EXECUTIVE SUMMARY

CHENDARAPALLI GREY GRANITE CLUSTER QUARRIES

At

Chendarapalli Village, Bargur Taluk, Krishnagiri District,
Tamil Nadu State

***TOTAL CLUSTER EXTENT =30.28.8 Ha**

PROJECT PROPONENT

S.Nos.	Proponent Name	S.F.no	Extent (Ha)
1	Thiru. Mir Tahar Ali,	380/1(P)	2.48.0
2	M/s. Zak Exports	380/1 (P)	3.50.0

"B1" CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND-PATTA LAND

Complied as per ToR Obtained vide

1. **Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021- Thiru. Mir Tahar Ali,**
2. **Lr.No. SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023- M/s. Zak Exports**

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS

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ENVIRONMENTAL LAB

ENVIRONMENTAL LAB

KGS ENVIRO LABORATORY PRIVATE LIMITED

(NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)
Cholambedu Main Road, Thirumullaivoyal, Chennai -600 062.

Baseline Monitoring Period - March 2022-May 2022

JULY 2023

* Calculated as per MoEF & CC Notification – S.O. 2269(E) Dated: 01.07.2016

1. INTRODUCTION

Granite is the major requirements for construction and ornamental stone industries. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries around Chendarapalli Grey Granite Quarries cluster quarry (extent of 30.28.8ha) in Chendarapalli Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State, consisting of 6 (Six) Proposed quarries and 10 (ten) Existing Quarries and 3 (three) abandoned quarries with total extent of Cluster of. 30.28.8 ha. Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

Environmental Impact Assessment (EIA) study is a process, used to identify the Environmental, Social and Economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing. This EIA Report is prepared in compliance with ToR obtained vide letter No. This EIA Report is prepared in compliance with ToR obtained

TABLE 1.1: TOR OBTAINED PROJECTS

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	**Thiru. Mir Tahar Ali,**	2.48.0	Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021-
P2	**M/s. Zak Exports**	3.50.0	Lr.No. SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023

Source: ToR Letter's of the respective Proposal project proponents

The Baseline Monitoring study has been carried out during summer season March 2022 to May 2022 considering the provisions of MoEF & CC Office Memorandum Dated: 29.08.2017 and MoEF & CC Notification S.O. 996 (E) Dated: 10.04.2015.

"Draft EIA report prepared on the basis of ToR Issued for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu"

1.1 DETAILS OF PROJECT PROPONENT

PROPOSAL – P1	
Name of the Company	**Thiru. Mir Tahar Ali,**
Address	No.18/16, 3rd cross, Co-operative colony, Krishnagiri - 635 203.
Mobile	+91 8489547086
Status	Proprietor
PROPOSAL – P2	
Name of the Company	**M/s. Zak Exports**
Address	No.35/13, 2nd Cross cooperative colony, Krishnagiri - 635 001
Mobile	+91 93442 23717
Status	Company

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

PROPOSED QUARRIES				
CODE	**Name of the Owner**	**S.F. Nos**	**Extent**	**Status**
P1	**Thiru. MIR TAHAR ALI,** No.18/16, 3rd cross, Co-operative colony Krishnagiri - 635 203**.**	380/1(P)	2.48.0	Obtained ToR vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021

P2	**M/s. Zak Exports** No.35/13, 2nd Cross cooperative colony,	380/1(P)	3.50.0	Obtained ToR vide Lr.No. SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023
P3	Thiru. Syed Nazar Babulal	373/1A, 373/1B (P)	1.10.0	-
P-4	Thiru.Salman Sathar*	341/1(P)	1.36.8 ha	Applied area and under process
P-5	M/s. Bismilah Exports*	339/1(P)	1.02.0 ha	Applied area and under process
P-6	M/s. Tamil Nadu Minerals Ltd*	383/1	6.94.5 ha	Applied area and under process
		Total	**16.41.3**	
EXISTING QUARRIES				
E-1	**Thiru. B.K.Murali,** S/o.C.Krishnan, No..70/53, Kara kuppam Road, Bargur, Krishnagiri	382/5A, 5B,6A, 6B etc	**2.78.5**	28.02.2011 to 27.02.2031
E-2	**Thiru.B.S.Ravi**	369/2	**2.46.5**	10.11.2003 to 09.11.2023
E-3	**Thiru.B.S.Ravi**	339/2	**1.19.0**	27.03.2006 to 26.03.2026
E-4	**Thiru.A.Sathar***	375/2D etc	**1.78.0**	01.09.2016 to 31.08.2036
E-5	**Thiru.A.Sathar***	375/2A etc	**1.03.5**	07.10.2013 to 06.10.2033
E-6	**Tmt.Rukkammal, W/o** Duraisamy Naidu, Chendarapalli Village, Anchoor (PO) Krishnagiri	335/4A1	**1.20.0**	14.12.2009 to 13.12.2029
E-7	**Thiru. A.Ameed,*** S/o. Abdul Gaffar, 151/3, Jagadevipalaym, Krishnagiri	377/1B, etc.,	**2.85.5**	03.03.2016 to 02.03.2036
E-8	**Tmt. Mariam Banu*, W/o.** Mir Zasim Al, No 1/192, Muslim Masuthi st, Jagadevipalayam, Krishnagiri.	378/3 etc.,	**3.90.0**	01.03.2016 to 29.02.2036
E-9	**Tmt.M.Varalakshmi *** W/o. Munirathinam, Chendarapalli, Anchoor (Po), Krishnagiri	335/4B, 341/4	**1.08.5**	14.06.2018 to 13.06.2036
E-10	**Thiru.Venkatesan***	9	**3.22.0**	
		Total	**21.51.5**	
Expired/Abandoned Quarries				

A-1	**M/s.TAMIN, Chennai**	361 & 368	5.86.5	26.06.1999 to 20.06.2019
A-2	**Thiru.P.K.Selvaraj**	383/4 & 384/2	0.64.5	04.04.1994 to 03.04.2004
A-3	**Tvl. Enterprising Enterprises**	401 (P)	4.05.0	26.01.1996 - 25.01.2016
		Total	**10.56.0**	
TOTAL CLUSTER EXTENT			**30.28.8 Ha * Cluster Quarry**	

TABLE 1.3 SALIENT FEATURES OF THE PROPOSED PROJECTS -P1

Name of the Quarry		**Thiru. Mir Tahar Ali** – Grey Granite quarry
Lease period		20 years
Mining Plan Period		5 Years
Life of the Mine		20 years
Existing Depth		NIL
Previous lease particulars		It is a Patta land, registered name Thiru. Mir Mazahar Ali and Thiru.Mohammed Fareed Ali vide patta no. 2338. The lessee has obtained consent from the pattadars for the period of 25 years.
Proposed Depth for five years plan period		33m
Ultimate Depth		215m(L) x 142m (W) x 33m (D)
Toposheet No		57 L/07
Latitude between		$12^0$29’15.49” N to $12^0$29’23.98” N
Longitude between		$78^0$18’17.37” E to $78^0$18’24.15” E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 486m AMSL
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	1
	Tipper	1
	Diesel Generator	1
	Diamond wire saw	1
	Water pump	-
	Water tanker	-
Proposed manpower deployment		32
Project cost		Rs.1,22,89,000/-
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-

TABLE 1.4 SALIENT FEATURES OF THE PROPOSED PROJECTS -P1

Name of the Quarry	**M/s. Zak Exports** – Grey Granite quarry
Lease period	20 years
Mining Plan Period	5 Years
Life of the Mine	20 years
Existing Depth (Previous)	112m(L) x 115m (W) x 9m (D)
Previous lease particulars	It is a Patta land, M/s. Zak Exports is a partnership firm executed on 14.10.2015 and the partnership deed reconstituted on 25.05.2016 with three partners. Thiru. Mir Mazahar ali is an authorized person for signing all the documents on behalf of this firm. Patta no 2338, the company has obtained consent from the pattadars for the period of 25 years from the data of 15.06.2016 to 14.06.2041.
Proposed Depth for five years plan period	44m
Ultimate Pit dimesions (Maximum)	185m(L) x 189m (W) x 44m (D)
Toposheet No	57 L/07
Latitude between	$12^0$29’21.3975” N to $12^0$29’29.4083” N

Longitude between		$78^0$18'18.3081" E to $78^0$18'26.5027" E
Topography		Elevated terrain with gradient towards Northwest side. The highest elevation is 482.5 to 484.5m AMSL
Machinery proposed	Jackhammer	5
	Compressor	2
	Hydraulic drilling machine	-
	Hydraulic/Crawler crane	1
	Mobile crane	-
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
	Double disc blade cutting	2
	Water tanker	-
Proposed manpower deployment		35
Project cost		Rs.2,12,24,000/-
EMP Cost		Rs. 3,80,800/-
CER cost		Rs. 5,00,000/-

Source: Approved First Scheme of mining plan.

1.3 STATUTORY DETAILS -P1

The proponent applied for grey granite Quarry Dated: 24.1.2007

- Precise Area Communication Letter was issued by Additional chief Secretary to Government, Industries (MME.2) Department, Secretariat, Chennai vide G.O.No.(3D) No.79, Industries (MME.2) dated: 25.10.2007 for a period of 20 years from 10.12.2007 to 09.12.2027.
- 3rd Scheme of Mining plan got approved from the Director of Geology and Mining Industrial Estate Guindy, Chennai Vide Rc. No. 1193/MM4/2023, dated: 14.03.2023
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/23403/2018 Dated: 06.04.2018.
- The proposal was placed in 107h SEAC meeting held on 14.04.2018 and the committee recommended for issue of ToR.
- The proposal was considered in 335th SEIAA meeting held on 31.12.2018 and issued ToR vide Lr.No. SEIAA-TN/F.No.4902/1 (a) /TOR-966/2021 Dated: 08.05.2021

1.4 STATUTORY DETAILS -P2

- The proponent applied for grey granite Quarry Dated: 20.6.2016
- Precise Area Communication Letter was issued by Additional chief Secretary to Government, Industries (MME.2) Department, Secretariat, Chennai vide G.O.No.(3D) No.25, Industries (MME.2) dated: 21.11.2017 for a period of 20 years (from 06.12.2017 to 05.12.2037).
- First Scheme of Mining plan got approved from the Director of Geology and Mining Industrial Estate Guindy, Chennai Vide Rc. No. 4969/MM4/2022, dated: 21.09.2022.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/430120/2023 Dated: 21.05.2023.
- The proposal was placed in 394th SEAC meeting held on 21.07.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 644th SEIAA meeting held on 07.08.2023 and issued ToR vide Lr.No.SEIAA-TN/F.No.10152/ToR-1530/2023 Dated:07.08.2023

2. PROJECT DESCRIPTION

Proposed and Existing Quarry in Chendarapalli Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State falls under Cluster Situation as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 17.73.5 ha consisting of three quarries. As the extent of

cluster is more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No,186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

For the project P1-P2

- The area is fresh land, no mining activities carried out before, Topography of the area is elevated and slightly undulated terrain with gentle gradient towards North side. No major vegetation or trees within the project area, the project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarry.
- Grey Granite quarry operation will be carried out by opencast mechanized method involving Eco-friendly Diamond Wire Saw Cutting, Heavy earth moving machineries like Excavators Trucks for Granite exploitation. Shot hole drilling with controlled blasting using slurry explosives for removal of overburden and Weathered portions during initial stage of quarry operation.

2.1 SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	AH-45-Krishnagiri to Bargur-5km-N NH-77-Krishnagiri to Uthangarai -340m-S Chinna Orappam to Chendarapalli Village Road 430m-W
Nearest Village	Chendarapalli Village – 750m- South
Nearest Town	Krishnagiri– 10 km - NW
Nearest Railway Station & Railway Line	Tiruppathur – 28 km - E
Nearest Airport	Bangalore Airport –86 km – North West
Seaport	Chennai 226 km North East

2.2 LAND USE PATTERN OF THE PROPOSED PROJECTS-P1

Description	Present area in Ha	Area to be required during this present scheme period (Ha)	Area at the end of life of quarry (Ha)
Area under quarry	1.83.0	Nil	2.25.4
Waste dump	0.63.0	Nil	Backfilled #
Infrastructure	Nil	Nil@	Nil@
Roads	0.02.0	Nil	Nil
Green Belt	Nil (0.03.0)	Nil * (0.15.5)	Nil * (0.18.5)
Stocking blocks	NIL	Nil	0.22.6
Total	**2.48.0**	**Nil**	**2.48.0**

2.3 LAND USE PATTERN OF THE PROPOSED PROJECTS-P2

Description	Present area in Ha	Area to be required during this present scheme period (Ha)	Area at the end of life of quarry (Ha)
Area under quarry	1.72.19	Nil	2.59.0
Waste dump	1.45.70	Nil	Backfilled #
Infrastructure	0.03.00	Nil@	0.03.00
Roads	0.01.00	0.01.00	0.02.00
Green Belt	Nil	Nil * (0.47.28)	0.81.10
Stocking blocks	0.28.11	0.27.11	0.04.90
Total	**3.50.0**	**0.28.11**	**3.50.0**

2.4 OPERATIONAL DETAILS OF LEASE APPLIED AREA-P1

Description	Details
Geological Resources ROM	7,22,025
Granite Recovery (20 % in m^3)	1.44,405
Granite Waste (80 % in m^3)	5,77,620
Weathered rock(m^3)	-
Side Burden(m^3)	-
Top Soil in m^3	14,611.6
Mineable Reserves ROM	2,91,611
Granite Recovery (20 % in m^3)	58,323
Granite Waste (80 % in m^3)	2,33,288
Weathered rock (m^3)	-
Side Burden (m^3)	-
Top Soil in m^3	5,065
Proposed Production for five years plan period ROM	73,710
Granite Recovery (20% in m^3)	14,742
Granite Waste (80 % in m^3)	58,968
Weathered rock(m^3)	-
Top Soil in m^3	680
Number of Working Days	300
Production of ROM per day in five-year plan period	49
Production of Granite per day	10
Total Waste per day (Granite was)	39
No of Lorry Loads per day for Transportation to Granite cutting units	1
No of Lorry loads for dump	1

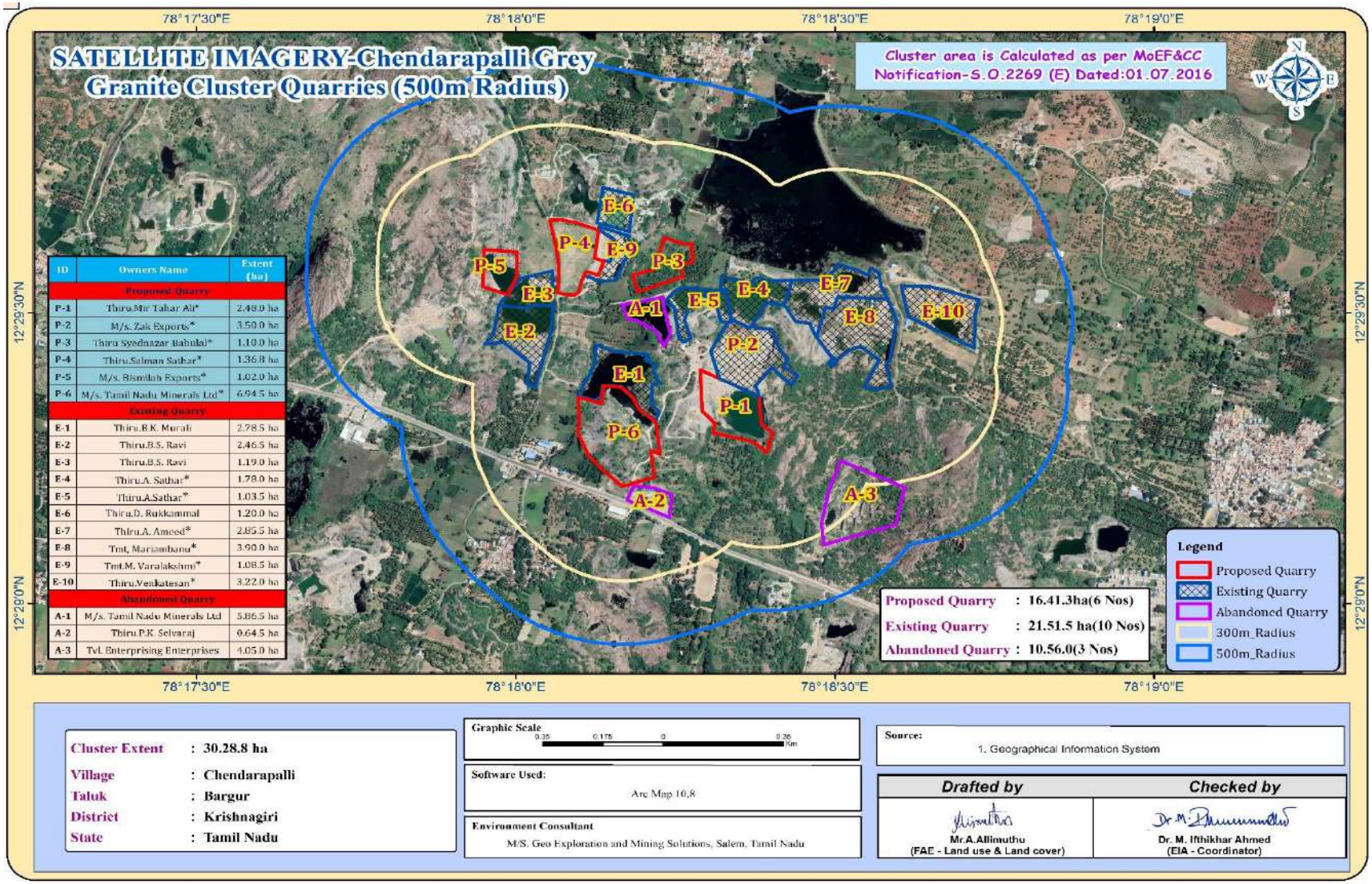
2.5 OPERATIONAL DETAILS OF LEASE APPLIED AREA-P2

Description	Details
Geological Resources ROM	14,01,309
Granite Recovery (35% in m^3)	4,90,460
Granite Waste (65 % in m^3)	9,10,849
Weathered rock(m^3)	-
Side Burden(m^3)	-
Top Soil in m^3	72,714
Mineable Reserves ROM	4,79,579
Granite Recovery (35 % in m^3)	1,67,853
Granite Waste (65 % in m^3)	3,11,726
Weathered rock (m^3)	-
Side Burden (m^3)	-
Top Soil in m^3	33,544
Proposed Production for five years plan period ROM	54,539
Granite Recovery (35% in m^3)	19,089
Granite Waste (65 % in m^3)	35,450
Weathered rock(m^3)	-
Top Soil in m^3	-
Number of Working Days	300
Production of ROM per day in five-year plan period	36
Production of Granite per day	13
Total Waste per day (Granite was)	24
No of Lorry Loads per day for Transportation to Granite cutting units	2
No of Lorry loads for dump	1

FIGURE – 1: GOOGLE IMAGE SHOWING PROJECT AREA -P1

FIGURE –2: GOOGLE IMAGE SHOWING PROJECT AREA -P2

FIGURE – 3: GOOGLE IMAGE SHOWING CLUSTER (500m QUARRIES)



ID	Owners Name	Extent (ha)
Proposed Quarry		
P-1	Thiru.Mir Tahar Ali*	2.48.0 ha
P-2	M/s. Zak Exports*	3.50.0 ha
P-3	Thiru Syednazar Babulal*	1.10.0 ha
P-4	Thiru.Salman Sathar*	1.36.8 ha
P-5	M/s. Bismilah Exports*	1.02.0 ha
P-6	M/s. Tamil Nadu Minerals Ltd*	6.94.5 ha
Existing Quarry		
E-1	Thiru.B.K. Murali	2.78.5 ha
E-2	Thiru.B.S. Ravi	2.46.5 ha
E-3	Thiru.B.S. Ravi	1.19.0 ha
E-4	Thiru.A. Sathar*	1.78.0 ha
E-5	Thiru.A.Sathar*	1.03.5 ha
E-6	Thiru.D. Rukkammal	1.20.0 ha
E-7	Thiru.A. Ameed*	2.85.5 ha
E-8	Tmt. Mariambanu*	3.90.0 ha
E-9	Tmt.M. Varalakshmi*	1.08.5 ha
E-10	Thiru.Venkatesan*	3.22.0 ha
Abandoned Quarry		
A-1	M/s. Tamil Nadu Minerals Ltd	5.86.5 ha
A-2	Thiru.P.K. Selvaraj	0.64.5 ha
A-3	Tvl. Enterprising Enterprises	4.05.0 ha

FIGURE – 4: TOPOSHEET MAP COVERING 10 KM RADIUS

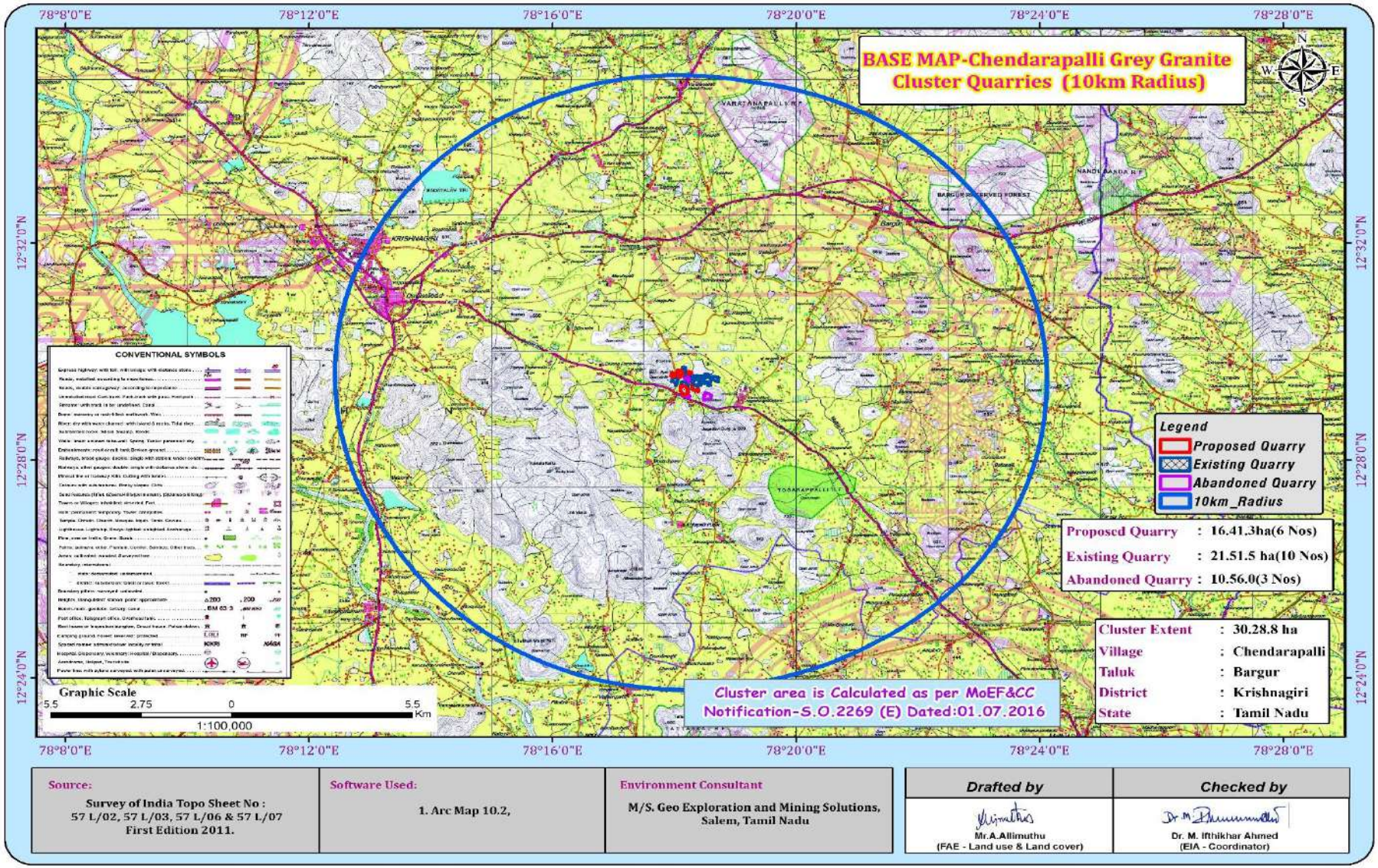


FIGURE – 5: QUARRY LEASE PLAN & SURFACE PLAN FOR P-1

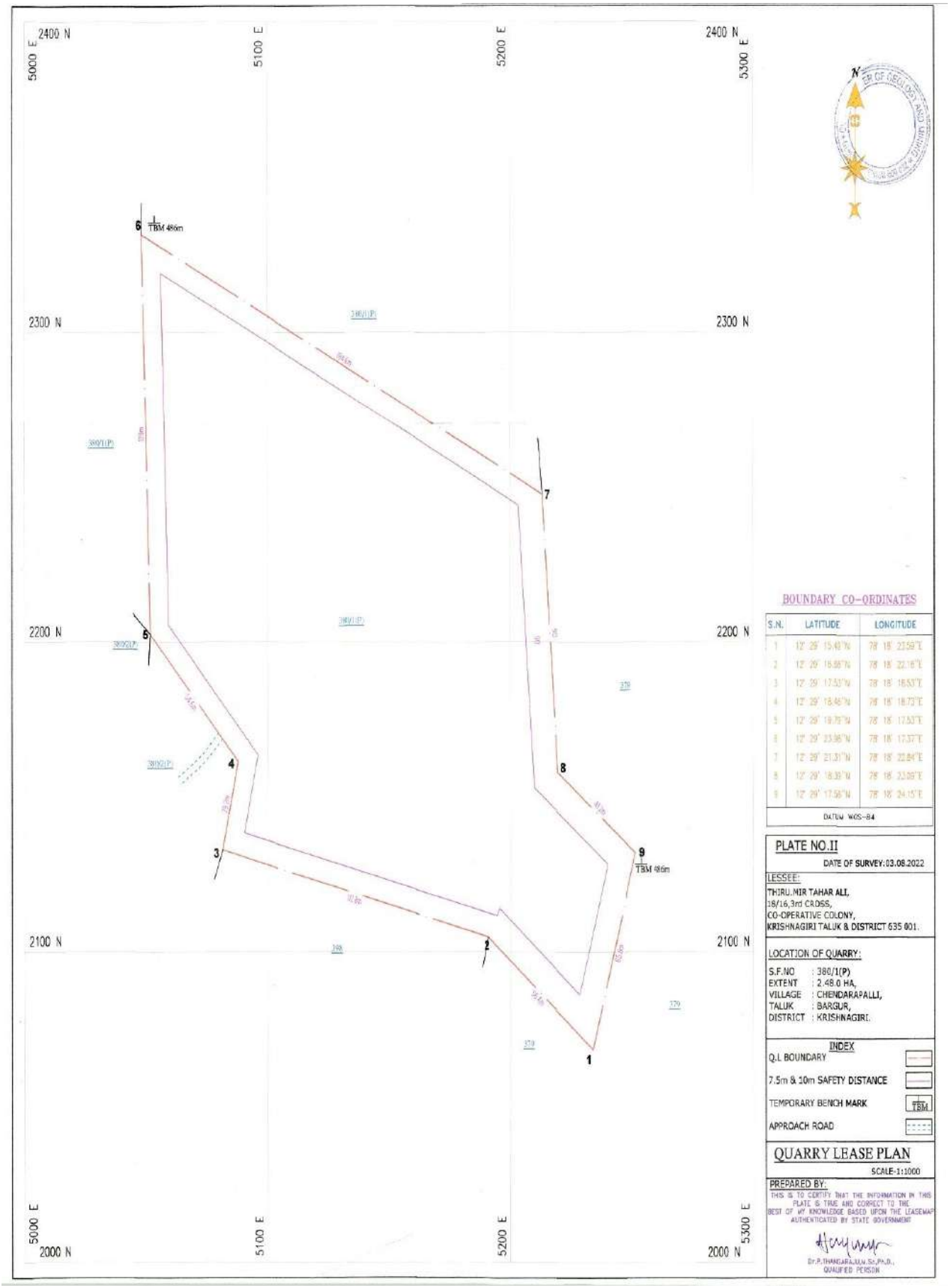


FIGURE – 6: PHOTOGRAPHS OF THE PROJECT AREA -P1

FIGURE – 7: PHOTOGRAPHS OF THE PROJECT AREA -P2

2.4 METHOD OF MINING

The method of mining is Opencast mechanized method

- Eco-friendly dimensional wire saw cutting for liberation and splitting up of blocks from parent sheet rocks
- Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of "Diamond wire cutting" along the horizontal as well as two vertical sides on the front face of the formation
- Jackhammer drilling with 32mm dia, this huge portion is further split into several blocks of required dimensions, only slurry explosives are used for secondary fragmentation and handling of waste.
- Hydraulic Excavator coupled with tippers is deployed for the formation of benches and loading
- There is no mineral processing or ore beneficiation proposed
- Proposed bench height is 5m and 5m width with 90^0slope
- The waste material generated during quarrying activity includes rock fragments of different sizes, and waste chips during dressing of the blocks. The waste materials are taken in tippers and proposed to be dumped in the respective approved places ear-marked for the purpose and the same will be utilized for backfilling in the northern side of the lease area during conceptual stage.

2.5 PROPOSED MACHINERY DEPLOYMENT-P1

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	140cfm/400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	20m³/day	optima	Diesel Generator
Diesel Generator	1	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	1	300	Tata Hitachi	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	1	20 tonnes	Tata	Diesel Drive	

2.6 PROPOSED MACHINERY DEPLOYMENT-P2

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	5	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	140cfm/400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	20m³/day	optima	Diesel Generator
Double disc blade cutting	2	-	20m³/day	Shunian	Electricity
Diesel Generator	1	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	2	300	Tata Hitachi	Diesel Drive	

Haulage within the Mine & Transport Equipment				
Type	No of Unit	Capacity	Make	Motive Power
Tipper	2	20 tonnes	Tata	Diesel Drive

2.7 CONCEPTUAL MINING PLAN/ FINAL MINE CLOSURE PLAN

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principle closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

2.8 ULTIMATE PIT DIMENSION -P1

Length in m	Width in m	Depth in m
215	142	33

2.9 ULTIMATE PIT DIMENSION -P2

Length In m	Width in m	Depth in m
185	189	44

3.0 DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out covering March 2022 & May 2022 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed mine by KGS ENVIRO LABORATORY PRIVATE LIMITED – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory.

3.1 ENVIRONMENT MONITORING ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM10, PM 2.5, SO2, NO2	Continuous 24-hourly samples twice a week for three months at 8 locations (2Core & 6 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was

5	Noise levels	Noise levels in dB(A)	8 locations (2Core & 6 Buffer) – data monitored once for 24 hours during EIA study.
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations (2 Core & 4 Buffer) during study period.
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

3.2 LAND ENVIRONMENT

Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover. The main objective of this section is to provide a baseline status of the study area covering 10 km radius around the mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

Table 3.1: Land Use / Land Cover Table 10 Km Radius

S.No	CLASSIFICATION	AREA_HA	AREA_%
	BUILTUP		
1	URBAN	385.93	1.14
2	RURAL	472.63	1.39
3	MINING	274.29	0.81
	AGRICULTURAL LAND		
4	CROP LAND	19531.86	57.48
5	PLANTATION	1303.13	3.84
6	FALLOW LAND	3865.64	11.38
	FOREST		
7	FOREST	2840.67	8.36
	BARREN/WASTE LANDS		
8	SCRUB LAND	3840.04	11.30
9	BARREN ROCKY	647.88	1.91
	WETLANDS/ WATER BODIES		
10	WATER BODIES/LAKE	817.74	2.41
TOTAL		33979.81	100.00

- The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 57.48% & 3.84% of the total study area. The study area also consists of fallow land of 11.38%.
- Water Bodies such as ponds/ lakes comprises of 2.41% of the core and buffer area. such as Odai, Kulam comprises at 200m and 190m in E direction, Tank 300m- NE and Tank at 1km in SW direction of the total study area.
- The Scrub land accounts of 11.30%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- 0.81% of the total study area is occupied by the mine area. The area occupied by Mainly grey granite of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and marble and small Brick kiln industries also located in the study area.

- 2.53% of the area is covered under the human Settlement. The nearest village within the 3 km radius from the project site boundary is observed to be villages like Lanchur, Chendarapalli, Jagadevi and Orappam etc.

3.3 SOIL ENVIRONMENT

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 0.94– 1.16 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e., ranging from 42.7 – 46.5 %. and 40.9 - 45.6%

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.78 to 8.16
- The available Nitrogen content range between 297 to 396 kg/ha
- The available Phosphorus content range between 1.16 to 2.64 kg/ha
- The available Potassium range between 21.5 to 38.5 mg/kg
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 1.08 to 2.19 mg/kg; 2.19 to 2.97 mg/kg.

3.4 WATER ENVIRONMENT

The study area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

Surface Water

Ph:

The pH varied from 7.32 to 7.97 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 604 to 666mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride varied between 132.5 mg/l and 143.9 mg/l. Nitrates varied from 12.4 to 12.7 mg/l, while sulphates varied from 58.7 to 63.2 mg/l.

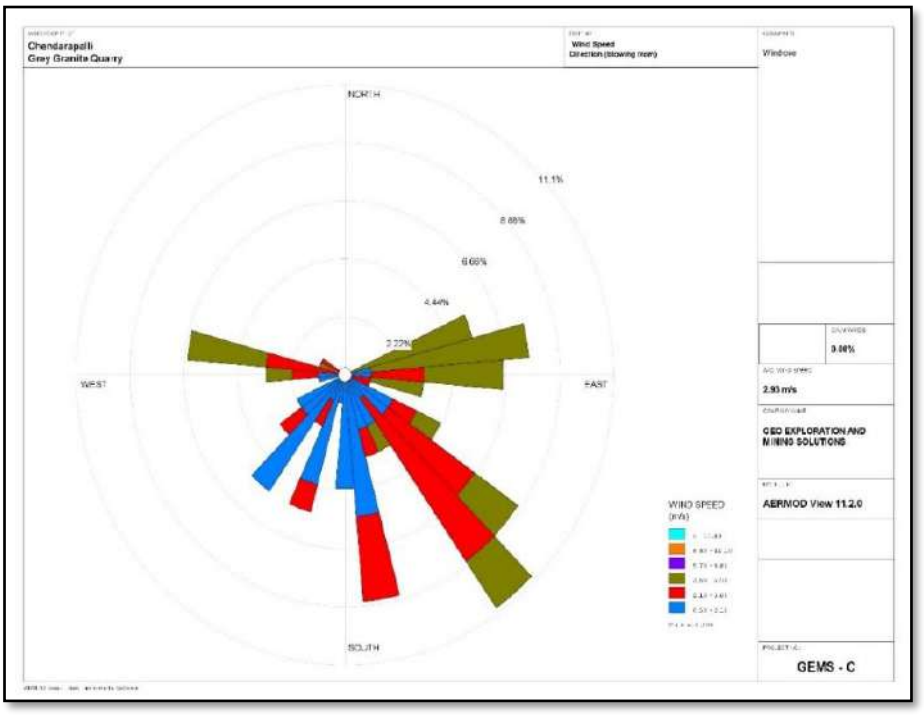
Ground Water

The pH of the water samples collected ranged from 7.21 to 7.73 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 465-576 mg/l in all samples. Total hardness varied between 201.8–218.3 mg/l. On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.5 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the proposed quarry forms the baseline information.

FIGURE – 10: WIND ROSE DIAGRAM



3.6 SUMMARY OF AMBIENT AIR QUALITY

The results of ambient air quality monitoring for the period (March -May 2022) are presented in the report. Data has been complied for three months.

From the above data, the concentration of main criteria pollutants has been observed that maximum concentration of PM10 is 49.5 µg/m3 recorded at Near Project area and minimum is 41.1 µg/m3 recorded at Nakkalpatti Village. The concentration of PM2.5 varies from 20.1 – 25.5µg/m3 Minimum concentration was recorded at Near Project area and Maximum concentration of PM2.5 recorded at Bagimanoor Village. SO2 concentration level ranged from 5.0 – 8.4 µg/m3 and NO2 concentration ranged from 21.0– 25.8 µg/m3 in the study area. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.7 NOISE ENVIRONMENT

Ambient noise levels were measured at 8 (Eight) locations around the proposed and existing project area. Noise levels recorded in core zone during day time were from 41.8 – 42 dB (A) Leq and during night time were from 33.1 – 35.1 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 36.2– 40.7 dB (A) Leq and during night time were from 34.0 – 36.2 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 46.9 dB(A) Leq in core zone and 36.4 dB(A) Leq in minimum core zone area and 30.2 dB(A) in Near quarry area & 39.2 dB(A) in Achamangalam Village at Maximum night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.8 ECOLOGICAL ENVIRONMENT

There is no forest land, National Parks, Eco sensitive areas, wild life sanctuaries within the radius of 10 km. An ecological survey of the study area was conducted particularly with reference to

the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area.

There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.9 SOCIO ECONOMIC ENVIRONMENT

It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

The socio economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis.

The proposed project will aim to provide preferential 67 persons to the local people there by improving the indirect employment opportunity in the area were around 100 persons in turn the social standards will improve.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

4.1 LAND ENVIRONMENT:

ANTICIPATED IMPACT

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern. the total extent of the cluster is 17.73.5 Ha (Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016) including existing and proposed quarries. The proposed project area is proponent own patta land, no forest land involved in this lease applied area. The ultimate depth of the proposed project is quarrying is varying from 33-44m below the ground level and will not intersect the ground water table. The project is site specific.

MITIGATION MEASURES

Due to the quarrying activities in the project the land use pattern will be altered. In order to minimize the adverse effects, the following control measures will be implemented:

- In the Granite quarrying operation the degradation of land is insignificant, after completion of the quarrying operation the land will be allowed to collect rain water which will act as temporary reservoir, this Granite does not produce any toxic effluents in the form of solid, liquid or gas.
- The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands.
- Construction of garland drains all around the quarry pit and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.

Barbed wire fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 Soil Environment

Impact on Soil Environment

There is generation of topsoil is about 5,065m^3 for the entire period and 680m^3 during this five-year mining plan period. The top soil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. The total waste to be produced during this Scheme of Mining plan period is around 58,968 m^3 (Granite waste 80%) the same will be temporarily dump on the southwestern side with Dimensions of 215m(L) x 142m (W) x 33m (D). As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

Mitigation measures for Soil Conservation

- The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved top soil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench
- Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches

4.3 WATER ENVIRONMENT

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. For the quarrying activity water will be utilized for wire saw cutting (which will be recycled), water sprinkling on haul roads and greenbelt development. The quarrying activity will not intersect ground water table as ultimate depth of the quarry is 33m and water table is found at a depth of 62m summer and 57m rainy season BGL.

MITIGATION MEASURES

The following mitigation measures are suggested for water management

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Tank, Canal, Odai etc.,) in the proposed and Existing project areas. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project areas. With respect to Turbidity, Total Iron and Silica, Pre-treatment methods like settling or filtration, Water Softening (Ion Exchange) shall be adopted to make it fit for drinking purposes. But it can be used for other domestic purposes

- Rainwater will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting.
- Construction of garland drains to divert surface run-off into the quarrying area.
- Retaining walls with weep hole will be constructed around the dump to arrest silt wash off
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.

- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes
- De-silting will be carried out before and immediately after the monsoon season
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water.

4.3 AIR ENVIRONMENT

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Granite.

ANTICIPATED IMPACT

The air borne particulate matter generated by quarrying operation, and transportation. The emissions of Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Granite and overburden, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM_{10}) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration proposed production of cluster mines on air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using AERMOD Software.

MITIGATION MEASURES

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling: -

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting

- Blasting will be carried out only to remove the overburden and weathered portion
- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e., at the time lunch hours, controlled charge per hole as well as charge per round of hole

Haul Road & Transportation

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation

- Transportation of material will be carried out during day time and material will be covered with taurpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed.

4.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;

- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.

4.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

- None of the plants will be cut during operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.

Wild life is not commonly found in the cluster area and its immediate environs because of lack of vegetal cover and surface water. Except few domestic animals, reptiles, hares and some common birds are observed in the study area.

MITIGATION MEASURES

The project site has a land to develop greenbelt within the lease area, along roads and other vacant areas. The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of Green Belt is an important aspect for any plant because:
- It helps in noise abatement for the surrounding area.
- It maintains the ecological balance.
- It increases the aesthetic value of site.

GREENBELT DEVELOPMENT PLAN-P1

Year	*No.of trees proposed to be planted*	*Survival %*	*Name of the species*	*No. of trees expected to be grown*
I	1240	80%	Neem, Pungam etc.,	990

GREENBELT DEVELOPMENT PLAN-P2

Year	*No.of trees proposed to be planted*	*Survival %*	*Name of the species*	*No. of trees expected to be grown*
I	1750	80%	Neem, Mango,Manjanathi, Pungam etc.,	1400

4.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 300 m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine.

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines
- Air pollution control measure will be taken to minimize the environmental impact within the core zone
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly
- From above details, the quarry operations will have highly beneficial positive impact in the area

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

The quarrying operation like drilling, blasting, excavation, loading & transportation are being carried out. The site has been selected based on geological investigation and exploration as below:

- Transportation facility for materials & manpower
- Overall impact on environment and mitigation feasibility
- Socio – economic background.

Enough infrastructures exists and lesser resources are required to be deployed. Since, any further construction for infrastructure is not required and hence does not affect the environment considerably. The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

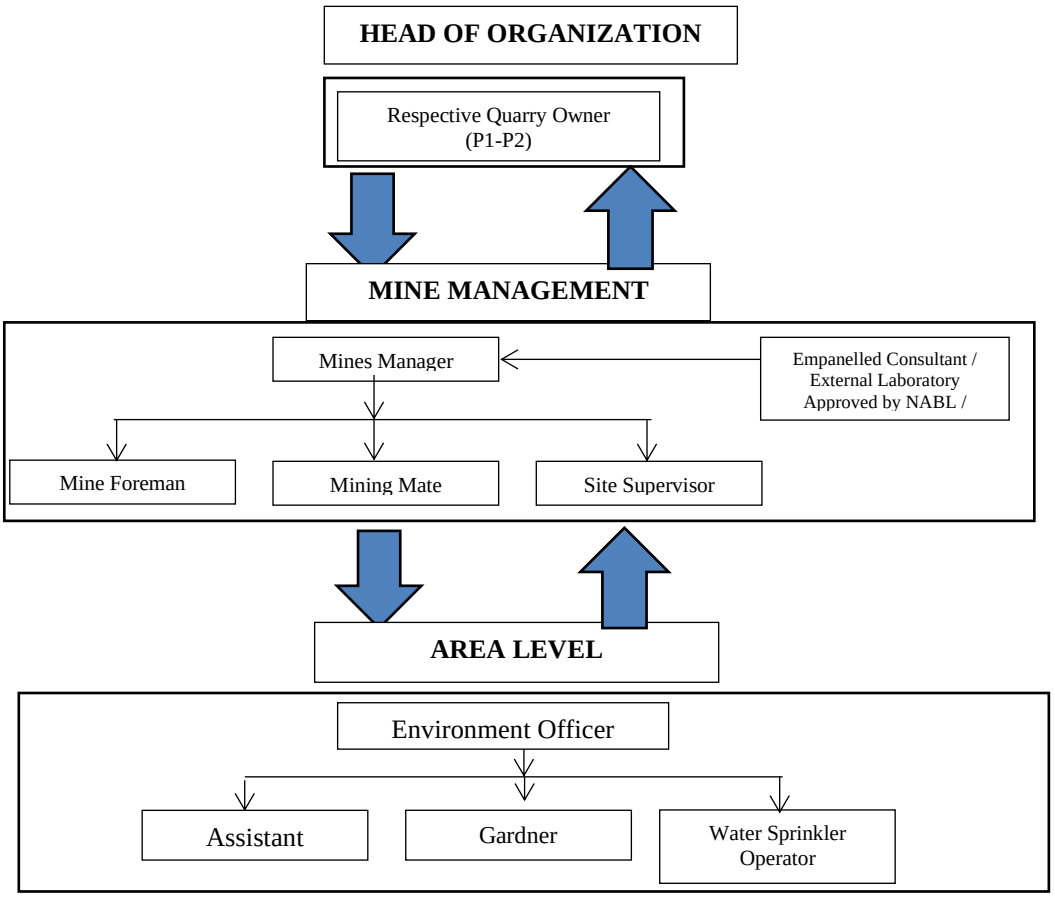
6. ENVIRONMENT MONITORING PROGRAM

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment.

The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies

6.1 ENVIRONMENTAL MONITORING CELL



6.2 POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics

8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

7. ADDITIONAL STUDIES

7.1 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS),Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

7.2 DISASTER MANAGEMENT PLAN

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- 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;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

7.3 CUMULATIVE IMPACT STUDY

CUMULATIVE PRODUCTION LOAD OF GRANITE

Quarry	Mineable Reserves ROM In m^3	Mineable Reserves of Granite	Proposed production ROM for five-year period	Production of ROM Per Day	Proposed production Granite for five-year period	Production of Granite Per day in m^3	Weathered rock in Production m^3	Weathered rock per day in m^3	Topsoil in Production m^3	Topsoil per day in m^3	Number of Lorry loads per day (ROM)
P1	2,91,611	58,323	73,710	49	14,742	10	-	-	680	2	8
P2	4,79,579	1,67,853	54,539	36	19,089	13	-	-		-	6
P3	20,570	21,200	21,428	14	7,500	5	-	-	4,736	5	2
P4	1.12,305	39,307	34,180	23	11,963	8	7,072	6	3,905	3	4
P5	39,420	13,797	25,840	17	9.044	6	6,308	7	3,526	4	3
P6	-	-	-	-	-	-	-	-	-	-	-
Total	**9,43,665**	**3,00,480**	**2,09,697**	**139**	**62,338**	**42**	**13,380**	**13**	**12,847**	**14**	**23**
E1*	48,150	24,075	19,130	13	9,565	6	-	-	-	-	2
E2*	-	-	-	-	-	--	-	-	-	-	-
E3*	57,200	14,300	19,150	13	4,787	3	684	2	483	2	2
E4*	5,13,390	1,28,348	48,365	32	12,091	8	-	-	-	-	5
E5*	55,640	11,128	12,510	8	2,502	2	4998	6	2,600	3	1
E6*	-	-	-	-	9130	6	-	-	-	6484	1
Total	**6,74,890**	**1,77,851**	**99,155**	**66**	**38,075**	**25**	**5682**	**8**	**3083**	**5**	**11**
Grand Total	**16,18,555**	**4,78,331**	**3,08,852**	**205**	**91,283**	**67**	**19,062**	**21**	**15,930**	**19**	**34**

Source: Scheme of Mining Plan, PFR form1

PREDICTED NOISE INCREMENTAL VALUES

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	46.9	44.5	48.9	55
Habitation Near P2	43.7	43.6	46.6	
Habitation Near P3	43.2	47.6	49.0	
Habitation Near P4	43.5	44.0	46.8	
Habitation Near P5	44.2	43.4	46.9	
Habitation Near P6	-	-	-	
Habitation Near E1	43.8	44.0	46.9	
Habitation Near E2	43.6	44.5	47.1	
Habitation Near E3	42.6	40.5	44.7	
Habitation Near E4	42.5	41.0	44.8	
Habitation Near E5	42.1	44.5	46.5	
Habitation Near E6	42.3	44.2	46.2	

SOCIO ECONOMIC BENEFITS FROM CLUSTER QUARRIES

Location code	Employment	Project Cost	CER
P1	32	Rs.1,22,89,000/-	5,00,000
P2	35	Rs.2,12,24,000/-	5,00,000
P3	34	Rs.2,12,04,000/-	5,00,000
P4	33	Rs. 2,29,27,000/-	5,00,000
P5	30	Rs.4,96,24,000/-	5,00,000
P6	-	-	-
E1	30	Rs.1,86,06,000/-	5,00,000
E2	30	Rs.2,56,32,000/-	5,00,000
E3	42	Rs. 2,04,88,000/-	5,00,000
E4	43	Rs. 2,85,31,000/-	5,00,000
E5	35	Rs. 52,00,000/-	5,00,000
E6	15	Rs.22,50,000/-	5,00,000
Total	**359**	**Rs. 22,79,75,000/-**	**55,00,000/-**

8. PROJECT BENEFITS

There are six proposed projects for Chendarapalli Grey Granite cluster quarries village aims to Proposed production cumulatively 2,09,697 (ROM for five-year period) for Life of Mine of 20 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure
- To meet out the demand supply gap of Granite and enhance the foreign exports

9. ENVIRONMENT MANAGEMENT PLAN

The Environment Monitoring Cell discussed formed by the mine management will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages

- Green belt development.
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10. CONCLUSION

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment. To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.