1. INTRODUCTION

M/s. Coastal Minerals is applying for environmental clearance for Quartzite mining activity over an extent 8.0 Hectares in Sy. No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram District, A.P. The project salient features are show in Table 1.1.

Table 1.1: The Salient Features of the Project

Project Name	M/s. Coastal Minerals, Quartzite Mine,8.0 Hectares
Mining Lease Area	8.0 Hectares
Location of Mine	Sy. No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram District, A.P
Toposheet number	65N/11
Proposed production of mine	Quartzite - 2,65,720 TPA
Project cost	Rs.40 Lakhs
Method of mining	Open cast Semi mechanized mining
Drilling/Blasting	Drilling and Controlled Blasting is proposed.
No. of working days	300 days
Water demand	8.0 KLD
Man power	13
Nearest Railway station	Chipurupalle RS -11.3, SSE Vizianagaram R.S – 35.4 km, SSE
Nearest Airport	Vishakhapatnam Airport – 81.9 km
Nearest Habitation	Bhimavaram Village – 1.3 km NNE Gatada Village – 1.6 km W Kondalaveru Village- 1.8 km SSW Merakamudidam – 5.4 km W
Nearest Road	SH 04 -Chikapalem- Parvathipuram Road 5.2 km ,N
Water bodies	Guramma Cheruvu -6.1 km N Pedda Gedda – 5.1 km SSW
Reserve Forest	Shikarjuganji RF – 8.2 km WNW

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

2.1 Identification of Project and Project Proponent

The mine lease area for Quartzite mining was granted to M/s. Coastal Minerals,8.0 Hectares at Sy. No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram District, A.P. Director of Mines and Geology, Ibrahimpatnam, Govt. A.P issued in principle grant order vide Notice No.11935/R1-2/2018, dated:07-02-2019. Sri M. Pradeep Varma is the Managing

Partner. Mining Plan was approved by Deputy Director of Mines and Geology, Visakhapatnam vide letter number 1452/MP- VZM/2019, dated 14.06.2019.

2.2 Brief Information about the Project

M/s Coastal Minerals Quartzite mine is fresh mine lease and applying for Terms of Reference towards environmental clearance. The mine lease area falls in the Survey of India topo sheet no. 65 N11 with the co-ordinates of Latitude 18°31'14.62 "N and Longitude 83°24'32.93"E. The mine lease area is covered with denudation hills. The subject area belongs to a part of the hilly area. It is elongated a NW-SE and steep sloping towards West, there is maximum relief of 110 mts, i.e. Natural Ground Level (NGL) considered RL 240 mts towards Western side and highest contour is 350 M towards North East side of the applied area.

Cluster Area: M/s Coastal Minerals, 8.0 Hectares Quartzite mine has surrounded with another 12 mines, which consists of 118.0 hectares total cluster area.

S.No.	Project Name	Mine Lease Area (Hectares)	Remarks
1	M/s Andhra Quartzite, Sy.No.71, Gatada Village, Merkammudidam Mandal, Vizianagaram,A.P	5.0	EC Obtained Lease Period :14.08.2020 to 13.08.2040
2	Sri. Rudraraju Vijaya Raju,Sy.No.71, Gatada Village,Merakamudidam Mandal, Vizianagaram, A.P.	8.0	New Mine LOI Issued
3	M/s Coastal Minerals ,Sy.No.71, Gatada Village, Merakamudidam Mandal, Vizianagaram, A.P.	5.0	EC Obtained Lease Period :14.08.2020 to 13.08.2040
4	Sri. Rudraraju Vijaya Raju,Sy.No.127, Bheemavaram Village, Merakamudidam Mandal, Vizianagaram, A.P.	8.0	New Mine LOI Issued
5	M/s Costal Minerlas, Sy.No.127, Bheemavaram Village, Merakamudhiam Mandal, Vizianagaram, A.P	10.0	New Mine LOI Issued
6	Sri. R. Satyanarayana Raju, Sy.No. 127,Bheemavaram Village, Merakamudidam Mandal, Vizianagaram, A.P	8.0	New Mine LOI Issued
7	Sri. Mudunuri Rama Raju, Sy.No.127, Bheemavaram Village, Merakamudhiam Mandal, Vizianagaram, A.P	15.0	New Mine LOI Issued

8	M/s Coastal Minerals ,Sy.No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram, A.P	8.0	New Mine LOI Issued
9	Sri.R. Satyanarayana Raju,Sy.No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram, A.P	7.0	New Mine LOI Issued
10	Sri. Mudunuri Rama Raju, Sy.No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram, A.P.	9.0	New Mine LOI Issued
11	Sri. M. Pradeep Varma,Sy.No.152, Satam Valasa Village, Merakamudidam Mandal, Vizianagaram, A.P	3.0	New Mine, LOI Issued Not applying for EC
12	Sri. M. Pradeep Varma,Sy.1P, Garugubulli Village, Merakamudidam Mandal, Vizianagaram, A.P	8.0	New Mine LOI Issued
13	M/s Andhra Quartzite, Sy.No.1P, Garugubilli Village, Merkammudidam Mandal, Vizianagaram,A.P	24.0	New Mine LOI Issued
Total Mine leases Cluster Area		118.0	

2.3 Need for the Project and Its Importance to the Country or Region

Quartzite's strength and toughness lends itself to many uses. Crushed quartzite is used in road construction and for railway ballast. It is used to make roofing tiles, stairs, and flooring. When cut and polished, the rock is quite beautiful, as well as durable. It is used to make kitchen countertops and decorative walls. High-purity quartzite is used to make silica sand, ferrosilicon, silicon carbide, and silicon. Paleolithic humans sometimes made stone tools out of quartzite, although it was harder to work than flint or obsidian.

As per EIA notification 2006 and its amendments, project proponent is submitting the proposal to get Terms of Reference towards Environmental clearance for production capacity, 2,65,720 TPA of Quartzite from EAC, MoEF&CC, Government of India, New Delhi . The mine lease area has total cluster area of 118.0 hectares. Hence, Cluster area EIA and EMP with single public hearing is proposed.

2.4 Demands-Supply Gap

Due to ban on illegal mining and with increasing growth of infrastructure, industries and various development activities the demand of raw material has increased. India is one of the fastest

growing economies of the world, and its focus since last few years has been on infrastructure development.

2.5 Domestic/ Export Markets

The material is used in the domestic market for Construction and Laying Roads only.

2.6 Employment Generation

Proposed mining is open cast, semi mechanized method and this project operation will provide livelihood to the 13 workers. It will provide employment to the people residing in vicinity.

3. PROJECT DESCRIPTION

3.1 Type of Project Including Interlinked and Interdependent Projects, If Any.

The proposed mine area is of 8.0 hectares. No interlinked projects are associated with this project.

3.2 Location of the project

The mining lease area is located at Sy. No.1P, Kondalaveru Village, Merakamudidam Mandal, Vizianagaram District , A.P. The mine lease area falls in the Survey of India topo sheet no. 65 N11 with the co-ordinates of Latitude 18°31'14.62 "N and Longitude 83°24'32.93"E. Google map is given in Figure1.0. Location of the mining lease in Vizianagaram District is shown in Figure 2.0 and Topomap showing 10 Km Radius from project site in Figure 3.0.

Figure 1.0: Google Map of the Study Area

Figure 2.0: Location Map

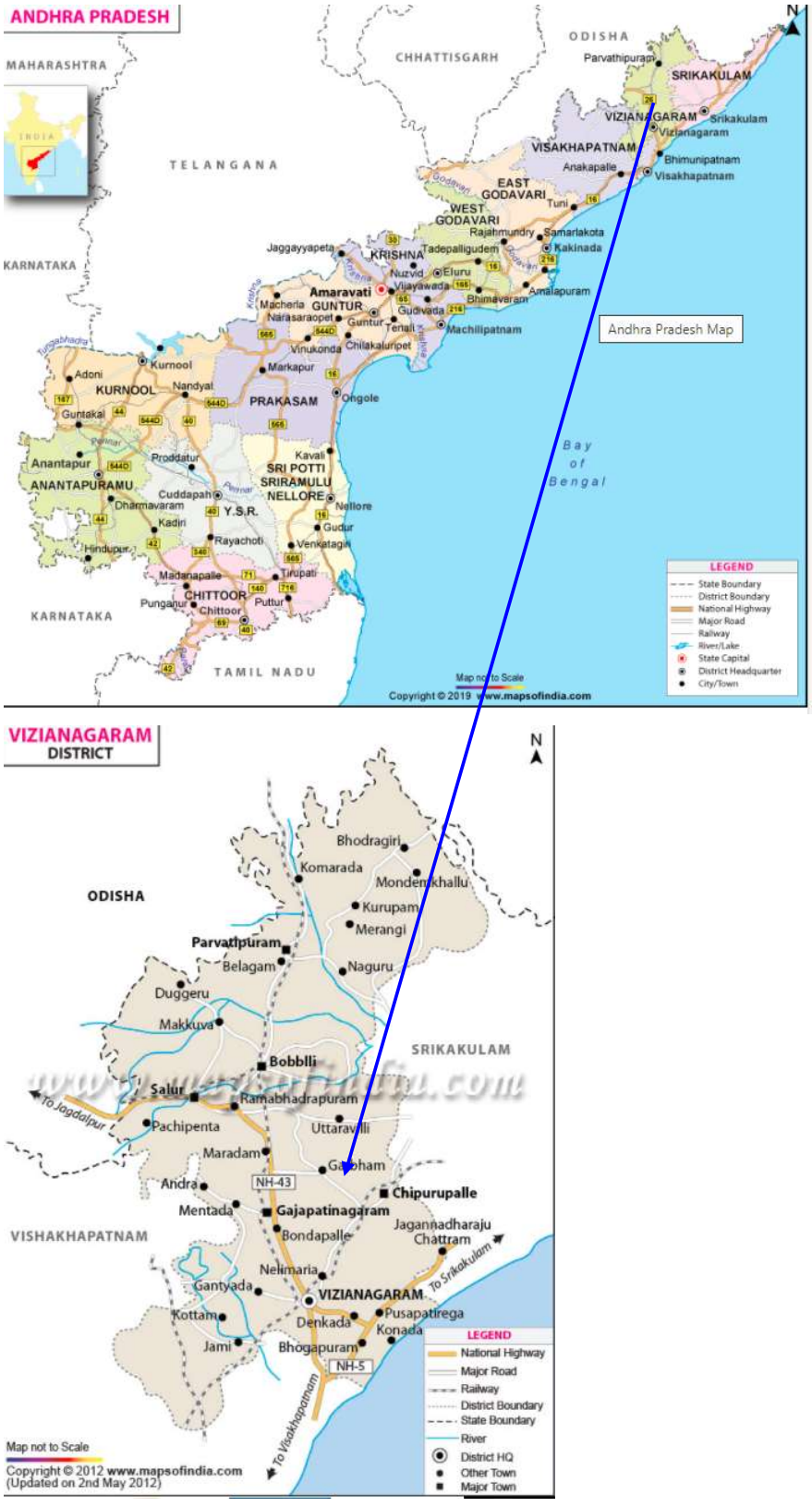
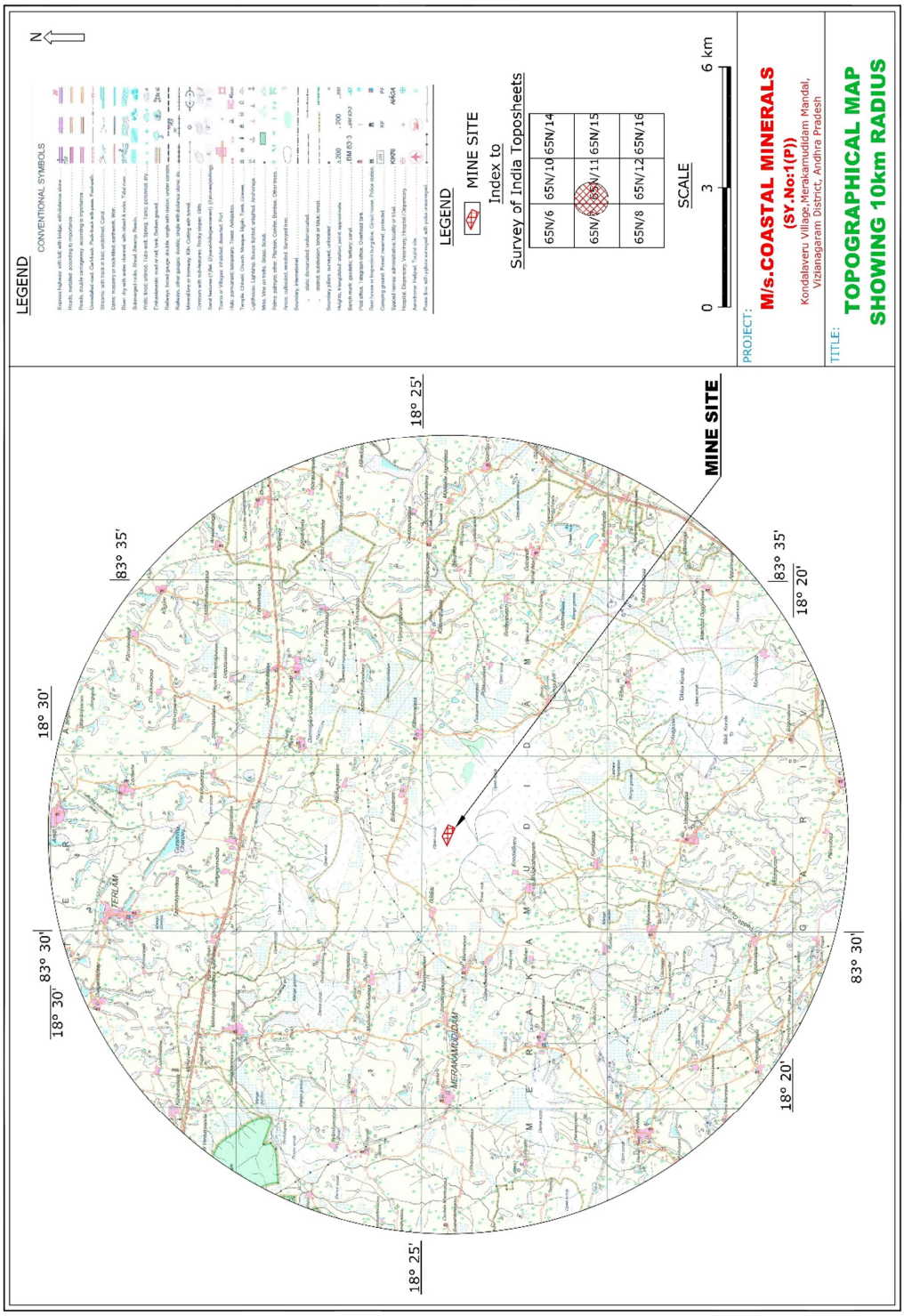


Figure 3.0: Topomap Showing 10 Km Radius from Project Site



3.3 Details of Alternate Sites

No alternate site was considered as the project is mineral specific and site specific.

3.3.1 Size or magnitude of operation 2,65,720 TPA of Quartzite by open cast semi mechanized mining.

3.3.2 Geology and Reserves

Topography

The mine lease area is covered with denudation hills. The subject area belongs to a part of the hilly area. It is elongated a NW-SE and sloping towards West. There is maximum relief of 110 mts, i.e. Natural Ground Level (NGL) considered RL 240 mts towards Western side and highest contour is 350 M towards North East side of the applied area

Quartzite and Khondalites are the main litho units exposed in and around the applied area. The local stratigraphy of the applied mining lease area are quartzite cum Khondalites . Khondalite is the dominant rock type of the applied area. It metapelitic argillaceous rock with Garnet,Sillimanite Graphite,K.Feldspar ,Quartz and Biotite. The Quartzite is formed on top of the hill along the fissure joints of the country rock, i.e, Khondalite . Khondalite is exposed on either sides of the Quartzite at lower level in the strike direction of NW-SE and East – West with steep dip.

Local Geology:

In the present mining lease applied area, Khondalite and Quartzite are identified, where Quartzite is in vein form within Khondalite. Quartzite is translucent milky white in colour hard, massive and found throughout the length of the mining lease applied area in bands. Generally, the Quartzite is occurring as a vein formation along the foliation /fissure zones of Khondalite. It is light brown in colour. It has two sets of joints along and across the strike direction. Iron encrustations are common along the joint plains of the Quartzite. Soil and float materials at Quartzite and Khondalite is covering the slopes of the area to a thickness of more than 2 mts.

Details of Mining Carried Out

It is a fresh mine lease. No exploration is carried out in the quarry lease applied area. The Quartzite is well exposed above surface in this area.

Reserves:

Based on the available exposed deposit in the applied quarry lease area and parameters considered to assess reserves, it has been attempted to allocate the granite reserves under UNFC code.

PROVED GEOLOGICAL RESERVES

Sections	Category & UNFC Code	Sectional Area (M^2)	Sectional Influence (M)	T.F	Recovery@ 70% (T)	Waste @ 30% (T)
A-A'	G1 Proved (111)	7641	84	2.60	1168156.08	500638.32
B-B'		13488	100	2.60	2454816	1052064
C-C'		13,461	100	2.60	2449902	1049958
D-D'		13,063	114	2.60	2710311.24	1161561.96
					8783185.32	**3764222.28**

Probable Geological Reserves

Sections	Category & UNFC Code	Sectional Area (M^2)	Sectional Influence (M)	T.F	Recovery@ 70% (T)	Waste @ 30% (T)
A-A'	G2 Probable (121)	4645	84	2.60	710127.6	304340.4
B-B'		6063	100	2.60	1103466	472914
C-C'		5,890	100	2.60	1071980	459420
D-D'		5,695	114	2.60	1181598.6	506399.4
					4067172.2	**1743073.8**

RESERVES IN UNFC CODE

S. No.	Category of Reserves	UNFC Code	Reserves in Tons
1	Proved	111	8783185.32
2	Probable	121 &122	4067172.02
3	Possible	333	Nil

RESERVES BLOCKED UNDER BUFFER ZONE

Sections	Sectional Area (M^2)	Sectional Influence (M)	TF	Recovery @ 70% in T	Waste @ 30% in T
A-A’	1219	84	2.60	186360.72	79868.88
B-B'	1335	100	2.60	242970	104130
C-C'	1,323	100	2.60	240786	103194
D-D'	1,320	114	2.60	273873.6	117374.4
				943990.32	**404567.28**

RESERVES BLOCKED UNDER SAFETY SLOPES

Sections	Sectional Area (M^2)	Sectional Influence (M)	TF	Recovery @ 70% in T	Waste @ 30% in T
A-A’	7728	84	2.60	1181456.64	506338.56
B-B'	9702	100	2.60	1765764	756756
C-C'	9799	100	2.60	1783418	764322
D-D'	9338	114	2.60	1937448.24	830334.96
				6668086.88	**2857751.52**

OVER BURDEN

Sections	Sectional Area	Sectional Influence	M3
	(M^2)	(M)	
A-A'	32	84	2688.00
B-B'	53	100	5300.00
C-C'	107	100	10700.00
D-D'	115	114	13110.00
TOTAL OB			**37,798**

Total Mineable Reserves

Considering the recovery of the Quartzite is 70% and 30% waste is anticipated.

Extraction of Market Grade Reserves

Total Geological Reserves = 12850357.52 T

Reserves Blocked under 7.5 Buffer zone = 943990.32 T

Reserves Blocked under Safety Slopes = 6668086.88 T

Total Reserves Blocked = 7612077.20T

Reserves available for Market Grade = 5238280.32T

Recovery (Proved)

Proved Geological reserves = 8783185.32 T

Recovery (Probable)

Probable Geological Reserves = 4067172.20T

Life of Mine

The detailed geological survey & study in the applied area has indicated recoverable /salable Quartzite reserves of 5238280.32 T can be economically extracted. During current plan period it is proposed to produce 1153406.80 T of Quartzite during next five years plan period with maximum annual production of 265720.00T. The tentative anticipated life of the applied quarry shall be 19.71 years or say 20 years.

Life of the Mine **=** 5238280.32T **/** 265720.00T

=19.71 YEARS OR 20 YEARS

3.4 PROJECT DESCRIPTION WITH PROCESS DETAILS

3.4.1 Method of Mining

The proposed quarry lease area opencast semi-mechanized method is adopted for quarrying and simultaneously developing benches of 6 M height with 6 M bench width with drilling and blasting. The Quartzite in the quarry lease area is exposed on the surface. The development of benches in the sheet rock will be maintained @ 60° safety slopes.

Year wise Production Details:

Year	RL's	Section Area (M2)	Sectional Influence (M)	TF	Recovery Production @ 70% (T)	Waste 30% (M^3)
1	300-250	950.00	84.00	2.60	1,45,236.00	23940
2	340-250	1,410.00	84.00	2.60	2,15,560.80	35532
3	310-280	1,445.00	100.00	2.60	2,62,990.00	43350
4	340-280	1,450.00	100.00	2.60	2,63,900.00	43500
5	350-280	1,460.00	100.00	2.60	2,65,720.00	43800
TOTAL					**11,53,406.80**	**190122.00**

Drilling

Drilling will be drilled in staggered pattern at 5 m interval with drilling holes of 3.0 -5.0 m depth. Drill hole diameter 100 mm up to 5.5 M long.

Blasting:

Scientific and Eco-friendly blasting is proposed using slurry for achieving higher production. Non-electrical delay Detonators will be used as to have negligible impact on the nearby dwellings. The machinery used to carry out the mining operations is given **Table 3.1.**

Table 3.1 Mining Machinery

S.No	Description	Quantity (in Nos.)
1	Compressor 185 cfm	1
2	Excavators PC 300	1
3	Jack Hammers,3000BPM	2
4	Tipper,	3
5	Water Tanker	1
6	Drill Machine	1

3.5 Raw Material Required Along With Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product

No raw material will be required in the proposed project. The operation involves the extraction of material and dumping in stock yard. Loading of the Quartzite material will be done mechanically by tippers of 17-20 Tons capacity and transported from the quarry to the required site.

3.5.1 Use of Mineral

Quartzite's strength and toughness lends itself to many uses. Crushed quartzite is used in road construction and for railway ballast. It is used to make roofing tiles, stairs, and flooring. When cut and polished, the rock is quite beautiful, as well as durable. It is used to make kitchen countertops and decorative walls. High-purity quartzite is used to make silica sand, ferrosilicon, silicon carbide, and silicon. Paleolithic humans sometimes made stone tools out of quartzite, although it was harder to work than flint or obsidian

3.5.2 Processing

No mineral processing proposed

3.6 Resource Optimization/ Recycling and Reuse

Not envisaged.

3.7 Availability of Water Its Source, Energy/ Power Requirement and Source

3.7.1 Water Requirement

Water requirement is mainly for drinking purpose, domestic Use, green belt development and for sprinkling on Mine haulage roads. The water shall be drawn from nearby village through water tankers. The domestic waste water shall be sent to septic tank followed by soak pit. Water require for the mine is 8.0 KLD. For wet drilling & Water sprinkling 5.0 KLD, domestic 1.0 KLD and green belt purpose is 2.0 KLD.

3.8 Quantity of Wastes to be Generated (Liquid and Solid) And Scheme for their Management/ Disposal

3.8.1Solid Waste Generation& its Disposal

It is estimated that in the next five years a total of 190122 m^3 of waste is expected to be generated with maximum of 43800 m^3per annum. The year wise waste generation in next 5 years is as follows:

Year	Waste Generation
	Rock Waste @ 30% (M^3)
1st	23940
2nd	35532
3rd	43350
4th	43500
5th	43800
TOTAL	**190122**

A garland drain will be constructed around the dump for preventing the slanting of boulders. The protective measures and precautions to be taken under the waste dump management shall be as follows:

- The ultimate dump slope will be maintained at 45º.
- The individual terrace heights will be maintained at 3m.
- Each terrace will have inward slope with catch drains at the inward side of the terrace.
- The catch drains of the individual terrace will be connected to the garland drain outside the periphery of the dump.

3.8.2 Liquid Effluent

No liquid effluent will be generated at the mine site. The domestic wastewater generated will be sent to septic tanks followed by soak pits.

4.0 SITE ANALYSIS

4.1 Connectivity

The quarry lease area is connected 35 km from Vizianagaram District headquarters through Cheepurupalli- Rajam Road by taking west diversion at Bondapalle cross. Bhimavaram Village is the nearest habitation at a distance of 1.3 km, NNE from mine lease area.

4.1.1 Nearest Railway Station

Vizianagaram Railway Station is at 35.4 km SSE from the quarry lease area.

4.1.2 Nearest Airport

Rajiv Gandhi International Airport is 81.9 km from lease area.

4.2 Landform, Land use And Land Ownership

The subject area comes under Government Land. There is no forest land in the lease area. The entire drainage system of the region is controlled by the seasonal nalas. The land use is mainly agriculture land apart from waste land with hilly terrain.

4.4 Climatic data from secondary sources

The climate of the area is tropical. The area experiences extreme climate conditions with during summer and mild winter seasons. The area enjoys warm climate from middle of February and gradually temperatures rises rapidly till May, the hottest month with maximum temperature rising up to 45^{o}C during the time. The coldest month is December. The onset of south west monsoon is in the month of June which continues up to September with annual rainfall of 1000 mm. Tropical climate of the region is manifested in hot humid summer moderately good monsoon and the area falls in moderate rainfall as per records. The average annual rainfall in the area is 1000 mm and majority of the rainfall occur during the months of June to September through south west monsoon.

5.0 PLANNING BRIEF

5.1 Planning Concept

The production of Quartzite is continuous throughout year except during monsoon (i.e 10 working months, 300 working days per year considered). There is no forest land either in the core zone or in the buffer zone. The entire drainage system of the region is controlled by the seasonal nalas.

5.2 Population projection

The project will employ mostly workers from nearby villages. There will not be any increase in population due to the project.

5.3 Land use planning

During the next 5 years 32500 M^2 of the quarry lease applied area will be reduced by up to RL 250 from the actual ground level. The quarrying will alter the shape of the present hill slope with a small pit.

5.4 Assessment of Infrastructure Demand (Physical & Social)

On the basis of the preliminary site visit, the infrastructure demand in the villages was assessed on the basis of need and priority. The existing infrastructure is satisfactory but the approach road has to be maintained regularly.

5.5 Amenities/Facilities

Site Services like Work shed, First Aid, drinking water as required will be provided within the leased area.

6.0 PROPOSED INFRASTRUCTURE

6.1 Industrial Area (Processing Area)

No infrastructure is proposed.

6.2 Residential Area (Non-Processing Area)

As the local persons will be given employment, no residential area/ housing is proposed within the mining lease area.

6.3 Green Belt

Green belt will be developed along Buffer boundary of 0.19 hectares mine lease area. 1000 plants are proposed for greenbelt purpose.

6.4 Water Management

Water requirement is mainly for drinking purpose, domestic usage, green belt and for sprinkling on Mine haulage roads, dump yard. The water shall be drawn from nearby village. The domestic waste water shall be sent to septic tank followed by soak pit. Water require for the mine is 8.0 KLD. For Wet drilling -Water sprinkling 5.0 KLD, domestic 1.0 KLD and green belt purpose is 2.0 KLD.

6.5 Sewerage System

The domestic wastewater generated will be sent to septic tanks followed by soak pits.

6.6 Industrial Waste Management

Not applicable.

6.7 Solid Waste management

It is estimated that in the next five years a total of 1,90,122.0 m^3 of waste is expected to be generated with an average of 43,800 m^3 per annum. The mine waste will be dump at dump yard.

7.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

Not Applicable.

8.0 PROJECT SCHEDULE & COST ESTIMATES

The total cost of project would be around Rs.40 lakhs.

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1 Financial and Social Benefits with Special Emphasis on the Benefit to the Local People Including Tribal Population, If Any, In the Area.

The extraction of the material will be done in semi mechanized manner so local labour will be used. Supporting ancillary facilities will help the local people once the project commences.