

EXECUTIVE SUMMERY

OF

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

Balakundi Pink Granite Quarry Project

**Survey No. (A) 270/3A &270/5 and
271/1&271/2, Balakundi Village, Hunagund
Taluk, Bagalkot District, Karnataka State**

Project Proponent:

Sri. Prakash.B.Bagewadi

**Near Lakshmi Temple, Tukkanatti-591224, Mudalagi Taluk,
Belgaum District**

EXECUTIVE SUMMARY OF DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

1. Project Description

The proposed Pink Granite stone quarry project is a over an extent of 4-36 Acres (1.984 Ha) and 9-16 Acres(3.805 Ha) located in Survey No. (A) 270/3A &270/5 and (B) 271/1&271/2, Balakundi Village, Hunagund Taluk, Bagalkot District, Karnataka State

The applied areas are demarcated on the Topo-sheet No. 57 A/1 of the survey of India. The mine lease area falls in the Patta Land and the details of Quarry areas and geographical coordinates of the Quarry lease areas are as follows:

- (A) The 4-36acres (1.984 Ha) area of Sy.No. 270/3A &270/5 Patta land lies in the latitude of N 15° 54' 38.1'' to N 15° 54' 41.6'' and E 76° 04' 20.9'' to E 76° 04' 30.6''
- (B) The 9-16acres (3.805 Ha) area of Sy.No. 271/1 &271/2 Patta land lies in the latitude of N 15° 54' 44.2'' to N 15° 54' 50.6''and E 76° 04' 17.4'' to E 76° 04' 26.5''

The Quarry Lease application which was submitted to the department of Mines and Geology Bagalkot has been processed and the said department has notified the area for Sri Prakash.B.Bagewadi, balakundi Village, Hunagund Taluk, Bagalkot District to an extent of 4-36acres (1.984 Ha) and The 9-16acres (3.805 Ha) . The lease has been granted to proponents of 4-36 acres (No.DMG/BGK/KQL-1/Rules-32/2017-18 dated 23-01-2018) and 9-16 acres (vide letter No.DMG/BGK/KQL-1/Rules-32/2017-18 dated 05-03-2018.) for a period of 5 years by Department of Mines and Geology, Bagalkot and the Quarry Plan was approved by Director of Mines and Geology, Karnataka.

The Quarrying plan with Progressive Mine Closure Plan is prepared under Karnataka Minor Mineral Concession Rules, 1994 & Granite Conservation Rules, 1999, for 5 years. Accordingly Project Proponent has submitted Form-I, Pre- feasibility report and copy of Approved Quarry

Plan from the Department of Mines & Geology Koppal to the State Level Environment Assessment Authority of Karnataka constituted by MoEF, GoI for issuing Environment Clearance as per EIA September 14, 2006 Notification.

MINING DETAILS

Sl.No.	Particulars Details	
	4-36 acres	9-16 acres
1	Method of Mining Open Cast fully Mechanized Quarrying Method	Method of Mining Open Cast fully Mechanized Quarrying Method
2	Granite Production Capacity Max 5,000 cu.m/annum	Granite Production Capacity Max 10,000 cu.m/annum
3	Total Mineable Reserves 163681 cu.m	Total Mineable Reserves 404443 cu.m
4	Total waste generation till the end of Life of quarry 58335cu.m	Total waste generation till the end of Life of quarry 116665cu.m
5	Life of quarry 10 years	Life of quarry 12 years
6	Bench Height 6m	Bench Height 6m
7	Bench Width 6m	Bench Width 6m
8	Elevation Range Highest elevation is 601.35mRL Lowest elevation is 598.36mRL	Elevation Range Highest elevation is 602.35mRL Lowest elevation is 599.91mRL
9	General Ground Level 600m AMSL	General Ground Level 600m AMSL
10	Ground water table 60-80m BGL	Ground water table 60-80m BGL
11	Overall pit slope 45 ⁰	Overall pit slope 45 ⁰

CONCEPTUAL QUARRY PLAN

Method of Quarrying: An open cast Other than fully Mechanized method will be adopted to operate the area. The annual production for 4-36 Acres is about 5000 Cum/year (Maximum) for Five years, anticipated life of the quarry Life of the mine in this case is for 10 years or till the

reserves get exhausted and for the annual production for 9-16 acres is about 10,000 Cum/year (Maximum) for Five years, the Open cast method will be followed during the plan period. Anticipated life of the quarry Life of the mine in this case is for 12 years or till the reserves get exhausted.

Waste Generation & Disposal

There is no such reduction of waste / mineral reject processing possibilities are proposed during plan period. There is no proposal of dumping during the proposed ensuing quarrying period, & concurrent backfilling is proposed.

Water Requirement & Source

Total water requirement for the project will be 5.46 KLD (4-36 acre) & 7.28 KLD (9-16 acre), Requirement is met by procurement of water from the bore well nearby Tankers.

Manpower Requirement

The said quarry provides direct employment to 27 people and generate indirect employment for 27 more people (for 4-36 acre) and 36 people and generate indirect employment for 36 more people (for 9-16 acre). Most of the directly employed manpower falls under skilled category Preference will be given to the local people as per their eligibility.

Site Infrastructure

The Quarry will have its own office premises, canteen, first-aid center etc. Quarry office is well connected with wireless and telephone, internet & e-mail facilities for communication. The Quarry is provided with a workshop to undertake repairs and regular maintenance of quarrying machinery deployed.

2. DESCRIPTION OF THE ENVIRONMENT

2.1 Description of the environment

2.1.1 Study Area

The study area is considered to be the quarry lease area, and an additional area of 10 km radius from the lease boundary.

2.1.2 Climate

The climate in the region shows broadly four seasonal variations, namely:

Winter: December - February

Summer: March – May

Monsoon: June - September

Post-monsoon: October – November

The Study period was from November 2020 to January 2021,

2.1.3 Ambient Air Quality

Ambient air quality monitoring was carried out from November 2020– January2021. The ambient air quality monitoring stations were set up at 9 different locations.

PM₁₀: The minimum and maximum concentrations for PM₁₀ were recorded as 40.9µg/m³ and 83.2µg/m³ respectively. The Minimum concentration was recorded at Hanumasagara Govt. Higher Primary School and the maximum concentration was recorded at Project site 9-16 Acres.

PM_{2.5}: The minimum and maximum concentrations for PM_{2.5} were recorded as 21.2µg/m³ and 40.2µg/m³ respectively. The Minimum concentration was recorded at Hosuru Government School and the Maximum concentration was recorded at Project site 9-16 Acres.

NO_x: The minimum and maximum NO₂ concentrations were recorded as 8.4µg/m³ and 35.2µg/m³. The Minimum concentration was recorded at Mannapura Govt. School and the Maximum concentration was recorded at project site 9-16 Acres.

SO₂: The minimum and maximum SO₂ concentrations were recorded as 5.8µg/m³ and 25.3µg/m³. The Minimum concentration was recorded at Mannapur Govt school and Ilkal Govt. 10th Boys school and the Maximum concentration was recorded at Project site 9-16 Acres.

The concentrations of PM₁₀, PM_{2.5}, SO₂ and NO₂ are observed to be well within the standards prescribed by Central Pollution Control Board (CPCB) for Industrial, Rural, Residential and Other area. Whereas, the concentration Free silica, Benzene, Benzopyrene, Hg, cd, Ni, and As was observed is below detection limits.

2.1.4 Land use

The proportional presence of different land uses and land cover in terms of statistical percentages was derived for the study area. Appropriate legends were used to represent the various categories of land use and land cover, and were then written on the prepared land use and land cover maps

2.1.5 Noise Quality

Day time Noise Levels

Noise levels during day time were found to be in range of 41.8 dB (A) to 73.6dB (A). The minimum noise level was observed at Hanumasagar Govt. Higher Primary School and Down stream_Project_Site 4-36 Acres

Night time Noise Levels

Noise levels during night time were found to be in range of 33.6 dB (A) to 68.4 dB (A). The minimum noise levels was observed Hosuru Government school and maximum conc. was observed at Project_site 9-16 Acres. Project site.

The ambient noise environment of the mining site is studied and reported. Since the mining operation engages only a low noise causing explosives such as detonators, the noise generated due to the explosion is below 60 dB(A) within 100 m. Hence the noise is not a major problem in the mining activity.

2.1.6 Soil Quality

For study soil quality of the region, Five sampling locations were selected to assess the existing soil conditions in and around the project area representing various land use conditions. The

samples were collected from different depths (30cm, 60cm and 100cm) are subjected to various physiochemical parameters.

2.1.7 Water Quality

The water quality of the area has been studied taking Six locations in the core and buffer zone.

Ground Water Quality

The ground water analysis results were compared with the standards for drinking water as per IS: 10500: 2012. The results indicate that the pH ranges 6.85 to 7.67 and TDS ranges from 480mg/l to 750 mg/l. The total hardness ranges from 180 mg/l to 560 mg/l.

Surface water Quality

The pH values for all the samples collected in the study area during study period were meeting the Class “C” norms as per IS: 2296-1992. The total dissolved solids is 89 to 99 mg/l. The chloride is 13.3 to 14.2 mg/l, meeting the Class “C” norms as per IS: 2296-1992.

2.1.8 Biological Environment

Though the concentrations of the emitted pollutants will be kept within permissible levels through the various engineering control, it is essential to have co-management in the likely impact zone for safeguard and enhanced of ecological environment of the project area. The green belt species are selected based on the following:

- Type of pollutant (mainly air and noise) likely to disperse from project activity.
- Plant species suitability / adaptability to the local environment as per CPCB guidelines

Biological–filter Efficiency: mainly Dust capturing and Noise control.

2.1.9 Social Profile

For assessing the prevailing socio-economic aspects of people in the study area around the proposed plant, the required data has been collected from various secondary sources and analyzed.

2.1.10 Location and silent features of Project

S.No.	Item	4-36 Acres (1.518 Ha)	9-16 Acres (3.805 Ha)
1	Name of the Applicant	Sri. Prakash.B.Bagewadi.	Sri. Prakash.B.Bagewadi.
2	Land Use	Patta land	Patta land
3	Land Ownership	Owner	Owner
4	Lease period	5 Years	5 Years
5	Nearest River	NIL (within 10 km radius)	NIL (within 10 km radius)
6	Name of protected areas, Wildlife Sanctuary, Eco sensitive area	No within 15.0 kms radius	No within 15.0 kms radius
7	Site Coordinates	N 15 ⁰ 54' 38.1'' to N 15 ⁰ 54' 41.6'' E 76 ⁰ 04' 20.9'' to E 76 ⁰ 04' 30.6''	N 15 ⁰ 54' 44.2'' to N 15 ⁰ 54' 50.6'' E 76 ⁰ 04' 17.4'' to E 76 ⁰ 04' 26.5''
8	Location	Balakundi Pink Granite Quarry	Balakundi Pink Granite Quarry
9	Topography	The applied area is a waste land and plain ground with gentle slope towards East.	The applied area is a waste land and plain ground with gentle slope towards East.
10	Minerals of mine	Pink Granite	Pink Granite
11	Proposed production of mine	5000 Cum/year (Maximum)	10,000 Cum/year (Maximum)
12	Method of mining	Open cast Other Than Fully Mechanized method	Open cast Other Than Fully Mechanized method
13	Drilling/Blasting	Drilling/Blasting	Drilling/Blasting
14	Estimated cost	25 lakhs	50 lakhs
15	Water demand	5.46 KLD	7.28 KLD
16	Sources of water	Supplied through Tankers	Supplied through Tankers
17	Ultimate depth of Mining	30m	30m
18	Man power	27 people	36 people
19	Nearest railway station	Bagalkot - 50 kms from the Applied area NW	Bagalkot - 50 kms from the Applied area NW
20	Nearest National highway	Sholapur-Bengaluru NH-13 is 6.72 East.	Sholapur-Bengaluru NH-13 is 6.72 East.
21	Nearest Airport	Hubli Airport 100 kms	Hubli Airport 100 kms
22	Nearest city	Ilkal 4.9 kms	Ilkal 4.9 kms

Table 3: Details of Total man power requirement

Sl.No.	Man power	4-6 Acres No's	9-16 Acres No's
1	Highly skilled	5	5
2	Skilled	2	4
3	Semi skilled	8	5
4	Unskilled	13	22
	Total	27	36

Source: Approved Mining Plan

Table 4 : Water requirement

Description	4-36 Acres	
	Consumption KLD/day	Discharge KLD /day
a) Domestic use	2.46	0.7(70%)
b) Afforestation.	1.00	NA
c) Dust Suppression	3.00	NA
Total	5.46	0.7

Table 5: Water requirement

Description	9-16 Acres	
	Consumption KLD/day	Discharge KLD /day
a) Domestic use	3.28	0.7(70%)
b) Gardening.	1.00	NA
c) Dust Suppression	3.00	NA
Total	7.28	0.7

Table 6: Five years production scheme of Pink Granite quarry (4-36 Acres)

Year	Granite Blocks 30% Recovery (Cum)	Intercalated Waste 70% recovery (Cum)	Top Soil (Cum)
1	5000	11667	5287
2	5000	11667	5474
3	5000	11667	5556
4	5000	11667	2133
5	5000	11667
TOTAL	25000	58335	18450

Table 7: Five years production scheme of Pink Granite quarry (9-16 Acres)

Year	Granite Blocks 30% Recovery (Cum)	Intercalated Waste 70% recovery (Cum)	Top Soil (Cum)
1	10000	23333	10652
2	10000	23333	10,876
3	10000	23333	10,937
4	10000	23333	6247
5	10000	23333
TOTAL	50000	116665	38712

3. Anticipated Environmental Impacts and Mitigation Measures

3.1 Anticipated environmental impacts and mitigation measures

3.1.1 Ambient Air

- Detailed average readings indicate at all air ambient station $P_{2.5}$, PM_{10} , SO_2 and NOX are within the prescribed limit of CPCB for respective categories.
- Low concentrations of SO_2 and NOX are observed at all the locations.
- In order to reduce the air pollution, it is proposed to develop greenbelt as suggested.

Following measures are made to measure towards control of Air pollution

- Regular spraying of water by water sprinkling system on haul roads and retaining wall within the premises.
- Timely maintenance of vehicles to minimize air pollution due to movement of vehicles.
- Dust masks for employees
- Covering the Pink Granite stone carrying vehicles with tarpaulin covers
- Plantation of trees along the roads and in the premises to reduce the impact of dust in the villagers, shrubs with small plantation will be taken up to arrest soil erosion to the surrounding area.

3.1.2 Land

The quarry is located in an area of 1.518 ha & 3.805 ha no forestland is involved. The quarry lease area is not a part of any type of forest. Quarry lease area is barren/ waste land, hence all the impact on land use is positive because of high Afforestation activities will be carried out by mine proponent. Due to opencast Other Than Fully Mechanized quarry activities, the landscape may not change. There may not be much effect on the aesthetic environment of the lease area due to mining. The aesthetic beauty can be maintained by proper reclamation programme. Since this is an opencast Other Than Fully Mechanized proposal the land use on surface will not affect in any way.

3.1.3 Noise

For site preparation, during construction phase operation of equipment like crane, dumper, roller, bulldozers etc. will be used. The equipment will be used during daytime and will emit noise within permissible limits. Thus, there will not be any adverse impact on nearby habitation due to proposed activity as the quarry lease connected with Sholapur-Bengaluru NH-13 from project site with a distance of 6.72 KM.

3.1.4 Soil

There is no adverse effect of mining on the soil quality. However, farmers need to be advised not to use saline water for irrigation purpose. Regular monitoring of naturally harvested water is required

3.1.5 Water

There is no perennial surface water course or surface water body within the leasehold area due to scanty and unpredictable rainfall. Further, at the time of quarrying, the quantity of waste water generated will be very less. The rainwater will accumulate in the mined out pits as well as in the pits created during lease period will be harvested which will be used for dust suppression.

3.1.6 Ecology and biodiversity

Proposed project activity is part of existing lease area which is reported with common floral and faunal species. Removal of these (flora) species will not have significant or permanent impact on the habitat structure of associated faunal diversity. Considering all ecological components, all impacts are expected "Less Severe". However, strict implementation of EMP / mitigation measures are required to ensure that the biodiversity of the study area should not be affected negatively.

4. Environmental Management Programme :

4.1 Environmental monitoring program

4.1.1 Monitoring Schedule for Environment Parameters

Sl. No	Particulars	Duration of Sampling	Important Monitoring Parameters
1	Air Pollution and Meteorology		
	A. Ambient Air Quality Monitoring		
	1) 9 locations	24 hours	PM ₁₀ , PM _{2.5} , SO ₂ , Nox
	B. Meteorology		
	1) Meteorological data	Continuous Monitoring	Wind speed, direction, temperature, relative humidity and rainfall
2	Water and Wastewater Quality		
	A. Ambient Air Quality Monitoring		
	1) Mine effluents (if any) during Monsoon	Once in a month 12 samples per year	As per EPA Rules, 1989.
	B. Water quality in the study area		
	1) Ground Water quality	Once in a year	As per the parameters specified under IS:10500
	2) Surface Water	Once in a year	As per the parameters specified under IS:10500 along with TSS, BOD & COD
	3) Water table in bore wells	Once in a year 1 samples per year	Water table and chemistry of water
3	Industrial Noise Levels		
1)	Major noise generating sources	24 hr	Noise level in dB(A)
2)	Project drilling site	Instantaneous	Noise level in dB(A)
Ambient Noise Levels			
	Nine Locations around mine lease area	Once in a year 1 samples per year	Noise levels in dB(A)

4	Soil Characteristics			
	1)	Five samples in nearby villages	One in a year on all reclaimed area	Colour, textural class, grain size, distribution, pH, Electrical Conductivity, Bulk Density, Porosity, Infiltration rate, Moisture retention capacity, Wilting Co-efficient, Organic matter Na, N, K, PO ₄ , SO ₄ , SAR, Base Exchange Capacity, Pb, Cu, Zn, Cd, Fe.

5. Additional Studies

5.1 Mine Closure Plan

During this next five years the quarry workings will occupy an area of 1.518Ha & 3.805Ha to a depth of 3 and 6 mts. In these five years there is no proposal for reclamation of the pit. The Pink Granite stone is also available huge depth of the same pit of this five years will be used for next five-year workings. After completion of the Granite stone, the pit will be proposed for reclamation at the end of the mine.

5.2 Public Consultation

The public hearing will be conducted by KSPCB as per the EIA Notification and the public hearing points raised and commitment of the project proponent will be incorporated in the Final EIA Report.

5.3 Risk Assessment and disaster management

The aim of risk assessment and disaster management is to identify potential dangers associated with the mining operation and delineation of corresponding prevention and control measures. The disaster management plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of the disaster management plan, it should be widely circulated and personnel training through rehearsals/drills. The objective of the disaster

management plan is to make use of the combined resources of the mining operation and the outside services to achieve the following:

- Effect the rescue and medical treatment of casualties
- Safeguard other people
- Minimize damage to property and the environment
- Initially contain and ultimately bring the incident under control
- Provide for the needs of relatives
- Provide authoritative information to the news media
- Secure the safe rehabilitation of affected area
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency
- In effect, it is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy.

6. Project Benefits

There are various attractive commercial and social reasons which are responsible for the development of Granite stone quarry.

- Quarrying activities in any area provide source of direct employment to the local inhabitants and helps in decreasing the migration of local people from their native places. In addition to this several avenues for indirect employment in region are generated namely transportation and such other ancillary activities connected with the mining activity.
- Apart from all these, significant revenue is provided by the mining company to the state and the central government in the form of royalty, district mineral fund, port charges, export duty, etc. The export carried out by the company also results into the generation of valuable foreign exchange earnings for the country.

Therefore, the quarrying will result into the production of useful Granite stone and will generate wealth for the country and at the same time provide employment opportunity to local people to help them in increasing their living standards.

Socio-economic environments

Infrastructural facilities and earning avenues will improve due to mining activities. General economic level within the buffer zone will improve, which in turn improves quality of life; level of education and training. Direct and indirect employment opportunities will go up.

7. Environmental Management Plan (EMP)

The environment management plan is prepared with a view to facilitate effective environmental management of the project, in general and implementation of the mitigation measures in particular. The EMP provides a delivery mechanism to address potential adverse impacts and to introduce standards of good practice to be adopted for all project works. For each stage of the programme, the EMP lists all the requirements to ensure effective mitigation of every potential biophysical and socioeconomic impact identified in the EIA.

Conclusion

The quarrying activities in proposed Granite stone quarry will lead to the sustainable development of the nearby areas. There will be development of road, educational, medical and infrastructural facilities in the area. The quarrying and allied activities will provide direct and secondary employment opportunities for local people. This will lead to the improvement of economic status of the nearby villages. The quarrying will also benefit the state Govt. by way of excise duty and revenue on mineral. During the active quarrying period, the pollution will be controlled within permissible limits by way of adopting various control and mitigation measures. In the post mining stage, the mine lease area will be developed into an afforested area and surface water bodies. This will improve the aesthetics of the area. Hence, it can be summarized that the development of the mine will have a positive impact on the socio-economic environment of the area and will lead to sustainable development of the region.