

MINING PLAN ON COLOUR GRANITE
Over an extent of 1.713 Hectares, Sy.No 270,
Singhupuram(V), Srikakulam Mandal & Dist. A.P.

For

**M/s C.L.NAIDU GRANITES,
Srikakulam**



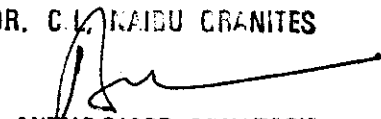
APPROVED

Prepared by
V.T.CHANDER
Consultant Geologist & RQP
(RQP/DMG/HYD/02/2001)
#202, H.No 10-1, Mahalaxmi Ganapathi Complex,
P&T Colony, Dilsukhnagar, Hyderabad 500 60.

CERTIFICATE

This is to certify that Mining Plan in respect of Quarry lease area over an extent of 1.713 Hectares, Sy.No 270, Singhupuram (V), Srikakulam Mandal & District. A.P. 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.

For DR. C.L. NAIDU GRANITES



AUTHORISED SIGNATORY
For M/s C.L.Naidu Granites

Date:
Place:




CERTIFICATE

The provision of Granite Conservation and Development Rules 1999 have been Observed in the Mining Lease of COLOURED GRANITE, area over an extent of 1.713 Hectares, Sy.No 270, Singhupuram (V), Srikakulam Mandal & District. A.P. leased to M/s C.L.Naidu Granites., Srikakulam. Whenever specific permissions are required the applicant will approach the concerned authorities.

This is to certify that the information provided in the mining plan is correct to the best of my knowledge

Date: 29-7-03
Place: Hyderabad


RQP
(V.T.Chander)



LIST OF PLATES

PLATE	TITLE		SCALE
I	LOCATION & KEY PLAN		1: 50,000
II	LEASE AREA PLAN		1: 8000
III	GEOLOGICAL PLAN		1: 1000
IV	GEOLOGICAL CROSS SECTIONS	H	1: 1000
		V	1:500
V	MINE LAY OUT & YEAR WISE PRODUCTION PLAN		1: 500
VI	MINE LAY CROSS ESCTIONS	H	1: 1000
		V	1:500
VII	ENVIRONMENTAL PLAN		1: 5000.

LIST OF ANNEXURES

1. Copy of the DMG, Hyderabad Notice No 9103/r1-3/2003
Dated 25-4-2003



INDEX

S.NO	CONTENTS	PAGE NO
1	INTRODUCTION	1
2	GENERAL	2
3	GEOLOGY AND EXPLORATION	3
4	MINING	7
5	MARKET ANALYSIS	10
6	PRODUCTION SCHEDULE	10
7	SCHEME OF WASTE MANAGEMENT PLAN	11
8	ENVIRONMENTAL MANAGEMENT PLAN	11
9	EMPLOYMENT & SITE SERVICES	15
10	ANY OTHER RELEVANT INFORMATION	15



This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the
Mining Plan Approval Letter No.....
16253/MP-I/02, dated 5-08-2003

MINING PLAN FOR COLOUR GRANITE
Over an extent of 1.713 Hectares, Sy.No 270,
Singupuram (V), Srikakulam (M), Srikakulam Dist. A.P.

For

M/s C.L. Naidu Granites
Srikakulam

By

V.T Chander, Consultant Geologist & RQP

1. Introduction

M/s. C.L. Naidu Granites, Srikakulam, a Private Firm was granted prospecting license for Colour Granite over an extent of 1.620 hectares spread over in Sy.No 270 of Singupuram Village, Srikakulam Mandal, Srikakulam Dist. A.P. for a period of 2 years. vide Director Mines Geology, Hyderabad, proceedings N0316268/ R-1/-3/02 dated 18-11-2002. the prospecting deed was executed on 26-11-2002. vide Asst. Director, Mines & Geology, Srikakulam proc No 5162/M/2000 dated 26-11-2002.

M/s. C.L. Naidu Granites, Srikakulam, has applied for Quarry Lease for Colour Granite over an extent of 1.620 hectares spread over in Sy.No 270 of Singupuram Village, Srikakulam Mandal, Srikakulam Dist. A.P. for a period of 20 years.

The Director, Mines & Geology, after scrutinizing the application has proposed to grant the quarry lease for 20 years, subject to submission of the approved mining plan within 6 months period, vide proceedings No. 9103/R1-3/2003 dated 25-4-2003.

M/s. C.L. Naidu Granites. Srikakulam, Approached Sri V.T. Chander Consultant Geologist and RQP (RQP/DMGHyd/02/2001) For preparation of Mining Plan in the above mentioned quarry. Accordingly Mining Plan IS prepared as per the guidelines given by Govt. India. Ministry of Steel & Mines, GCDR Rules 1999.



APPROVED

Dr. P. Dayasankar

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

2.0 GENERAL**2.1. Name and Address
the applicant**

: M/s.C.L.Naidu Granites.
Mg.Ptnr Dr.C.L. Naidu,,
Seethampet Road, Palakonda.,
Srikakulam District.

2.2 Status of the Applicant

: Private firm.

**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
P&T colony Dilsuknagar
Hyderabad 500 060
Ph. 24068218 , 55618351

**2.5 Name and Address of the
Prospecting Agency**

: M/s.C.L.Naidu Granites,
Srikakulam

2.6 Details of the Area :

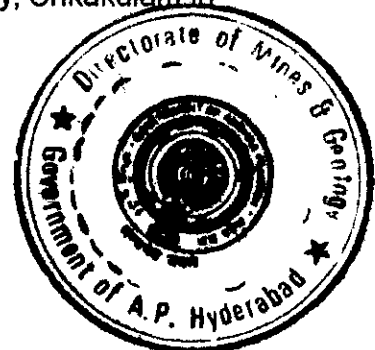
The applied area falls in the Survey of India Toposheet No. 65N/15 and is bounded East Longitude 83°-53'- 40' and North Latitude 18° - 21'-20". It is situated 1 Km West of Singupuram (V), 11 Km N-E of Srikakulam Town (Mandal & Dist. Head Quarters). The road leading from Srikakulam to Kolkatta (NH 5)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

Table No.1 Details of the Area

Dist.	State.	Mandal	Village	S.No.	Extent	Ownership of Occupancy
Srikakulam	Andhra Pradesh	Srikakulam	Singupuram	270	1.173 Ha	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 C.L.Naidu Granites is given as Plate No II.



2.8. Infrastructure and Communication

- It is situated 1 Km West of Singupuram (V), 11 Km N-E of Srikakulam Town (Mandal & Dist. 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 village due west will lead to the area.
- Amenities like Post, Primary Health Center, Local Market Facilities (Sunday Market) etc. are available at Singupuram.
- Vishakapatnam port is about 150 Km from area. Nearest Rail head is Amudalavasa located 16 Km south
- Electricity is available at Singupuram (V). The area is having good ground water potential.

Boundaries

North	Road & Barren lands	South	M/s Devi narayan Exports
East	M/s Dyna Granites	West	Road
		SW	M/s Dyna Exports.

III. GEOLOGY AND EXPLORATION

3.1 Physiography :

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

The area falls under vamsadhara river command area, the river is located 4 Km NE of the quarry, the distributaries of Bhairi canal irrigate the area. Number of small to medium tanks are located around the area.

Topography

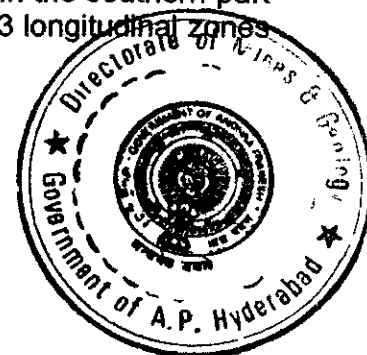
The applied area is located on the northern side of the hill with highest peak of 20M sloping towards North. The colour of the granite is varying from medium to light blue colour. The outcrops of Granite boulders are embodied in the soil burden

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

REGIONAL GEOLOGY

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

1. Western - Chamockitic 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:

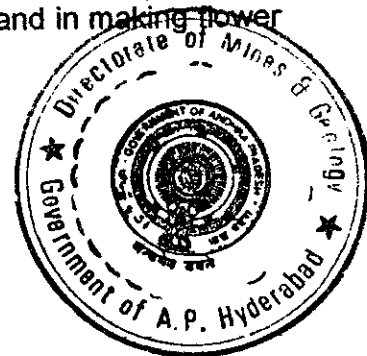
INTRUSIVES	Layered Anorthisites and associated Mafics and Chromiferous Ultra Mafics.
CHARNOCKITE GROUP	Charnockites with mega crystic K- Felspar Charnockite Two Pyroxene granulite / Amphibolites.
KHONDALITE GROUP	Calc-Silicate-Granulites. Garnet - Silliminite -Quartz-Biotite-K-Felspar- Graphite Gneiss (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, Twopyroxene 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 grey 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.



Details of Exploration

3.3.1 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.

3.3.1-3 Exploratory Mining

A pit of 15m x 15m was opened in southern part of the applied area two large boulders were removed forming a pit of 4 Mtrs, 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 sized 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 Cu. M of rough block retrieved and 207.961 Cu. M 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
Compressor	1
Tipper	1
Jack Hammers	3

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 volume is computed by multiplying area with the average height of 20 M, for individual limbs and totaling for the total area.

3.4.2-1 Categorization of Reserves

The deposit is exposed on hill with an average height of 20 Mts rock is considered for computing the reserves. The entire deposit exposed on the surface is classified under "Proved"

Total area	1. 713 Ha.	= 17,130M ²
Average thickness of Deposit	20M	
Total Rock Mass estimated		= 4,05,000 M ³
Anticipating Soil Creep, Under sized boulders, etc @ 30%		=1,21,500 M ³
Total deposit anticipated		= 2,83,500 M ³

3.4.2-2 Total Mineable Reserves

The Rock mass blocked under safety slopes will not be available for mining the deposit. Deduction of rock mass blocked above areas from total insitu reserves indicate total mine able reserves, which are as follow :

Area blocked under Safety Slopes (Length x Average Width x Height)

Southern Boundary	275 x 12.75 x 20	= 70,125 M ³
South-East Boundary	125 x 5 x 20	= 12,500 M ³
North-West Boundary	25 x 2 x 20	= 1,000 M ³

Total Deposit Blocked = 83,625 M³

Total Insitu Reserves = Total Insitu reserves – Mass Blocked under Safety Slopes
 = 2,83,500 M³ – 83,625 M³
 = 1,99,875 M³

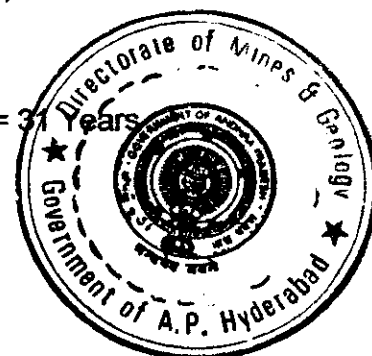
@ 35% recovery total reserves are = 69,956.25 M³

3.4.2.-3 Economic Marketable Reserves

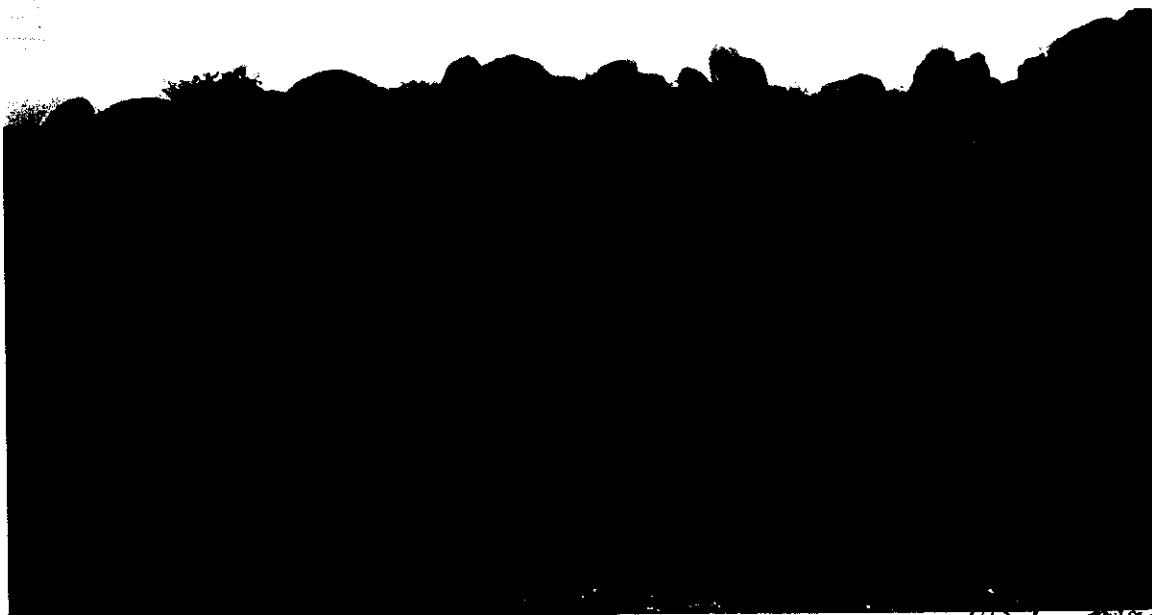
The Granites, having good export market, rough blocks free of defects like fractures, joints, shears, hair line cracks, segregation veins, drastic colour variation and having Gang saw size are mostly preferred by exporters and international buyers, These are known as Economic or market grade. The Srikakulam Blue Granite is totally export oriented. Hence, all the blocks of Gang Saw size are only demanded by the exporters.

Economic Marketable Reserves = 69,956.25 M³

Life of the Mine = 69,956 / 2250 = 31 Years



PHOTOGRAPH SHOWING VIEW OF THE HILL FROM EASTERN SIDE



PHOTOGRAPH SHOWING SPLITTING OF BOULDER



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 :

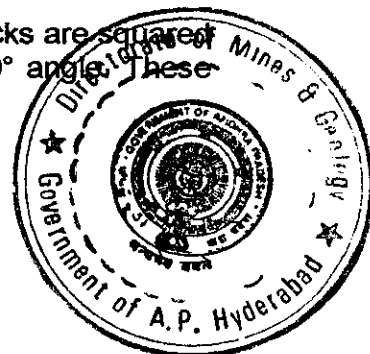
(A) **Over Burden Removal** : The over burden and the side burden will be extracted with the help excavator of 300 LC capacity, After, loosing the compact weathered rock by blasting and drilling, the excavator will be deployed to remove the material and to load into the tippers for transporting to dumping 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 line drills.
- In actual scense 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 Agfract 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 Mts 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 is 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 Mt 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	Stock at Quarry	Despatches
270cm x 180cm x 150cm =	131.248 M ³	199.989 M ³
250 cm x 160cm x 140cm =	151.565 M ³	7.972 M ³
200 cm x 120cm x 60cm =	43.409 M ³	Nil
Total =	326.222 M ³	207.961 M ³



4 D. Mining Programme For The Next 5 Years:

It is proposed to produce 788 M³ of rough blocks on an average per year in the first five years. Total 3940 M³ rough blocks will be produced in five years utilizing an area of 1875 M².

In the first year mining starts from center of the pit towards North West, a bench of 6 M height will be formed in 2 stages between RL 65 and RL 59, in the grid East 50 - 100 and North 00 - 50, covering an area of 375 M². There by 2250 M³ of rock will be obtained. From which 788 M³ market grade rough blocks are produced, generating 1462 M³ of rock debris.

In the second year the mining starts from North West of 1st year pit, from western end of the trial pit and bench of 6 M height will be formed in 2 stages between E 50 - E 100, in the grid North 50 - 100 and covering an area of 375 M², producing 788 M³ of market grade rough blocks and 1462 M³ of wastage.

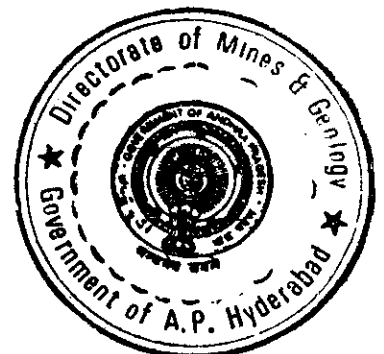
In the third year mining extends further North West, a bench of 6 M height will be formed in 2 stages in the grid East 00 - 50 and North 50 - 100, covering an area of 375 M². There by 2250 M³ of rock will be obtained. From which 788 M³ market grade rough blocks are produced, generating 1462 M³ of rock debris.

In the fourth year the mining extends further North West of previous year bench with a height of 6 M height will be formed in 2 stages in the grid East 00 - 50 and North 50 - 150, covering an area of 375 M², producing 788 M³ of market grade rough blocks and 1462 M³ of wastage.

In the fifth year the mining extends further West and bench of 6 M height will be formed in 2 stages in the grid East 00 - 50 and North 100 - 150, covering an area of 375 M², producing 788 M³ of market grade rough blocks and 1462 M³ of wastage.

The year wise production of Economically marginal grade as follows [Mine layout plan and mine layout sections shown in Plates VI and VII.]

Year	Grid	Dimensions L x W in M	Bench height in M	Total Volume in M ³	Market Grade @ 35% in M ³	Waste in M ³
1	E 100-150 N 100 -150	25 X 15	6	2250	788	1462
2	E 50-100 N 100 -150	25 X 15	6	2250	788	1462
3	E 50-100 N 100 -150	25 X 15	6	2250	788	1462
4	E 00-50 N 150 -200	25 X 15	6	2250	788	1462
5	E 00-50 N 150 -200	25 X 15	6	2250	788	1462
			TOTAL	11,250	3940	7310



e). **Quantum of Excavation:**

In the next five years it is proposed to produce a total of 3940 Cu. M of commercial grade rough blocks, to obtain this at the rate of 35% recovery, a huge mass of rock waste will be generated. It is estimated that a total of 7310Cu.M waste will be generated for the next 5 years period with an average of 1462 Cu. M of waste / year. Since this is an operating mine not much of the overburden is expected to be generated.

5. 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. 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 788 Cu.M per year can be easily achieved in a single shift with sufficient men and machinery.

A. Magazine Type and Capacity:

The lessee has applied for explosive license to the Government, the application under process.

B. Description of Processing Plant:

The firm doesn't possess a processing plant

C. Organizational Chart:

Man power at Quarry

Manager	1 No.s
Supervisors	2 No.s
Compressor operator	2 No.s
Tipper drivers	2 No.s
Hitachi operators	1 No.

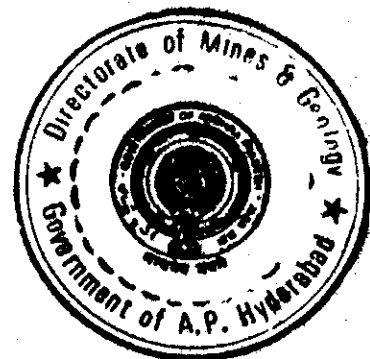
Besides 20 No's unskilled labourers are employed on daily wages

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. 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 7310 Cu.M of waste is expected to be generated with an average of 1462Cu.M per annum. (The year wise waste generation in next 5 years is given in table in page -9):
- ii) **Dumping Site Particulars:**
For dumping of waste generated during mining will be dumped in the dump located between the grids W 00-50 and N 200- 250.
- iii) **Estimated Waste Quantity that will be generated in the Entire Period:**
At the rate of 1462 Cu.M per year the volume of waste generated during lease period i.e 20 years is estimated to be 29,240 Cu.M.
- 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 back filling of the mine pit after completion of mining.

8.ENVIRONMENTAL MANAGEMENT PLAN:

8.1. Baseline information:

a. Existing land use pattern:

The applied area is a hill, with sparse vegetation small bushes form the vegetal cover. The deposit is occupying the entire applied area. Areas due west and south are active with stone crushers.

b. Water regime:-

R. Vamsadhara is 4Km 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 is having dry climate. The temperature recorded in this area is 25°C, in winter and about 48°C. in summer seasons. The wind direction is in SW to NE. The average annual Rainfall of the area is 1000mm

f. Human Settlement

The human settlements located near around the lease area are

Sr. No.	Habitation	Direction & Distance	Population
1.	Singupuram	1 Km East	750
2.	Tandemvalasa	1 Km West	300
3.	Mamidivalasa	2 Km South	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

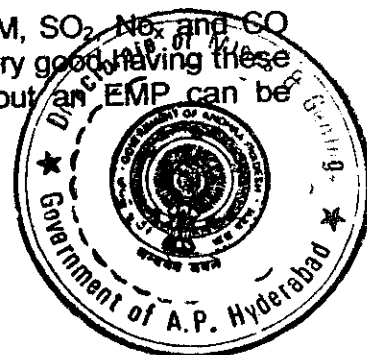
8.2 Environmental Impact Assessment

- i) Land Degradation :

Granite Mining will alter the physiographic scene; a small portion of the hill will alter its shape. i.e. the triangular appearance will altered by stripping During quarrying the solid waste generated will be dumped in the Northern part of the area.

- ii) Air Quality :

The quarrying operations shall increase the SPM, RPM, SO₂, NO_x and CO levels to some extent. But as the baseline quality is very good, having these parameters much lower, the marginal increase without an EMP can be



expected. The increase in SPM levels of ambient air quality predicted shall not be more than $5 \mu\text{g}/\text{m}^3$. Similarly, SO_2 , and NO_x levels may increase not more than $1 \mu\text{g}/\text{m}^3$ from the baseline levels.

AIR QUALITY

Base Level	Allowable Level
SPM = $140 \mu\text{g}/\text{m}^3$	$360 \mu\text{g}/\text{m}^3$
RSPM = $60 \mu\text{g}/\text{m}^3$	$120 \mu\text{g}/\text{m}^3$
$\text{SO}_2 = 40 \mu\text{g}/\text{m}^3$	$80 \mu\text{g}/\text{m}^3$
$\text{NO}_2 = 40 \mu\text{g}/\text{m}^3$	$80 \mu\text{g}/\text{m}^3$
CO = $1.0 \mu\text{g}/\text{m}^3$	$5.0 \mu\text{g}/\text{m}^3$

The following control measures against dust pollution in mines :

- Water sprinkling with chemical additives
- Proper functioning of dust suppression arrangements in equipments
- Vegetative barriers.
- Dust extractors.

iii) Water Regime :

The mining of Coloured Granite has no adverse effect on the water regime of the area.

iv) Noise Levels :

Noise is produced due to following mining operations.

- Blasting
- Operation of heavy duty underground and opencast machinery.

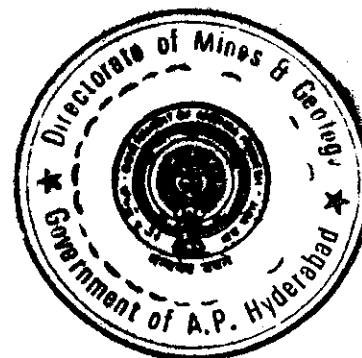
Problem of noise level at mine site may be taken as 90 dB (A). Night time noise should not exceed 45 dB (A).

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)

Remedial Measures :

- Provision ear muffs.
- Provision of ear plugs
- Provision of enclosures.
- Improved design of mufflers.
- Enclosing engine parts.
- Proper maintenance of equipment.



v) **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

vi) **Socio Economics :**

The applied area is surrounded by many villages within a distance of 2.5 Kms. Agriculture is important profession of the people living in the village besides involving themselves in Quarrying activity.

8.3 Environmental Managementi) **Temporary utilisation of top soil :**

No soil will be generated during quarrying. 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 :**

As mentioned above the lease area is not suitable for Afforestation.

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 Applicableviii) **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 Employment and Site Services

- A. Employment : Given in Para 6
- B. Site Services : Given in Para 6

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

Mining Plan Approval Letter No.....

16253/M.P.T./03, dated, 5-08-2003

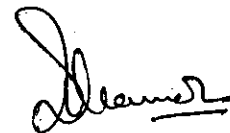
10.0 Any Other Information

1. No violations are noticed by the Department of Mines and Geology.
2. No violations were pointed out by the Director General of Mines Safety.
3. No objections were raised by the either Villagers, Revenue Officials and other Government Departments.

For DR. C.L. NAIDU GRANITES

AUTHORISED SIGNATORY

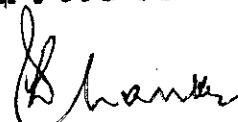
For M/s C.L Naidu Granites



RQP
(V.T. Chander)



APPROVED


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

GOVERNMENT OF ANDHRA PRADESH.
DEPARTMENT OF MINES AND GEOLOGY: HYDERABAD.

NOTICE NO. 9103/RJ-3/2003.

DATED: 25.04.2003.

Sub: Mines and Quarries - Quarry Lease application -
Extent: 1.713 Hectares / Acres - S.No. 270 -
Village: Singupuram - Mandal: Srikakulam -
Dist: Srikakulam - in favour of M/s. Dr. C.L. Naidu Granites
for a period of 20 years - Approved Mining Plan called for -
Reg.

Ref: 1. From M/s. Dr. C.L. Naidu Granites, Q.L. Application
Dated: 4.3.2003.
2. From the ADM&G., Srikakulam Lr. / File NO.
1017/Q/2003, dt: 13.3.2003.

M/s. Dr. C.L. Naidu Granites in the reference 1st cited, have applied for grant of Quarry Lease for Colour Granite over an extent of 1.713 Hectares in S.No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District.

2. The Asst. Director of Mines and Geology, Srikakulam in the reference 2nd cited, has stated that the applied area is held under Prospecting Licence by the applicant. Further, the Asst. Director has recommended for grant of Quarry Lease for Colour Granite over an extent of 1.713 Hectares in S.No. 270 of Singupuram Village, Srikakulam Mandal, in Srikakulam District in favour of M/s. Dr. C.L. Naidu Granites for a period of 20 years.

3. The Director of Mines and Geology, Hyderabad after careful examination of the above proposals of the Asst Director of Mines and Geology, Srikakulam has proposed to grant the Quarry Lease over an extent of 1.713 Hectares in S.No. 270 of Singupuram Village, Srikakulam Mandal, Srikakulam District in favour of M/s. Dr. C.L.Naidu Granites for a period of 20 years subject to the submission of Approved Mining Plan within six months from the date of receipt of this Memo.

4. Therefore, M/s. Dr. C.L.Naidu Granites are requested to submit the Approved Mining Plan for the above area referred at para 2 for a period of 20 years within a period of six months from the date of receipt of this notice for consideration of their Quarry Lease application.

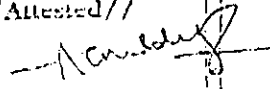
5. Further, they are also informed that if they fail to submit the Approved Mining Plan within a period of six months from the date of receipt of notice it will be presumed that they have no interest in their Quarry Leases applications and further action will be taken based on the material available with the Director of Mines and Geology.

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

For
M/S. Dr. C.L. Naidu Granites,
Managing Partner: Sri. Dr. C.L. Naidu.
Seethampeta Road, Palakonda,
Srikakulam Dist.

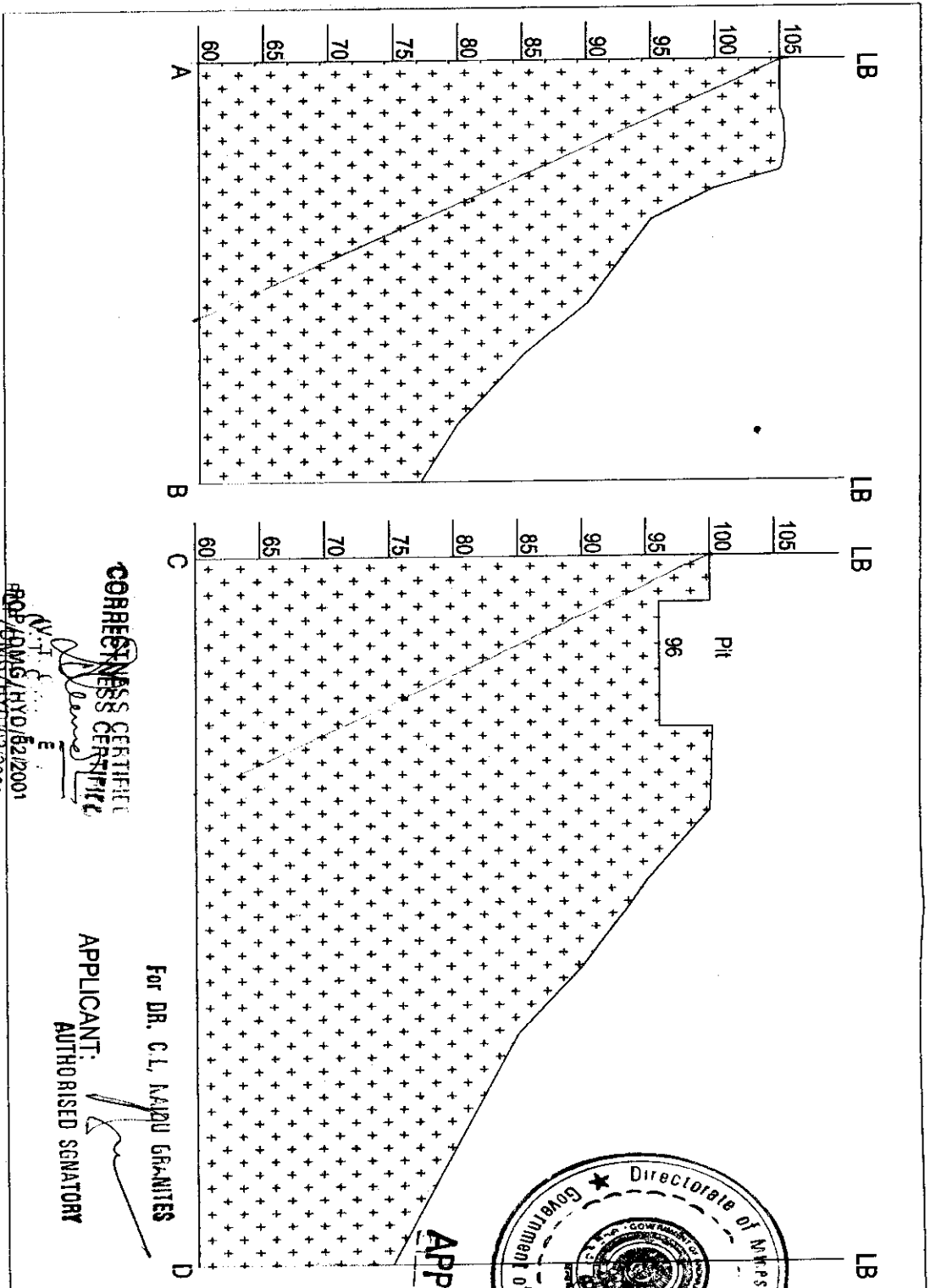
Copy to Asst. Director of Mines and Geology, Srikakulam.
Copy to Approved Mining Plan Section.

//Attested//



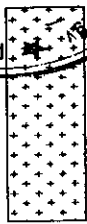
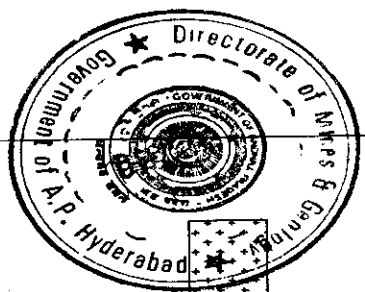
for DIRECTOR OF MINES AND GEOLOGY.





CORRECTNESS CERTIFICATE
 V.T. CHANDER
 RQP/DMG/HYD/02/2001
 10/2/2004

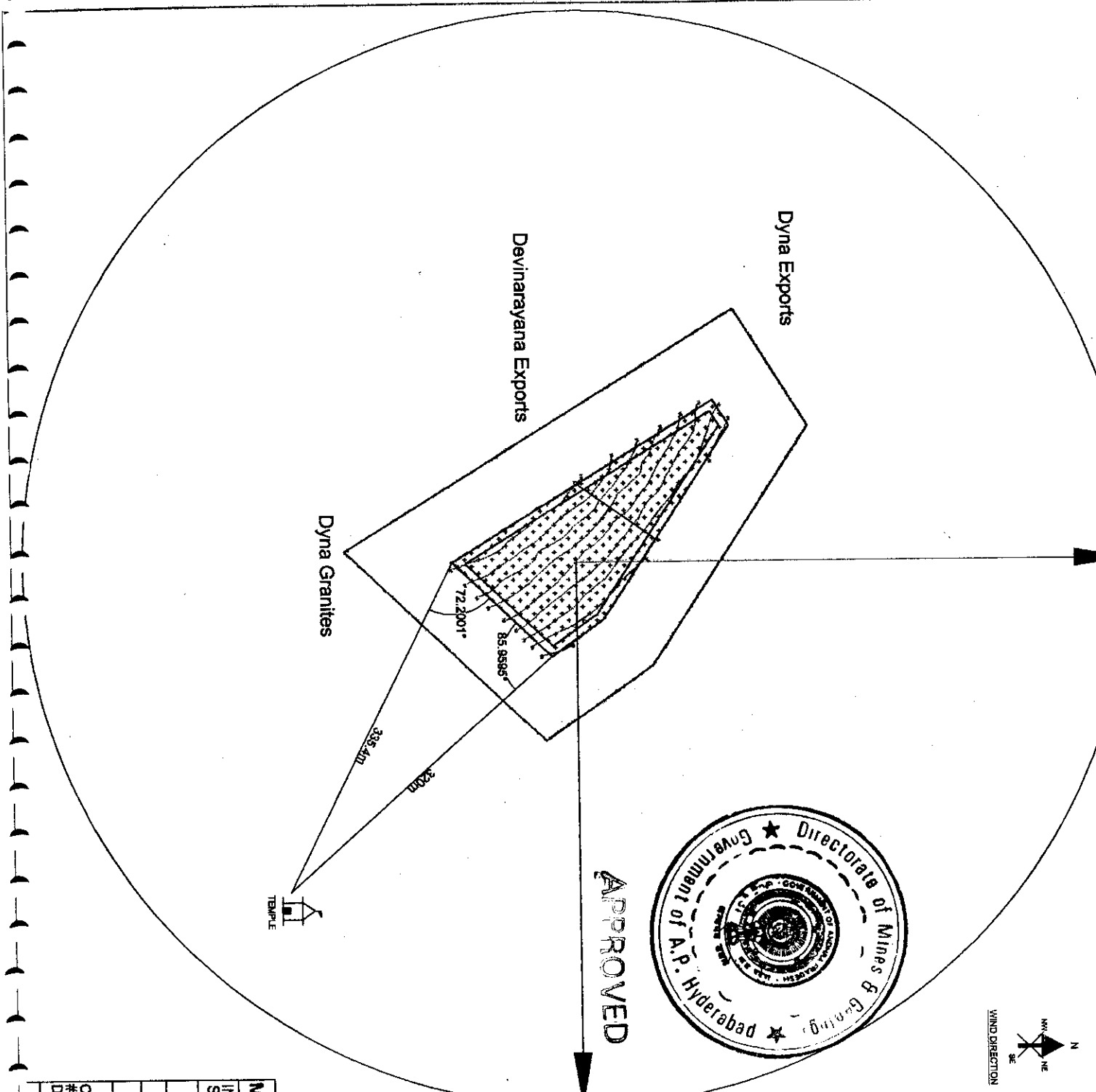
For DR. C.L. NAIDU GRANITES
 APPLICANT:
 AUTHORIZED SIGNATORY



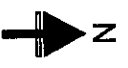
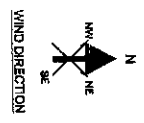
INDEX
 Proved Deposit

APPROVED



MINING PLAN FOR COLOUR GRANITE
IN SURVEY No 270, SINGUPURAM(V) SRI KAKULAM (Mandal & Dist)
GEOLOGICAL CROSS SECTION
APPLICANT: M/s DR.C.L.NAIDU GRANITES
HOR.SCALE: 1:1000 VER. SCALE: 1:500
V.T.CHANDER, RQP/DMG/HYD/02/2001
CC GEO ENGINEERING CONSULTANTS PVT.LTD., # 202, Mahalakshmi Ganapathi Complex, P&T Colony, Disurthi Nagar, Hyderabad - 60.
PLATE IV



APPROVED



INDEX

-  Lease Area Boundary
-  Contours

CORRECTNESS CERTIFICATE

(V. T. CHANDER)
 POP / DMG / HYD / 02 / 2004

FOR DR. C. J. NAIDU GRANITES

APPPOINTED SENATORY

MINING PLAN FOR COLOUR GRANITE

(IN SURVEY No 270, SINGUPURAM(V)
 SRI KAKULAM (Mandal & Dist)

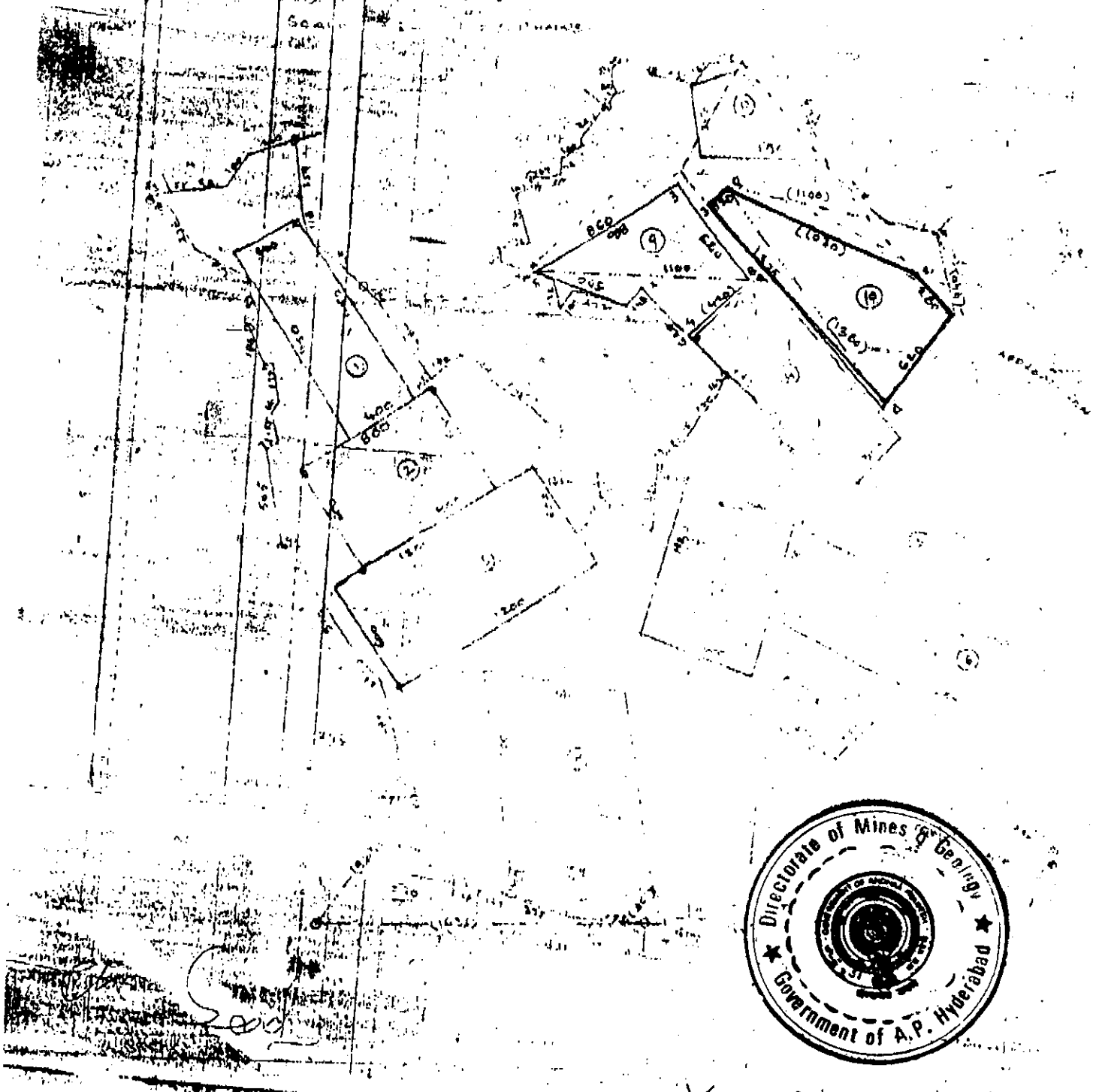
ENVIRONMENTAL PLAN

APPLICANT: M/s DR. C. J. NAIDU GRANITES

SCALE: 1:5000 CONTOUR INTERVAL, 5Mtr.

V.T. CHANDER, ROP/DMG/HYD/02/2004
 CC GEO ENGINEERING CONSULTANTS PVT.LTD.,
 # 202, Mahalakshmi Ganapathi Complex, P&T Colony,
 Dilaukh Nagar, Hyderabad - 90.

DIST. SRIKAKULAM
 MANDAL SRIKAKULAM
 VILLAGE SRIKAKULAM
 F.E. D. No. 220
 Scale 1:1000



APPROVED

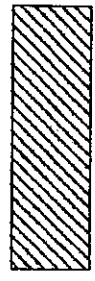
For M/s. Dr. C. L. ...
 GRANTEE
 HOLDIE

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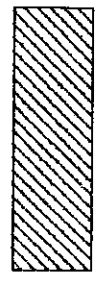
[Handwritten signatures and initials]

Assistant Director of Mines and Geology
 Government of Andhra Pradesh
 SRIKAKULAM.

INDEX



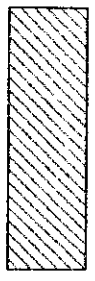
1st Year Production



2nd Year Production



3rd Year Production

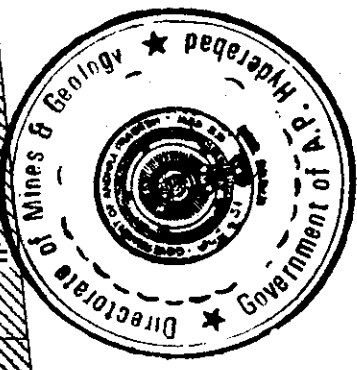
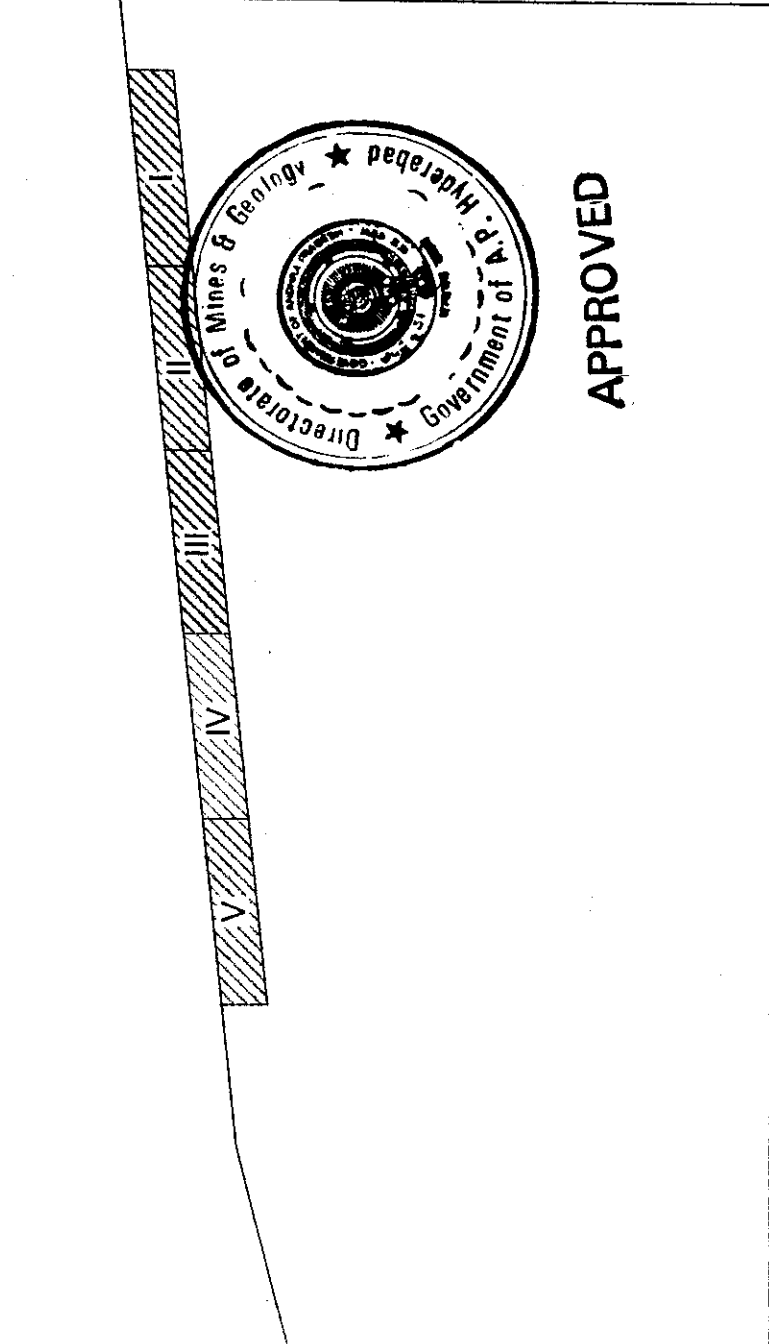


4th Year Production



5th Year Production

LB



APPROVED

For DR. C.L. NAIDU GRANITES

APPLICANT:

(Signature)
AUTHORISED SIGNATORY

CORRECTNESS CERTIFIED

(Signature)
(V. T. CHANDER)

RQP/DMG/HYD/02/2001

MINING PLAN FOR COLOUR GRANITE

IN SURVEY No 270, SINGUPURAM(V)
SRI KAKULAM (Mandal & Dist)

MINE LAYOUT & YEAR WISE CROSS SECTION

APPLICANT: M/s Dr C.L.NAIDU GRANITES

HOR:SCALE: 1:1000, VER:SCALE:1:500

V.T.CHANDER, RQP/DMG/HYD/02/2001

CC GEO ENGINEERING CONSULTANTS PVT.LTD.,
202, Mahalakshmi Ganapathi Complex,P&T Colony,
Dilsukh Nagar, Hyderabad - 60.