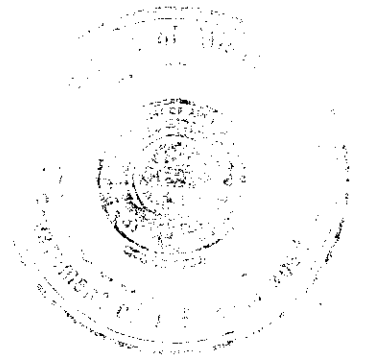
Description of Processing plant if any :-

The Lessee produces only rough blocks and directly sells them to buyers from trade centres.

ORGANISATION CHART FOR THIS QUARRY :-

The applicant company has appointed following employees at their mine:

- | | | |
|------------------------|---|--|
| 1. Mines Manager | : | Diploma in Mining with Second Class Mines
Manager Certificate |
| 2. Blaster cum Mate | : | S.S.C with blaster certificate holder. |
| 3. Mines Supervisor | : | SSLC, Experience in Granite mine for 10 years |
| 4. Skilled Workers | : | Workers with experience for more than
10 years in Granite Mines – 6 |
| 5. Unskilled Workers : | | For helping the Mines Manager
and Supervisor – 3 (Water Man) |
| 6. Machine Operators : | | ITI Qualified persons |
| 7. Watch Man | : | 1 |



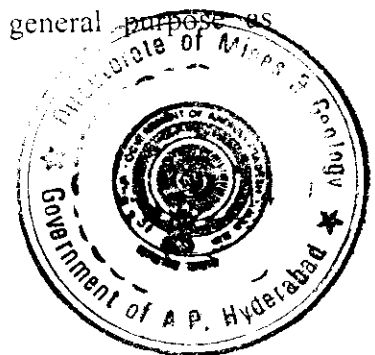
SITE SERVICE :

Office room , rest shelter constructed in the western side of the quarry site. Further, the rest shelter consists of first aid room and it is maintained with all first aid medicines etc. Sanitary conditions will be maintained as per rules. Shown in plate No. IV

VII. Scheme of Waste Management Plan (Solid and Liquid)

A huge waste dump will be built up and is likely to attain unmanageable proportion. It is necessary to plan the dumping yard as well, it will be possible to utilize the waste material for other uses like back filling of excavated area, for building roads and for some other general purposes. From the partly weathered rocks a fair amount of unweathered rock material could be salvaged for the manufacture of flooring tiles, small ornamental and decorative pieces etc. This market exists certainly partial utilization of the salvaged material from the mine wastes, thus reducing the quantum of mine waste and management is aware of this and will make efforts for utilization of mine generated waste to the extent possible. By this way the handling of a large quantity of solid waste is expected to be minimized.

Solid waste for First five years :- The applicant planned to produce saleable granite in first year. It will give 7,500 m³ of solid waste out of which 850 M³ will be recovered. During the second year quarrying operation the licensee intended to recover 850 m³ of granite will be recovered out of which 7,500 M³ rock mass will be excavated and scrapped. The third year quarrying operation involves a recovery of 1200 m³ of Granite Blocks will be recovered out of which 10,700.00 m³ rock mass will be excavated. During the fourth year of quarrying operation the licensee intended to recover 1200 m³ of granite blocks will be recovered out of which 10700 m³ rock mass will scrapped. During the fifth year of quarrying operation the licensee intended to recover 1600 m³ of granite blocks will be recovered out of which 14,700 m³ rock mass will scrapped. So in the first five years operations a total rock mass will be 51,100 M³ will be excavated out of which 5,700 M³ granite will be produced. Much of the solid waste will be disposed for road construction, back filling of mine excavation and some other general purposes as enunciated above.



a) **Dumping site particulars:**

To dump the huge solid waste generated during the quarry operation is dumped in the slope of the hills which is located at southern part within the lease area which is shown in plate IV.

b) **Estimated waste quantity that will be generated over the entire period:-**

Marketable granite and waste ratio will be 1:9. During the life span of the quarry i.e. about 66 years a total of about 99,000 m³ of dimensional colour granite production is anticipated. For that material to handled for wining this quantity will be about 9,90,000 m³. It reveals that a total of 8,91,000 m³ of waste quantity is generated over the entire period of quarrying operation.

VIII MARKET ANALYSIS:

1. **Assured and expected supply contracts:**

Accuracy in measurements, consistent quality maintenance strict atherance to the delivery schedules and commitments to terms and conditions are of paramount importance for capturing both export and domestic market. The rule applies to both rough blocks and processed material

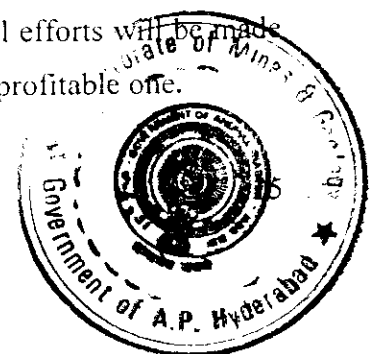
2. **Ability to supply consumer in time:**

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

3. **Pattern of Demand**

Blue granite variety of Srikakulam is having good demand in domestic Applicant as plans to enter International in a big way by purchasing sophisticated equipment for quarrying and processing.

All the above details are well known to the applicant and all efforts will be made to face the market trend and demand to ensure that the venture is a profitable one.

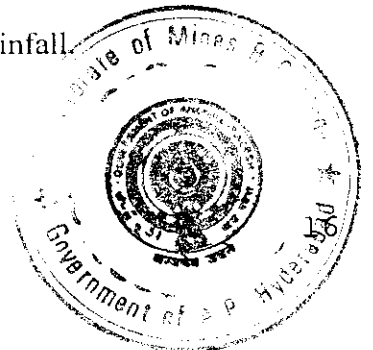


VIII. Environmental Management Plan :-

In this area the Blue granite is embedded underneath the soil cover and weathered granite. Scanty vegetation is seen in the area few thorn bushes are observed here and there. The commencement of mining activity is excellent utility of the land. The area is situated at amidst mining industry. Therefore the commencement of mining activity at this area will not harm the Ecology of area, except the degradation of the land. The soil remove from the surface has been dumped in the dumping yard systematically. The unworthy boulders and muck is being removed and shifted to the dumping yard in time to time systematically. Presently the mining is not involved any tree cutting etc. Therefore the environmental impact is anticipated to be negligible in this mine.

Base Line Information :

- a) **Existing Land use pattern :** The area is belonging to the government land and it is not being put to any other use save as a grazing land at times.
- b) **Water Regime:** There are no perennial sources in and around the Q.I. area with in 500m radius. The rain water flows through the slopes of the area and rained off through a seasonal storm water drain
- c) **Flora and Fauna:** The area is divide of trees and major vegetative cover. Excepting for the presence of reptiles and other minor wild life like Rabbits, field rats etc, no major wild life exists in this area.
- d) **Quality of air, water and Ambient noise level:** The area is away from industries and human settlements. The impact of granite mining by the lessee is not likely to have any serious adverse impact on the existing environment. Indeed mining even on a small scale does cause some environmental hazard and efforts. The management is well aware of this aspect and will take all action to mitigate the hazard.
- e) **Climatic Conditions:** The area is moulded semi arid tropical climate. Normal average temperature is ranges between 35° c - 45° c and minimum temperature is 20° c is recorded in the month of January. The annual rainfall is about 1200mm. South west monsoon contributes major rainfall to the annual rainfall.



f) **Human Settlement:** The lease area is surrounded by 5 villages and few areas of workers concentration. The literacy of the area is very less. The details of the habitants is given in the following table.

Sl.No.	Name of the Village	Location	Distance	Population
01	Gopalapuram	North	2 km	1,100
02	Borigipeta	South	3.5 km	1,000
03	Savarabajarapeta	West	4 km	1,200
04	Raghunathpuram	East	2.5 km	1,500
05	Ramakrishnapuram	West	2 km	1,300

g) **Public Buildings, Places and Monuments:-** There are no public buildings, places and monuments within 3 km.

h) **Whether the area falls under notified area of water act 1974:-** Not Applicable

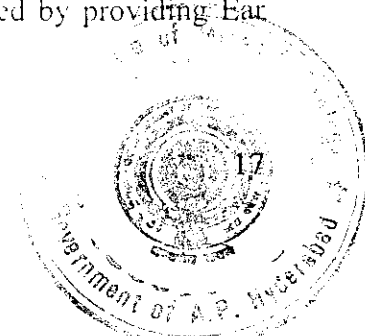
Environmental Impact Assessment: -

a) **Land Degradation :** During first 5 years there will be mound slicing over an area of about 589.28 sq.mts. with a depth of 27 meters.

b) **Air Quality:** Due to mining operations certain amount of dust is amounted during blasting, due to movement of vehicles lot of dust will rise, such kind of air pollution will be arrested by sprinkling water on the haul road. As the mining continuous, the ambient air quality remind almost undisturbed. The present levels are well within the permissible limits. During drilling the air will get dusted. Therefore the respirators will be given to the drilling workers.

c) **Water Quality:** Quality of the ground water is potable. However the quarrying activity does not show any impact on the quality of the ground water in the vicinity of the lease area, however providing silting pits and soak away pits can solve the problem if any.

d) **Noise Level :** The Noise produced by machinery and blasting is minimal. The noise levels are found to be tolerable (90-100 db). Noise can be controlled by providing Ear muffs, if at all necessary.



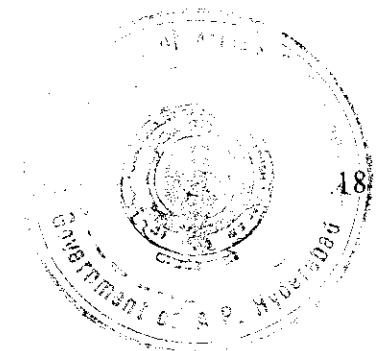
Permissible Noise exposure for different period of time is given below:-

Duration per day (hrs)	Sound level (dba)
16	80
8	85
4	90
2	95
1	100
1/2	105
1/4	110
1/8	115

- a) **Vibrations Level (during blasting operations) :** The vibration may be caused due to blasting and shot hole drilling. The Quantity of explosives for blasting is very less and the blasting is also carried out for few seconds. Therefore the vibrations levels to the blasting and drilling is very less.
- b) **Water Regime:** Quarrying operations will be carried out on the top of the hill. Hence neither effect the ground water table nor surface water bodies.
- c) **Socio - Economics :** This shall have positive impact in the rural area as thee will be organized employment with social security and financial benefits.
- d) **Historical Monuments etc:** There are no historical monuments in the vicinity of the lease area and therefore their setting affected due to mining does not arise.

Environmental Management:-

- a) **Temporary Storage and Utilization of Top Soil:** The waste consist of the top soil used for back filling the quarried area and other land filling operation and as a source of road building.
- b) **Proposal for Reclamation of Land Effected by Mining:** Here, the quarrying operations will be carried out from the above ground level i.e. from the top of the hills to bottom of the hill. So, in this context reclamation does not arise.



- c) **Afforestation** : About 5170 sq.mtr Southern buffer zone area will be planted during the first five years. Above area will be planted as below.

Sl.No	Year	No. of Plants	Name of the Plants
01	I	100	Neem & Eucalyptus
02	II	150	Mango
03	III	50	Gulmohar & Mango
04	IV	100	Tamarind
05	V	150	Survey & Neem

- d) **Stabilization and Vegetation of Dumps**: The dumps are stabilized and shaped trapezoidally. The angle of repose is in such a manner that the run off is avoided. The trench will be dug around the dump to avoid run off.
- e) **Measures to Control to Erosion / Sedimentation of Watercourse** : There will not be any erosion / sedimentation in the area because, there will not be any water discharge from mine workings.
- f) **Treatment and Disposal of Water from Mine**: No water will be discharged from the mine. However, pump sets are deployed during the monsoons and whenever it is required to vacate the water from the working pits.
- g) **Measures for Minimizing Adverse Effects on Water Regime**: No adverse effects are anticipated on water regime.
- h) **Measures for Ground Vibrations Due to Blasting**: In view of the utilization of less explosives for blasting, the ground vibrations will be minimal.
- i) **Measures for Projection of Historical Monuments and Rehabilitations of Human Settlements likely to be disturbed due to Mining Activity**: There is no Historical monument and human settlements in and around the quarrying area.
- j) **Socio Economic benefits Arising out of Mining**: Few labours will get employment. Due to mining activity, revenue will get to state exchequer.
- IX. **Any Other Relevant Information** :

- a) The applicant company will strictly follow Mineral Concession Rules and Metaliferrous Mines Regulation Act of 1961 and Mines Rules of G.C.D.R. 1969 while carrying out quarrying activity.



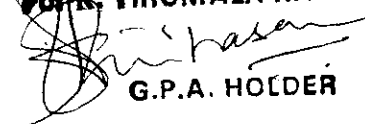
- b) The management will ensure good production and there is good revenue to the Government of Andhra Pradesh and Government of India through taxes. The industry is an asset to the nation.
- c) The mining plan is prepared by recognized geologist to fulfill the requirement of rule 12 of the Granite Conservation and Development Rules 1999.

X. Photos:

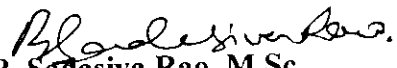
Photo No: 1 Photograph showing the exposure in QL area.

Photo No: 2 Photograph showing pit position towards east west.

Signature of the applicant

FOR K. TIRUMALA RAO

G.P.A. HOLDER

Prepared by


B. Sadasiva Rao M.Sc
Recognised Geologist,
C-482, N.G.O's Colony,
Vanasthalipuram
Hyderabad - 500 070.
Ph: No. 040 - 24241320 (R)
Reg.No.RQP/DMG/HYD/047/2002

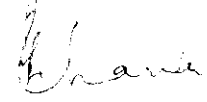
This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the
Mining Plan Approval Letter No.....
10685/MP/2002 dated 9-2-2004

Date :

Place :

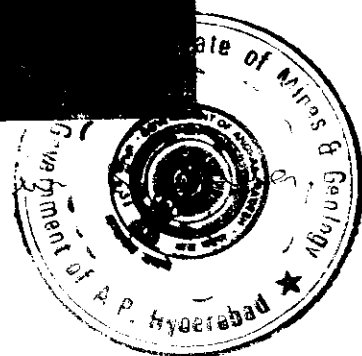


APPROVED


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



1) Photograph showing the exposure



2) Photograph showing pit position towards East

Annexure - I

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

Proceedings of the Assistant Director of Mines and Geology, Tekkali
(Present: Sri K. Ramanohana Reddy, B.Sc.)
ASST. DIRECTOR.

Proceedings No. 1066/O/2003

Date: 13-08-2003

Subj: Mines and Minerals – Prospecting Licence for Colour Granite over an Extent of 0.68 Hectares in S.No. 1 of Addukonda village, Tekkali Mandal, Srikakulam District for a period of 02 years in favour of Sri K. Tirumala Rao. – Prospecting Licence Deed – Executed – Orders Issued – Regarding.

Ref - 1 P.L application dtd Nil from Sri K. Tirumala Rao Received on 30.3.02

2. Proc.No 11699/R1-3/2002 dtd 5.8.2003 of the Director of Mines and Geology, Hyderabad

3. D Dis 2075/94 dt.27.10.1994 from the MRO, Tekkali

4. Letter dt. 14.8.2003 from Sri K. Tirumala Rao.

ORDER:-

Through the reference 1st cited, Sri K. Tirumala Rao., No. 2-98/3, 10-B, Block-B, Kakatiyanagar, Habsiguda, Hyderabad – 7, has filed an application for grant of Prospecting Licence for colour granite over an extent of 3.00 hectares in S.No.1 of Addukonda village, Tekkali Mandal, Srikakulam District.

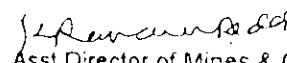
In the reference 2nd cited, the Director of Mines and Geology, Hyderabad granted a Prospecting Licence for colour granite over an extent of 0.68 Hectares in S.No.1 of Addukonda village, Tekkali Mandal, Srikakulam District, in favour of Sri K. Tirumala Rao., No. 2-98/3, 10-B, Block-B, Kakatiyanagar, Habsiguda, Hyderabad – 7, for a period of 2 years subject to the condition that the Grantee should furnish an undertaking to the effect that whatever modification or changes effected by the Government to the A.P.M.C. Rules, 1966 in the context of Granite Conservation & Development Rules, 1999 and other levies like fees, taxes etc., payable will be automatically binding and applicable and if necessary a supplementary deed will be executed.

Sri K. Tirumala Rao., No. 2-98/3, 10-B, Block-B, Kakatiyanagar, Habsiguda, Hyderabad – 7 vide reference 4th cited have submitted all the necessary original paid coalitions and other documents required for execution of the P.L. Deed and requested to execute the P.L. Deed in favour of Sri K. Tirumala Rao., No. 2-98/3, 10-B, Block-B, Kakatiyanagar, Habsiguda, Hyderabad – 7, in the P.L. granted area.

Sanction is hereby accorded to Sri K. Tirumala Rao., No. 2-98/3, 10-B, Block-B, Kakatiyanagar, Habsiguda, Hyderabad – 7 to commence prospecting operation over an extent of 0.68 hectares in S.No.1 of Addukonda village, Tekkali Mandal, Srikakulam District, for a period of 02 (two) years from 13-08-2003 to 13-08-2005 subject to provisions contained in the Granite Conservation & Development Rules, 1999 and also fulfillment of special conditions specified in the annexure appended to the grant.

The Grantee should submit a scheme of Prospecting to the Director of Mines & Geology, Hyderabad within a period of 60 days from the date of execution of this deed under intimation to this office.

The Licensee should maintain all the records and reports in the prescribed form and submit the same to the Government. The Licensee should submit Quarterly returns in Form - C to the Government authorized.


Asst Director of Mines & Geology
Tekkali, Srikakulam District.



✓ TO:
Sri K. Tirumala Rao.,
No. 2-98/3, 10-B, Block-B,
Kakatiyanagar, Habsiguda,
Hyderabad – 7

Copy submitted to:

1. The Director of Mines & Geology, Hyderabad for favour of information
2. The Dy Director of Mines and Geology, Visakhapatnam for favour of information.
3. The Dy Director of Mines, Safety, Hyderabad for favour of information
4. The Regional Controller of Mines, Hyderabad for favour of information
5. The Mandal Revenue Officer, Tekkali for information

Amr... 211

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

PROCEEDINGS OF ASST.DIRECTOR OF MINES AND GEOLOGY: SRIKAKULAM
(PRESENT: SRI K. RAMA MOHAN REDDY, D. Sc.,)
ASST. DIRECTOR

Proceedings No. 1743/Q/2002

Dated: 11-04-2002.

SUB MINES AND MINERALS - Prospecting Licence for Colour Granite over an extent of 3.60 Hectares in S.No.1 of Addukonda Village, Tekkali Mandal, Srikakulam District for a period of 2 years in favour of Sri K. Tirumala Rao - Prospecting Licence Deed Executed - Orders - Issued - Reg.

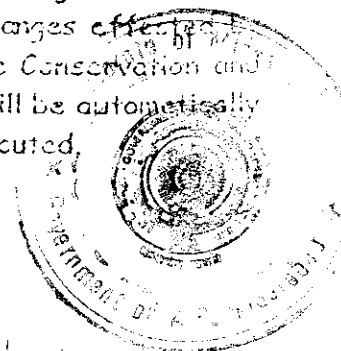
- REF
1. Q.L. application dt. 12.11.1997 from Sri K. Tirumala Rao.
 2. Proc.No. 32417/R1-3/2001, dtd. 8.4.2002 of the Director of Mines & Geology, Hyderabad.
 3. Letter dt. 11.4.2002 from Sri K. Tirumala Rao.

ORDER:

Through the reference 1st cited, Sri K. Tirumala Rao, 2-98/3, 10 B Block B, Kakatiya Nagar, Habsiguda, Hyderabad - 07, has filed a Quarry lease application for grant of colour granite over an extent of 5.000 Hectares S.No.1 of Addukonda Village, Tekkali Mandal, Srikakulam District.

The Govt. vide Memo.No. 12077/M-1(2)/99, dt. 13.1.2000 have issued orders authorising the Director of Mines and Geology, Hyderabad, to convert the pending granite quarry lease applications into Prospecting Licence applications as per rule (4) of Granite Conservation and Development Rules, 1999, with the prior consent of the applicants. Accordingly, the applicant company have submitted the consent duly notarised for conversion of quarry lease application into Prospecting Licence application to the Director of Mines and Geology, Hyderabad.

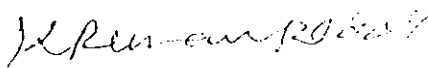
In the reference 2nd cited, the Director of Mines and Geology, Hyderabad granted a Prospecting Licence for colour granite over an extent of 3.60 Hectares in S.No.1 of Addukonda Village, Tekkali Mandal, Srikakulam District for a period of 2 years in favour of Sri K. Tirumala Rao, 2-98/3, 10 B Block B, Kakatiya Nagar, Habsiguda, Hyderabad - 07, for a period of 2 (two) years subject to the condition the grantee should furnish an undertaking to the effect that whatever modification or changes effected by the Government to the A.P.M.C. Rules, 1966 in the context of Granite Conservation and Development Rules, 1999 and other levies like fees, taxes etc., payable will be automatically binding and applicable and if necessary a supplementary deed will be executed.



Sanction is hereby accorded to Sri K.Tirumala Rao, 2-98/3,10 B Block B, Kakatiya Nagar, Habsiguda, Hyderabad - 07, to commence prospecting operations over an extent of 3.60 Hectares in S.No.1 of Addukonda Village, Tekkali Mandal, Srikakulam District for a period of 2 years from 1/1 - 04 - 2002 to 1/10 - 04 - 2004 subject to provisions contained in the granite conservation and Development Rules, 1999 and also fulfillment of special conditions specified in the annexure appended to the granted.

The grantee should submit a scheme of prospecting to the Director of Mines and Geology, Hyderabad within a period of 60 days from the date of execution of this deed under intimation to this office.

The Licensee should maintain all the records and accounts in the form prescribed by the Government. The Licensee should submit quarterly returns in form-C to the concerned authorities.


ASST. DIRECTOR OF MINES AND GEOLOGY
SRIKAKULAM.

To
Sri K.Tirumala Rao,
2-98/3,10- B Block B,
Kakatiya Nagar,
Habsiguda, Hyderabad - 07

Copy submitted to:-

1. The Secretary, Industries & Commerce (M.II) Department, Hyderabad for favour of Of information.
2. The Director of Mines and Geology, Hyderabad for favour of information alongwith License Deed.
3. The Dy. Director of Mines and Geology, Visakhapatnam for favour of information along with License Deed.
4. The Dy. Director of Mines Safety, Hyderabad for information.
5. The Regional Controller of Mines, Hyderabad. for favour of information.

Annexure - II

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

Proceedings of the Assistant Director of Mines and Geology, Tekkali
(Present: Sri K.Ramamohana Reddy, B.Sc.)
ASST.DIRECTOR.

Proceedings No 1067/03/2003

Date 14/03/03

Sub: Mines and Quarries - Quarry lease for Colour Granite over an extent of
1.15 Hectares in S.No.1 of Addukonda village, Tekkali mandal,
Srikakulam District - Granted in favour of Sri K Tirumala Rao,
- Execution of Lease Deed - Work orders issued - Regarding

Ref:- 1. Proceedings No.19620/R1-3/2003 dtd 1.8.03 of the Director of Mines
And Geology, Hyderabad.

- 2. D.Dis.No 2075/94 dtd 27.10.94 of the M.R.O, Tekkali
- 3. Letter dt 14.8.2003 from Sri K.Tirumala Rao

ORDER:-

The Quarry lease for colour granite granted in favour of Sri K Tirumala Rao, 2-98/3, 10-B, Block-B, Kakatiyanagar, Hyderabad - 7, in Survey No.1 of Addukonda village, Tekkali Mandal, Srikakulam District, over an extent of 1.15 Hectares, for a period of 20 years, has been executed on 14-03-2003 by the undersigned. The Quarry lease is valid for a period of 20 years from 14-03-2003 to 13-03-2023.

The Grantee through their letter B filed, has submitted all necessary documents and challans for execution of the Quarry lease Deed and requested for issue of the Quarry lease deed in favour of Sri K Tirumala Rao, 2-98/3, 10-B, Block B, Kakatiyanagar, Hyderabad - 7, for the quarry lease granted area.

Sri K.Tirumala Rao, 2-98/3, 10-B, Block-B, Kakatiyanagar, Hyderabad - 7 is hereby permitted to enter and work the Quarry area for colour granite in Survey No.1 of Addukonda village, Tekkali Mandal, Srikakulam District, over an extent of 1.15 Hectares, for a period of 20 years under the provisions of APMMC Rules, 1966 and Granite Conservation & Development Rules, 1999 and conditions laid down in G.O.Ms.No.317 Industries & Commerce Department, dtd. 9.7.1992 and subsequent instructions issued on the matter from time to time. The Grantee should submit the quarterly returns and the progress in cutting and polishing and to the concerned District Industries Center, the Assistant Director of Mines and Geology, Tekkali, Dy. Director of Mines and Geology, Visakhapatnam and the Director of Mines and Geology, Hyderabad. This work order is issued subject to the conditions that the Government reserve the right to cancel the quarry lease granted and executed, under A.P.M.M.C. Rules, 1966 and Granite Conservation & Development Rules, 1999 without assigning any reason and give notice and the conditions imposed in the grant order and appendix.

K. Ramamohana Reddy
Asst. Director of Mines & Geology
Tekkali, Srikakulam District.



Sri K.Tirumala Rao,
2-98/3, 10-B, Block-B,
Kakatiyanagar, Hyderabad - 7

Copy submitted to

- 1. The Director of Mines & Geology, Hyderabad for favour of information
- 2. The Dy. Director of Mines and Geology, Visakhapatnam for favour of information.
- 3. The District Collector, Srikakulam for favour of information
- 4. The Mandal Revenue Officer, Tekkali for information.

Anugraha

By R.P.M.D.

GOVERNMENT OF ANDHRA PRADESH.

Lt.No. 39542 R.P.D. 2003.

Dated: 13.02.2004.

From:
Sri. T. Devenchandra, M.Sc.,
Director of Mines and Geology,
BRKR Govt. Offices Building, 8th Floor,
Hyderabad.

To:
Sri. K. Tirumala Rao,
Rotary Nagar,
Tekkali,
Srikakulam Dist.

Sir,

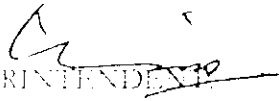
Sub: Mines and Quarries – Combined Approved Mining Plan – Extent: 3.600,
0.680 and 1.15 Hectares – Addukonda Village, Tekkali Mandal, Srikakulam
Dist. – Permitted – Reg.

Ref: Your Letter dated: 21.01.2004.

With reference to your letter cited, it is informed that you are hereby permitted to submit combined Approved Mining Plan for Colour Granite for the two Prospecting Licences for which Quarry Lease grant proposals have been submitted by the Asst. Director of Mines and Geology, Tekkali over an extent of 3.600 and 0.680 Hectares and existing Quarry Lease held over an extent of 1.15 Hectares in Sy.No. 1 of Addukonda Village, Tekkali Mandal, Srikakulam District within three months from the date of receipt of this order.

Yours faithfully,
Sd/-Dr. P. Dayashankar.
For DIRECTOR OF MINES AND GEOLOGY.

//P.C.F.B.O.//


SUPERINTENDENT

804

Copy to Asst. Director of Mines and Geology, Tekkali.
Copy to R.Q.P. Section in Head Office.



PROPOSED 5 YEARS PIT DIMENSIONAL DATA AS PER 5 YEARS WORKING SECTION

YEAR	SECTION	GRANITE						ROCK WASTE @ 90%
		R.I.s BETWEEN	SECTIONAL AREA IN M ²	INFLUENCE DISTANCE IN METERS	VOLUME IN M ³	@ 10% RECOVERY		
1 ST YEAR	E-E'	195-189	101.23	82.5	8351.47	835	7516.33	
2 ND YEAR	E-E'	195-189	101.23	82.5	8351.47	835	7516.33	
3 RD YEAR	E-E'	189-183	144.05	82.5	11884.12	1188.41	10695.71	
4 TH YEAR	E-E'	189-183	144.05	82.5	11884.12	1188.41	10695.71	
5 TH YEAR	E-E'	183-180	98.72	165.00	16288.80	1628.88	14659.92	

