DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR CLUSTER OF TWO QUARRIES UNDER VIOLATION

MINOR MINERAL – GREY GRANITE

(As per MoEF&CC Notification S.O 804 (E), dated 14.03.2017 and S.O.1030 (E), dated 08.03.2018)

Category: B1 (Cluster)

PROJECT PROPONENT

Name	Extent of Mining Lease Area
M/S. KARUNAI GRANITES PRIVATE LIMITED Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.	3.15.5 Ha & 11.59.0 Ha

AREA DETAILS

JAGADEVIPALAYAM GREY GRANITE QUARRY

Cluster Area : 14.745 Ha (Two Quarries)

Village : Jagadevipalayam

Taluk : Bargur

District : Krishnagiri

TERMS OF REFERENCE ISSUED BY SEAC/SEIAA

1. Lr.No.SEIAA-TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 for the lease area 3.15.5 Ha.
2. Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for the lease area 11.59.0 Ha.

EIA CONSULTANT

AADHI BOOMI MINING & ENVIRO TECH (P) LTD
(QCI/NABET Accredited EIA Organization)
3/216, K.S.V.Nagar, Narasothipatti, Alagapuram (PO),
Salem – 636004.
Website: www.abmenvirotec.com
Email: abmenvirotech@gmail.com suriyakumarsemban@gmail.com
Mob: 98427 29655.

From **Date:**

M/S. KARUNAI GRANITES PRIVATE LIMITED
Jagadevipalayam Village & Post,
Bargur Taluk (Formerly Krishnagiri),
Krishnagiri District,
Tamil Nadu.

To

The District Environmental Engineer,
Tamil Nadu Pollution Control Board,
Plot No 140 A,
SIPCOT Industrial Complex,
Hosur - 635126,
Krishnagiri.

Sub: Submission of **Draft Environmental Impact Assessment (EIA) Report** as per EIA Notification, 2006 dated 14.09.2006 and its amendments for our two existing Grey Granite Quarries under violation located within cluster area over an extent of 14.745 Hectares in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District –reg.

Ref:

1. MoEF&CC Notification No.S.O.804 (E), dated 14.03.2017
2. MoEF&CC Notification No.S.O.1030 (E), dated 08.03.2018
3. G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 for the lease area 3.15.5 Ha
4. G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 for the lease area 11.59.0 Ha
5. Lr.No.SEIAA-TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 for the lease area 3.15.5 Ha.
6. Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for the lease area 11.59.0 Ha.
7. MOEF&CC SO 141 (E) dated 15.01.2016-Appendix XI

Dear Sir,

With reference to the above mentioned subject, we herewith submit the hard copy of **Draft Environmental Impact Assessment Report** as per the Terms of Reference mentioned in Ref No 5-6 for your kind perusal. The site details of our two existing granite quarries are given below.

1. M/s. KARUNAI GRANITES PRIVATE LIMITED

3.15.5 Hectares (Patta Land),
S.F.No: 299/2 (P) & 301/1 (P), Jagadevipalayam Village,
Bargur Taluk, Krishnagiri District and Tamil Nadu.

2. M/s. KARUNAI GRANITES PRIVATE LIMITED

11.59.0 Hectares (Patta Land),
S.F.No: 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A,
Jagadevipalayam Village,
Bargur Taluk , Krishnagiri District and Tamil Nadu.

As our two lease areas come within the cluster area of 14.745 Ha, we request you to conduct one Public consultation for our two existing grey granite quarries as per MOEF&CC SO 141 (E) dated 15.01.2016-Appendix XI.

Thanking You

Yours faithfully

M/s. KARUNAI GRANITES PRIVATE LIMITED
Project Proponent

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Undertaking by Project Proponent

We, **M/S. KARUNAI GRANITES PRIVATE LIMITED,** having registered office at Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, hereby give this undertaking to the effect that the conditions laid down in Terms of Reference vide Lr.No.SEIAA TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 for our existing Grey Granite quarry under violation over an extent of 3.15.5 Ha located in SF. No. 299/2 (P) & 301/1 (P) Jagadevipalayam Village, Bargur Taluk and Krishnagiri District, Tamil Nadu, have been compiled with, and the data submitted and the information presented in this report are true to the best of my knowledge.

Signature and seal of the Project Proponent

Place : Salem
Date :

We, **M/S. KARUNAI GRANITES PRIVATE LIMITED,** having registered office at Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, hereby give this undertaking to the effect that the conditions laid down in Terms of Reference vide Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for our existing Grey Granite quarry under violation over an extent of 11.59.0 Ha located in SF. No. 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A Jagadevipalayam Village, Bargur Taluk and Krishnagiri District, Tamil Nadu, have been compiled with, and the data submitted and the information presented in this report are true to the best of my knowledge.

Signature and seal of the Project Proponent

Place : Salem
Date :

Declaration by the Head of the accredited consultant organization/authorized person

I, Mr.Suriyakumar, Managing Director of Aadhi Boomi Mining & Enviro Tech (P) Ltd, hereby confirm that the Draft EIA Reports has been prepared as per the conditions laid down in Terms of Reference vide i) Lr.No.SEIAA TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 ii) Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for conducting Public Hearing and obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu for two existing grey granite Quarries of **M/s. Karunai Granites Private Limited** located in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District, Tamil Nadu.

I, hereby confirm that the mentioned experts in NABET Annexure VII prepared the combined Draft EIA reports of **M/s. Karunai Granites Private Limited.** I also confirm that I, the EIA Coordinator (EC) have gone through the report, and shall be fully accountable for any mis-leading information mentioned in this statement. It is certified that no unethical practices, plagiarism involved in carrying out the work and external data/text has not been used without proper acknowledgement while preparing this EIA reports.

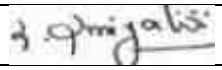
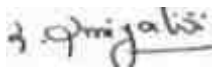
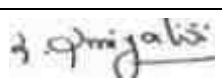
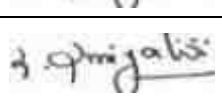
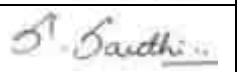
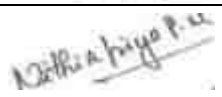
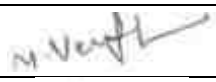
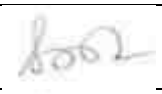
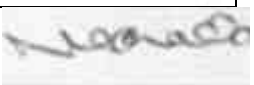
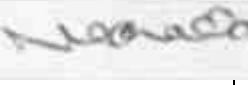
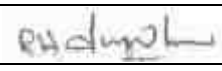
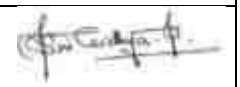
Name: **Mr.S.Suriyakumar**

Signature :

Designation : **Managing Director/ EIA Co-Ordinator**

Name of the EIA Consultant Organization: Aadhi Boomi Mining & Enviro Tech Private Limited. NABET Certificate No: NABET/EIA/2124/RA 0228, Valid till 22.10.2024

DECLARATION OF EXPERTS - NABET ANNEXURE – VII

S.No	Name of the Expert	Category	Functional Areas	Signature
1.	Mr.S.Suriyakumar	A	EIA Co-ordinator	
		A	Solid and Hazardous Waste SHW*-HW* only	
		A	Risk Assessment and Hazard Management (RH)	
		A	Soil Conservation (SC)	
2	Mr.K.Thirumeni	B	Land Use (LU)	
3	Mrs. S. Santhi	B	Land Use (LU)	
		B	Socio Economics (SE)	
4	Dr. Nithia Priya P.M	B	Water Pollution Monitoring, Prevention and Control (WP)	
5	Mr. M. Venkatesh Prabhu	B	Noise and Vibration (NV)	
6	Mr.R.Prakash Babu	B	Air Pollution, Monitoring, Prevention and Control (AP)	
			Noise and Vibration (NV)	
7	Bidisha Roy	B	Meteorology, Air Quality Modeling & Prediction (AQ)	
8	Mr. N.Varadharajan	B	Geology (GEO)	
			Hydrogeology (HG)	
9	Mrs.V.Sudha	B	Ecology and Biodiversity (EB)	
Team Member Involved in Report Preparation				
10	Mrs. S. Sri Vidhya	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
			Meteorology, Air Quality Modeling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	

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LIST OF ABBREVIATIONS AND ACRONYMS

EIA	Environmental Impact Assessment
EMP	Environment Management Plan
MOEF & CC	Ministry of Environment Forest and Climate Change
TOR	Terms of Reference
EC	Environment Clearance
SEAC	State Expert Appraisal Committee
SEIAA	State Environmental Impact Assessment Authority
TNPCB	Tamil Nadu Pollution Control Board
CPCB	Central Pollution Control Board
DGM	Department of Geology& Mining
NOC	No Objection Certificate
NH	National Highway
SH	State Highway
KM	Kilo Meter
HA	Hectare
DGPS	Differential Global Positioning System
AAQ	Ambient Air Quality
AQI	Air Quality Index
GLC	Ground Level Concentration
SPM	Suspended Particulate Matter
DB	Decibel
LEQ	Equivalent Noise Level
SEIS	Seismograph
KLD	Kilo Litre Per -Day
HSE	Health Safety And Environment
PH	Public Hearing
R & R	Rehabilitation & Resettlement
CSR	Corporate Social Responsibility
EMC	Environmental Management Cell
GOVT	Government of Tamilnadu
WQI	Water Quality Index

Proponent 1 - M/s. Karunai Granites Private Limited (3.15.5 Ha)
Compliance of Standard ToR

S. No	ToR	Compliance
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	The lease was granted vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 for the period of 10 years. Refer Annexure II in Page No 284. The lease was executed on 02.02.1995 and will be expired on 01.02.2005. Refer Annexure III in Page No 284. After that, the quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010. There was no mining activity before 02.02.1995.
2.	A copy of the document in support of the fact that the proponent is the rightful lease of the mine should be given.	The lease was granted by the Government of Tamil Nadu in favor of **M/s. Karunai Granites Private Limited, Grey Granite Quarry** vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 for the period of 10 years. The lease was executed on 02.02.1995 and will be expired on 01.02.2005. Refer Annexure III in Page No 284.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Contents in all documents are synchronizing with one another in terms of mine lease area, production levels, waste generation, its management and quarrying technology. The Mining plan was approved by the Commissioner of Geology and Mining, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994. The third scheme of mining has been prepared and submitted for approval.
4.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ Toposheet; topographic sheet, geomorphology and geology of the area should be	The area is bounded by northern latitude of 12°29'14.95"N to 12°29'22.53"N and eastern longitude from 78°20'26.88"E to 78°20'36.60"E. Toposheet No. 57L/7. Details are given in Page No.05

	provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Geomorphology & Geology of the area is given in Fig No 2.11. Refer Pg.No.27 of Chapter 2. Land Use details given in Table 3.25 pg. no.126 and also refer Fig No.3.25 pg.no.125. Land use within the lease area is mentioned in Table No 2.9 in Chapter 2. Refer Page No 32.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Survey of India Toposheet No. 57L/7 in 1:50,000 scale indicating physical features of geological map of the area, geomorphology of land forms of the area, existing minerals and quarrying history of the area, important water bodies, streams and rivers and soil characteristics is given in Fig 1.1, 1.2, 2.6, 2.11, 3.25, 3.27, 3.28, 3.29 and Refer Page No 6, 7, 20, 27, 125, 129, 130, 131 respectively.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The details of land proposed for mining activities are given in Table No 2.9 of Chapter 2. Refer Page No: 32.
7.	Whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC	The proponent M/s. Karunai Granites Private Limited is very much conscious of complying with the Environmental Regulations with systematic mining. The proponent will comply with the EC conditions and Consent to Operate issued by the TNPCB with stipulated time.

	conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Quarry Safety pertaining to the failure of pit slope in open cast quarrying is described in Table 7.1, Page No.182. Safety for blasting is given under Table 10.1: in Page 199. General safeguard measures are given in clause 4.9, Page no 145 – 175.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine/ lease period.	The Study area of the existing mining project comprises of 10km zone around the mining Lease boundary has been prepared. Refer Fig No. 1.2 & Pg. No. 7 Data like reserves, waste generation up to life of mine have been incorporated in Chapter 2 (Pg. No. 33-51) of the EIA report.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use of the study area, parks, migratory routes of fauna, water bodies, human settlements, other existing mines/ industrial activity and other ecological features are shown in delineating forest area, agricultural land, grazing land, wildlife sanctuary and national parks. Page no. 121 - 133. Land use plan of the mine lease area is given in Page No. 32, Table No.2.9.
11.	Details of the land for any Over	Details of the dump design area given in Pg.

	Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	No. 47. The mining operation will not disturb/relocate any villages and hence R & R plan not required. (Refer Chapter 7, Clause 7.3, and Page No. 185).
12.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not applicable. The mining area does not involve any forest land (Refer Table 2.3 Pg No.19)
13.	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not applicable. The mining area does not involve any forest land (Refer Table 2.3 Pg No.19)
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable

15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	The details of reserve forest located within study area of 10km radius are given in chapter 2. Refer Table No 2.3 in Page No 19. The details of flora within the study area are given detail in Chapte3. Refer Clause 3.9.7 in Page No 93.
16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Eco biodiversity (EB) study has been done for the project which details the impact on surrounding wildlife and mitigation measures are discussed and given in Chapter-4, Clause 4.10, Pg. No. 164-170.
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors and Tiger/Elephant Reserves within the 10 km radius of the mining lease area. Refer Page No. (Refer Table 2.3 Pg No.19).
18.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease) shall be carried out. Details of flora and fauna,	Details of Flora and Fauna found in the study area are given in Chapter 3 (Pg. No 93-99) in the EIA Report. No scheduled list of fauna is found in this study area.

	endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
19.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	The project site is neither falling under 'Aravalli range' nor it is located in proximity to area declared as Critically Polluted Area.
20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain	Not Applicable. Bay of Bengal is located 174km away from the lease area towards the SE side (Refer Page No. 19, Table 2.3). Hence the project does not attract the C.R.Z. Notification.

	approval of the concerned Coastal Zone Management Authority).	
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	The existing Grey Granite Quarry project does not involve any kind of displacement of the population since the mining will be concentrated only in the quarry area. Hence, Rehabilitation of settlement is not anticipated under this project as it is not required (Refer Chapter 7, Clause 7.3, and Page No. 185). The Socio-Economic study detailed in included in Clause 3.9 of Chapter 3, Page No 105-120.
22.	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in	Winter season monitoring data for a period of three months (Dec 1st 2022– Feb 28th 2023) on Air quality, Water quality, Noise level, Soil, Flora and Fauna in the core and buffer zones is collected and complied data wise in the EIA report (Chapter 3, Page No. 59-133).

	the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	
23.	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air quality modeling carried out for prediction of impact of the project on the air quality of the area, which is included in Chapter 4, Clause 4.1, Pg. No 134 -146. Wind Rose Pattern is shown in Fig. 3.1, Pg. No: 61 of Chapter 3.
24.	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The water requirement for the Project is 4.0 KLD; the details are given in Chapter – 2, Pg No.55. A detailed water balance is shown in Fig 4.6 of Chapter 4 (Page no.157)
25.	Necessary clearance from the	The grey granite quarry project requires water

	Competent Authority for drawl of requisite quantity of water for the Project should be provided.	for drinking, dust suppression and plantation. Drinking water is obtained from Mineral water industries. For Dust suppression, Green belt and other uses water will be obtained from ordinary water vendors through water tank. There is no extraction of ground water within lease area for the quarry activity. So no clearance from the Competent Authority is required.
26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	At the end of the project the quarried out pit will be used as Water storage pond. It will increase the agricultural activity in the surrounding villages. The rainwater harvesting and rate of evaporation is given in Chapter 7. (Refer Clause 7.4 of Chapter 7, page no.185).
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	The impacts of the project on the water quality are assessed and necessary safe guard measures will be provided. (Refer Clause 4.3 Chapter 4, Page No. 156-162).
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The mining operation will not intersect the ground water table. Schematic representation is shown in Page No: 159, Refer Fig.4.6. The depth of mining is 35m whereas the depth of water table is 50m bgl (for the scheme period). So No NOC is required from CGWA for the proposed project. However detailed Hydro geological study has been carried out and incorporated in Chapter 3 of Clause 3.7, Pg. No: 82 and Chapter 4, of Clause 4.6.5, Pg. No: 161.

29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream crossing inside the mining lease area and hence there is no need of modification/diversion (Refer Fig 3.27 in Page No.129).
30.	Information on site elevation, working depth, groundwater table etc. should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Elevation of the quarry area is 457m above MSL. The mining operation will be at a maximum depth of 35m (Ultimate). The ground water table is at 50m from the surface in the adjacent tube well, and mine workings are above groundwater table (Refer Fig No 4.6 in Page No.159).
31.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Phase-wise plan of plantation and Compensatory Afforestation and the plant species selected for green belt. The proposed afforestation plan is given in Table 4.30 of Chapter 4. Refer Page No.170.
32.	Impact on local transport infrastructure due to the Project	The transportation of minerals will be carried out through the existing roadways during day

	should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	work hours only with no increase in the existing traffic pattern (Refer Chapter 2, Fig No: 2.7, Page No.21).
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Details of the onsite shelter and facilities to be provided to the mine workers are discussed in Chapter 2 Clause 2.13. Refer Pg.No.56.
34.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual mining plan is given in Chapter 2. Refer Fig 2.20 in Page No.52.
35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the Project are detailed in EIA report (Refer Clause 4.13 of Chapter 4, Page no. 173).
36.	Public health implications of the	All control measure for public health

	Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	implications, air emission, noise control, and waste management will be duly considered as per norms and the remedial measures are detailed along with budgetary allocation in Chapter 10, Pg. No: 196-204.
37.	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details of community welfare activities to be done for the local community along with proposed budget have been incorporated in EIA Report (Refer Chapter 8, Pg. No: 190-194)
38.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management Plan (EMP) for the proposed quarry project has been prepared and incorporated in Chapter 10. (Pg. No. 196-204).
39.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	This draft EIA report has been prepared for conducting public hearing.
40.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation pending against the project.
41.	The cost of the Project (capital cost	Project Cost – 78 Lakh

	and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	EMP cost- 9.50 Lakhs Refer Chapter 2, Clause 2.14, Page No.57)
42.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	A detailed Risk and Disaster Management Plan has been prepared and detailed in Chapter 7. (Pg. No: 181-183).
43.	Benefits of the Project if implemented shall clearly indicate environmental, social, economic, employment potential, etc.	Project Benefits have been detailed in Chapter 8. (Refer Chapter 8, Pg. No: 190-194).

General Points to be followed as per ToR

S.No .44	ToR	Compliance
a)	Executive Summary of the EIA/EMP Report	Executive Summary is furnished separately and given in Chapter 11.
b)	All documents to be properly referenced with index and continuous page numbering.	Yes, all documents are properly referenced with index and continuous page numbering.
c)	Where data are presented in the report especially in Tables, the period in which the data were collected and the sources should be indicated.	Yes. The data Collection period and sources are mentioned in table in EIA report.
d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	The Baseline Monitoring Report with all analytical reports done by a MoEF&CC/NABL accredited laboratory is enclosed with the EIA Report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	The documents are provided in English
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Yes, environmental appraisal of mining projects also submitted along with the EIA report.

g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should also be followed.	Yes, we followed the instructions for the proponents and consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009 while preparing EIA report.
h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	No changes have been made.
i)	As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified Report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	NA. The project is under violation as proponent operated the quarry before obtaining EC from competent authority.
j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All details of lease area and surface plan, geological maps and sections are included in Chapter 2 & Drainage, contour features are given in Chapter 3 in Fig 2.1, 2.3, 2.12, 2.13, 2.14, 2.18, 2.19, 2.20 and Refer Page No 14, 16, 35, 36, 37, 46, 48, 52 respectively.

Compliance of Additional TOR given by SEAC

S.No.	CONDITIONS	COMPLIANCE
1	The PP shall furnish an Independent Chapter 13 as per the MOEF&CC Violation Notification – S.O. 804(E), dated 14.03.2017 prepared by the accredited consultants within a period of one year from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance.	The detail of ecological damage assessment, remediation plan, CRAP and NRAP are given in independent chapter 13. Refer Page No 231-246
2	The Project Proponent shall conduct and furnish Minutes of Public Hearing as per ToR issued Dt: 18.05.2018 & 30.07.2018. Accordingly, the PP shall submit revised EIA/EMP.	Agreed. The draft EIA/EMP has been prepared for conducting public hearing. After conducting PH, the revised EIA/EMP will be submitted to SEIAA/SEAC.
3	As a part of procedural formalities as per the MoEF&CC Violation Notification – S.O. 804, dated 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environmental (Protection) Act, 1986 against violation.	The demand notice for this grey granite quarry has been issued by Department of Geology and Mining, Krishnagiri District vide Rc.No.1042/2018/C-51/Mines dated 17.07.2020. Refer Annexure XI in Page No326.
4	Copy of valid mining lease approval obtained from the competent Authority.	M/s. Karunai Granites Private Limited has been granite quarry lease vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01. 1995. Refer Annexure II in Page No 284. The lease was executed on 02.02.1995 and had expired on 01.02.2005. Refer Annexure III in Page No 288. The project proponent had submitted an application on 21.01.2004 for renewal of quarry lease of 3.15.5 Ha and the renewal applications are pending. The quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.
5	Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.	The Letter from competent authority stating that the quarry lease deed has not been cancelled or terminated will be

		submitted during EC appraisal.
6	Copy of request letter submitted for renewal of mining plan.	The project proponent had submitted an application on 21.01.2004 for renewal of quarry leases of 3.15.5 Ha and the renewal applications are pending. Refer Annexure VII in Page No 313.
7	Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The third scheme of mining has been submitted to Department of Geology and Mining for getting their approval.
8	Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining, and copy of remittance of total penalty by PP.	Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining is attached as annexure. PP still not paid penalty and PP is waiting for judgment of High Court on SOP of penalty for violation case.
9	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	The latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site will be attached in Final EIA Report.
10.	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	It is under process. It will be submitted during appraisal of EC application.
11.	In the case of proposed lease in an existing (or old) quarry where the benches are nonexistent (or) partially formed critical of the bench geometry approved in the Mining plan, the Project Proponent (PP) shall prepare and submit an 'Action plan' for carrying out the realignment of the 'high wall' benches of 16 m to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.	Agreed. Wherever, the bench is not as per previous approved mining plan, the "Action Plan" will be made to realignment the irregular benches and submitted to Asst. Director of Geology and Mining for attestation.
12.	The Proponent shall submit a conceptual 'Slope Stability plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while	Agreed, the 'Slope Stability plan' will be prepared for the existing quarry indicating the stabilizing measures as the depth of mining proposed is 35m bgl. It will be

	obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	submitted during appraisal of EC applicaton.
13.	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Agreed. The affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 will be attached in Final EIA report
14.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	As it is granite quarry, only mild blasting will be carried out to remove blocks from the parent rock by forming crack. So there will be no fly rocks in this project. Also there is no weathered rock deposited in this lease area.
15.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the state with video and photographic evidences.	The video taken by drone covering cluster of quarries is attached in CD. Refer Pouch of EIA report.
16.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, a) What were the period or the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out. c) Highest production achieved in any one year. d) Detail of approved depth of mining. e)Actual depth of the mining achieved earlier. f) Name of the person already mined in that	The quarry is not in operation due to violation case. The quantity of granite excavated during violation period is mentioned in demand notice. Refer Annexure XI in Page No.326. The existing depth of mining is 29m bgl.

	leases area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
17.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The Toposheet showing location of the lease area is attached in Chapter 1. Refer 1.2 in Page No.7. The geology and geomorphology of the 10km radius of proposed area is given in Chapter 2. Refer Page No 27. The land use/land cover image is given Chapter 3. Refer Page No 125.
18.	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.	The Drone survey has been carried out. The video is attached in CD. Refer Pouch of EIA report.
19.	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including re plantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The fencing and green belt development along the periphery is under process. The photographs will be attached in Final EIA Report.
20.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, and proposed working methodology with justifications, the anticipated impacts of the mining on the surrounding environment and the remedial measures for the same.	The details of reserves, production capacity and methodology are given in Chapter – 2. Refer Page No 28-54 & 134-175.
21.	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines	The employment potential of proposed project is given in Chapter 2. Refer Page No 55

	Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	
22.	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may be clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro geology study has been conducted within the study area of project site. Refer Page No 82-85 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page no 19. The depth of water table identified by Geo resistivity survey is 50m bgl whereas the proposed depth of mining is 35m bgl. Therefore the mining activity will not intersect ground water table. The schematic diagram is given in chapter 4. Refer Page No 159.
23.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water & ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data for the environmental and ecological parameters were collected. Refer Chapter 3.
24.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly' the Environment management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The anticipated cumulative impact on various environments such as air, water, soil and noise etc due to proposed mining activity are given in Chapter 4 with appropriate mitigation measures. The environmental management plan is given in Chapter 10.

25.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) is submitted.	The studies on rain water harvesting are given in Chapter 7. Refer Page No 185.
26.	Land, use of the study area delineating forest area, Agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The land use/land covers of 10km radius of proposed mining lease area are given in Chapter 3. Refer Fig No 3.25 in Page No 125.
27.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. All waste and rejects shall be dumped within the lease area of 11.59.0 Ha of M/s.Karunai Granites Private Limited.
28.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	No. There is no boundary of critically polluted area found within 10km radius proposed mining lease area.
29.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the project, if any, should be provided.	At the end of mining, the quarried out pit will be used for storing rain water which will enhance agricultural activity around the lease area. The rain harvesting plan is given detail in Chapter 7. Refer Page No 185.

30.	Impact on local transport infrastructure due to the project should be indicated.	No. The existing roads are available to withstand the traffic generated due to proposed project. Refer Fig No.2.7 in Page No 21 of Chapter 2.
31.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Only mango plantations are mostly found around the lease area. The age of mango trees in the buffer zone are 8-10 years.
32.	A detailed mine closure plan for the proposed project which should be site specific.	The mine closure plan for the proposed project is included in the EIA report. Refer Fig No 2.20 in Chapter 2.
33.	Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the project and to be submitted to SEIAA/SEAC with regard to the office Memorandum of MoEF& CC accordingly.	Agreed. Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions shall be included in the final EIA report.
34.	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Agreed. The Public hearing advertisement will be published in one major National daily and one most circulated vernacular daily
35.	The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.	Agreed. The EIA report and executive summary will be translated to Tamil language and same will be displayed for public.
36.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Agreed. The EIA coordinator will educate the local students on the importance of preserving local flora and fauna during public hearing meeting.

37.	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Agreed. In consultation with the DFO, State Agriculture University, the green belt will be made around the boundary of lease area to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated
38.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Agreed. Taller/one year old Saplings will be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices.
39.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period..	The Disaster management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 181 of Chapter 7.
40.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk Assessment and management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 181 of Chapter 7.
41.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical	An occupational Health impact of the Project has been anticipated and the appropriate mitigation measures are given in Chapter 4 of EIA report. Refer Clause 4.13 in Page No.173.

	examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
42.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Yes it is given in EIA report. Refer Clause 4.13.3 in Page No.173 of EIA report
43.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The study on Socio-economic for the proposed project is mentioned in Clause 3.10 of Chapter 3. Refer Page No 105 of EIA report.
44.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	Nil
45.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	The benefits of the proposed project are given detail in Chapter 8. Refer Page No 190-194
46.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	The PP operated the quarry after 15.01.2016 without EC and the quarry comes under violation as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. At present, the quarry is not in operation.

47.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP for the proposed project is mentioned in Chapter 10 along with EMP cost. The affidavit stating to abide the EMP for the entire life of mine will be attached in final EIA report.
48.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Agreed.

Compliance of conditions mentioned in TOR letter by SEAC

S.No	ToR's	Compliance
1.	The ToR issued only to carry out EIA Studies and mere preparation of EIA report will not entitle the PP to EC.	Agreed. As per TOR letter, draft EIA report has been prepared. After conducting PH, the EC application will be made in PARIVESH portal for obtaining EC from SEIAA/SEAC.
2.	The project proponent shall furnish the status of the court case.	The high court order is attached in EIA report. Refer Annexure X in Page No.321.
3.	The project proponent shall furnish approved and valid scheme of mining plan along with EIA report.	The 3rd scheme of mining has been prepared and submitted to Department of Geology and Mining for getting their approval.
4.	The project proponent shall furnish the letter obtained from AD mines regarding extension of lease/execution of new lease along with EIA report.	The lease renewal application has been submitted on 21.01.2004 and the renewal applications are pending. The renewal application is attached as Annexure VII in 313.
5.	The project proponent shall furnish valid EMP.	Yes, EMP is furnished in separate chapter 10. Refer Page No 196-202
6.	The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC.	NA. The PP operated the quarry after 15.01.2016 without EC and the quarry comes under violation as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. At present, the quarry is not in operation.
7.	The PP shall furnish Copy of valid mining lease approval obtained from	M/s. Karunai Granites Private Limited has been granite quarry lease vide

	the competent Authority.	G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995. Refer Annexure II in Page No. 284. The lease was executed on 02.02.1995 and had expired on 01.02.2005. Refer Annexure III in Page No 288. The project proponent had submitted an application on 21.01.2004 for renewal of quarry lease of 3.15.5 Ha and the renewal applications are pending. The quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.
8.	The PP shall furnish Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The third scheme of mining has been submitted to Department of Geology and Mining for getting their approval.
9.	The PP shall furnish EMP for the project life including progressive mine closure plan with detailed budget plan.	The detailed environment management plan including mine closure plan with budget is mentioned in Chapter 10. Refer Page No.196-202
10.	The PP shall study in detail about CO_2 release and temperature rise and add to micro climate alterations and the same shall be included in the Final EIA report.	The carbon emission, its impacts and mitigation measures are mentioned in Chapter 4. Refer Page No 146-147.
11.	The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.	The study on water environment (both surface water and ground water) is given detail in Chapter 4. Refer Page No.156-162.
12.	The PP shall study in detail about soil health, climate change leading to droughts, floods etc.	The physical and chemical characteristic of soil in core and buffer zone is mentioned in chapter 3. Refer Table No 3.9 in page No.89.
13.	The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.	The carbon emission, its impacts and mitigation measures are mentioned in Chapter 4. Refer Page No 146-147.
14.	The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.	The study on water contamination and impact on aquatic ecosystem health in given in Table 4.29. Refer Page No 169 in Chapter 4.
15.	The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA report.	The study impact on ecology and biodiversity and on ground water table is given chapter 4. Refer Page no.159 and 164-166 in chapter 4.

16.	The PP shall study the impact on Invasive Alien Species (IAS).	There are no Invasive Alien Species found within the study area.

Compliance of Annexure 'B'

S.No.	CONDITIONS	COMPLIANCE
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as member including the existing as well as proposed quarry.	Agreed. The Cluster Management Committee will be formed as per SEAC guidance.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. After forming CMC, the all the members will implement environment management plan effectively. Effective plan has been given in Chapter – 4
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The List of members of the committee formed will be submitted to AD/Mines before the commencing the quarry activity.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Certified Blaster will be engaged for blasting having adequate knowledge in Environmental safety aspects. Plan will be included in Final EIA report. The usage of haul roads by the individual quarry is attached in EIA report. Refer Fig No 2.20 in page No 52 of Chapter 2.
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk Management is elaborated in Chapter 7 of the Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy	Agreed. The CMC will form Environmental Policy to practice sustainable mining in a scientific and systematic manner. The same shall be displayed within the cluster area.

	devised shall be given in detail.	
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	The conceptual plan for the quarry area 3.15.5 Ha is attached in draft EIA report. Refer Fig No 2.20 in page No 52 of Chapter 2. After forming CMC, the restoration strategy of individual quarry will be submitted to AD Mines, Krishnagiri.
8	The committee shall furnish the Emergency Management plan within the cluster.	Agreed. After forming CMC, he committee will furnish the Emergency Management plan to AD Mines, Krishnagiri
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Occupational safety and Health care of the workers are included in Chapter – 4 in draft EIA report
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. After forming CMC, he committee will furnish the action plan to achieve sustainable development goals with reference to water, sanitation & safety to AD Mines, Krishnagiri.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. After forming CMC, he committee will furnish fire safety and evacuation plan to AD Mines, Krishnagiri.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity. b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (CHG), rise in Temperature, & Livelihood of the local people.	Impact on Soil Health, biodiversity, carbon emission and impact on water environment including aquatic ecosystem and on agricultural environment are discussed in detail in Chapter 4.

	d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams.	
Agriculture & Agri - Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining area.	The impact on surrounding agricultural fields is given in chapter 4. Refer Clause 4.14 in page No.174
14	Impact on soil flora & vegetation around the project site.	The impact on ecology and biodiversity including soil flora & vegetation around the project site is mentioned in Chapter 4. Refer Page No.164-170
15	Details of type of vegetations including no of trees & shrubs within the proposed mining area and if so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in the EMP.	This is existing grey granite quarry, so there are only few numbers of mango trees found within the quarry area. During operation of quarry all the trees will be transplant along the mining lease boundary.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural ecosystem.	The impact on ecology and biodiversity including the soil micro flora, fauna and soil seed banks around the project site is mentioned in Chapter 4. Refer Page No.164-170
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	At the end of mining, the quarried out pit will be used as water storage pond which improves the agricultural activity in the buffer zone. Refer Page No 51 in Chapter 2. The afforestation plan for five years is given in Chapter 4. Refer Table No 4.30 in

		Page No.170.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, horticulture, Agriculture and livestock.	Anticipated impact on Agriculture, Horticulture and livestock is given Chapter 4. Refer Clause 4.14.2 in Page No 175.
Forests		
19	The project proponent shall detailed study on impact of mining on reserve forests free ranging wildlife.	There are five reserve forest located within 10km radius and the nearest forest is Thogarapalli R.F located at the distance of 2.41km in south direction. There are no wildlife sanctuaries within 10km radius. Refer Table 2.3 in Page No 19 of Chapter 2. The impact on reserve forest and wild life sanctuary is given in Chapter 4. Refer Clause 4.10 in page No 164.
20	The Environmental Impact Assessment should study on impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no endangered species found within 10km radius study area.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	As it is existing grey granite quarry, only few mango trees are present in the quarry area. During quarry operation, the trees will be transplanted along the mining lease boundary.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There are no protected areas, National Parks, Corridors and Wildlife pathways within 10km radius of the project site. There are 5 reserve forest located within 10km radius. The impact on reserve forest is given in Chapter 4. Refer Clause 4.10 in page No 164.
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. Within	The hydro geology study has been conducted within the study area of project site. Refer Page No 82-85 in Chapter 3. The details of water bodies in the

	1km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	study area are given chapter 2. Refer page no 19. The depth of water table identified by Geo resistivity survey is 50m bgl whereas the proposed depth of mining is 35m bgl. Therefore the mining activity will not intersect ground water table. The schematic diagram is given in chapter 4. Refer Page No 159.
24	Erosion Control measures.	To control the erosion, the tree sapling will be planted along the mining lease boundary. Garland drainage will be developed around the dump to control the washout of dump due to hydrostatic pressure.
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/Rivers, & any ecological fragile areas.	The impact of mining on the nearby villages and water bodies are given detail in chapter 4.
26	The Project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	The detailed study of impact on fish habitation and food WEB/ food chain in the water body and reservoir is given in Chapter 4. Refer Table 4.29, Page No 169.
27	The Project Proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The detailed impact studies are given in Chapter 4.
28	The Project Proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological site possible land form changes visual and aesthetic impacts.	The study and the impact on aquatic plants and animals in water bodies are mentioned in Chapter 4. Refer Clause 4.10 in Page No 183. There are no caves, heritage site, and archaeological site found within 10km radius of project site.

29	The terms of reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact study on soil health and erosion is given in Clause 4.7 in Chapter 4. Refer Page no 163. The soil physical, chemical components and microbial components are given in Chapter 3. Refer Page No.89, 90.
30	The Environmental Impact Assessment should study on wet lands, water bodies, rivers, streams, lakes and farmer sites.	The impact study on surface water bodies and agricultural land is given in Chapter 4. Refer Page No 156-161, 173-175.
Energy		
31	The measures taken to control Noise, Air, Dust control and steps adopted to efficiently utilise the energy shall be furnished.	The mitigation measure for air pollution and noise pollution is given in chapter 4. Refer Page No 145 and 152.
Climate change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter4. Refer Clause 4.2 in Page No 146.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter4. Refer Clause 4.2 in Page No 146.
Mine closure plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued is given in Chapter 2, pg.No. 50-52
EMP		
35	Detailed Environmental Management Plan along with adaption, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed environmental management plan is given in Chapter 10, pg. No. 196.
36	The Environmental Impact Assessment	The environmental management

	should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	plan is given chapter 10. The cost for green belt development is mentioned in Table 10.2 in Chapter 10. Refer Page No 203. Budget for mine closure plan is given in Table 10.3 in Page No 203 of Chapter 10. The disaster management plan is given in Chapter 7. Refer page no 181
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.	Disaster management plan is given in Chapter 7, pg. No. 181
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details are furnished in Table 7.1 in chapter 7, pg.No. 181
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank etc.	The letter regarding approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank within 300m radius will be obtained from VAO. It is under process
40	As per the MoEF&CC office memorandum F.No22-65/2017-IA.III dated. 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment	Draft EIA is been prepared for conducting public hearing. The points raised in PH and funds allocated will be included in Final EIA report.

	Management Plan.	
41	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The study on pollution due to plastic and micro plastic and its ecological risk is mentioned in Chapter 7. Refer Clause 7.5 in Page no 188.

Additional TOR specified by SEAC to deal with the violation aspects of the mining projects

Sl. No	ADDITIONAL TOR CONDITIONS	COMPLIANCE
SECTION A	**Step 1: Enumerate the aspects of Violation:** a) The proponent should enumerate the violations as applicable to the project. b) Furnish a description of each violation with quantitative and qualitative data. c) Violation categories are to be decided taking into consideration the stage at which the project execution stands.	Kindly Refer Chapter 13 for the detail violation report.
	Step 2: Ecological Damage Assessment: a) For each aspect of violation enumerated in step (1), identify the resultant environmental damage that may have been caused. b) Furnish a description of the environmental damages with quantitative and qualitative data.	Reference: Clause 13.2, 13.3, 13.4 (Page No.231-237).
	Step 3: Remediation Plan: a) For the Environmental damage(s) identified in the step (2) above, prepare the remediation plan for each or combination of damages. b) The remediation plan should essentially consists of problem statement, target to be achieved (quantity), standards, technology/procedure for remediation, equipment and machinery to be used, time schedule and remediation cost (direct and indirect cost, capital as well as O&M costs).	The remediation plan for each damages assessed is given detail. Reference: Clause 13.2, 13.3, 13.4 (Page No.231-238). Reference: Table No. 13.4.5.2, (Page No.238).
SECTION B	**1. Natural resource Augmentation:** a) The resources that should be considered for augmentation should essentially consist of land, biota, air, water and other resources as applicable b) Proponent may choose one or more of the	Reference: Table No. 13.3, (Page No.238).

	resource augmentation as applicable and provide a description of the augmentation proposal in detail for each resource. c) The proponent should also furnish the cost for each augmentation scheme.	
	2. Community resource Augmentation: a) The proponent should prepare a plan of action for addressing the needs of the community in terms of resources in the sectors of education, health and sports primarily and other such resources as applicable to the community in the vicinity of the project. b) The community resource augmentation plan should consist of rehabilitation of houses and people, budget allocation and time schedule for completing the activity.	Reference: Table No. 13.3, (Page No.238). Not applicable
SECTION C	The proponent should prepare content for the ecological damage assessment, remediation plan, natural resource augmentation and community resources augmentation separately in a chapter and include in the EIA/EMP report	Reference: Chapter 13 (Page No.231-238)
SECTION D	a) After the appraisal of the EIA/EMP report submitted by the proponent, the SEAC will make a judgment of the quality of the content in the EIA/EMP report specifically with reference to the chapter covering the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.	Yet to be appraised
	b) In the judgment of SEAC, if the quality of the content in the chapter is not satisfactory, the SEAC may direct the proponent to further revise the chapter and resubmit the EIA/EMP report.	Yet to be appraised
	c) If SEAC concludes that the technical part is satisfactory and the costing aspect is not satisfactory then the SEAC may revert to	Yet to be appraised

	legal provisions, MoEF & CC guidelines and similar expert committee recommendations for finalizing the cost aspects or the SEAC may use its own expertise and experience in finalizing the cost.	
SECTION E	The proponent is directed to furnish data as per the questionnaire appended in Annexure I. It will help the SEAC in arriving the ecological damage and the associated cost.	It is furnished in Annexure-I of ToR compliance
SECTION F	In compliance with the Supreme court order stated in MoEF & CC letter F.NO. 3-50/2017 IA.III-pt dated:05th January 2018, the proponent is required to submit the No Objection Certificate obtained from the department of Geology and Mining, Government of Tamilnadu regarding payment of 100% cost of illegally mined mineral under section 21(5) of MMDR Act 1957 which would account for mining operations in violations of the following: a) Without Environmental Clearance(EC), or in excess of the quantity approved in EC b) Without Consent to Operate (CTO) or in excess of the quantity approved in CTO and c) Without mining plan/scheme of mining or in excess of the quantity approved in mining plan/scheme of mining d) Without Forest Clearance e) Any other violation	To be obtained
	List out the details of reserve forest and wildlife sanctuary nearby the project site (the details should also include other districts which are nearby the project site) and also furnish the detail of distance between the project site and reserve forest/wildlife sanctuary. Whether the project site attracts the HACA	The list of reserve forest within in 10km radius is given in Table No 2.3 in Page No 19 of Chapter 2. There is no wildlife sanctuary within 10km radius of project site. The project site is not HACA land.

	clearance? If so, also furnish the HACA clearance for the mining from the competent authority. The proponent is instructed to fill in the form contained in **Annexure 1** to work out the details of the ecological damage during the violation period.	It is furnished in Annexure I of ToR compliance

ANNEXURE 1

Additional Information for Considering EC for Mining Projects

S. No.	Details to be provided	Page No.
1]	Name of the project lease & owner	1
2]	Lease Extent	1
3]	Lease Validity	1
4]	Approved Mining Plan/Scheme – Review a] Specify whether DSR is provided [applicable in case of minor minerals only]	DSR is given in TOR application
5]	Specify – Nature and type of violation	Without EC
	I. Without EC or in excess of quantity approved in EC	
	II. Without CTO or in excess of quantity approved in CTO	
	III. Without mining plan/Scheme of mining or in excess of quantity approved in Mining Plan/Scheme of mining	
	IV. Without Forest Clearance	
	V. Any other violation	
6]	Violation period	Nil One year
	I. Number of months	
	II. Number of Years	
7]	Exploitation/Excavation quantity – Reserves proved through exploration by drilling	Pg No.33
8]	Give details of production from the date of execution of the lease deed / since 1994	Pg No.45
9]	Quantity mined out during the violation period & if, yes indicate the violated quantity, in term of % of consented quantity.	Refer Annexure XI
10]	State illegal mining / encroachments outside the lease boundary? Percentage of quantity mined out outside the lease boundary.	Not applicable
11]	Method of working	[a]
	I. Category type ;[a] Mechanised [b] Semi-Mechanised [c] Manual	
	II. Construction and design of haul roads	
	[a] Dimension as per the statutory requirements which were followed or otherwise	29
	[b] Number of vehicles plying on the main haul roads inside the mine and the approach road to the pit located outside the mine, if any.	

<table>
<tr><td></td><td>[c] Are any measures taken to minimize fugitive dust generated form mine haul roads /Does it comply with the CPCB/PCB Guidelines/</td><td>145</td></tr>
<tr><td></td><td>[d] Is there a possibility that air pollutants emitted from the project area that do not comply with air quality standards as per CPCB/PCB/</td><td>No</td></tr>
<tr><td>12]</td><td>Mechanized /Semi- Mechanized Method of Mining</td><td></td></tr>
<tr><td></td><td>[i] Number of loading/excavating equipments as per approved mining plan and capacity.</td><td>29</td></tr>
<tr><td></td><td>[ii] Number of loading/excavating equipments actually being deployed and capacity.</td><td></td></tr>
<tr><td></td><td>[iii] Type and number of transporting equipments.</td><td></td></tr>
<tr><td></td><td>[iv] Type of transporting system used –[a] trucks
[b] Any other mode</td><td></td></tr>
<tr><td></td><td>[v] Capacity and No. Trucks used as per approved mining plan</td><td></td></tr>
<tr><td></td><td>[vi] Capacity and No. Trucks used actually in the mine</td><td></td></tr>
<tr><td></td><td>[vii] Number and Capacity of loading equipments and trucks used not in line with approved mining plan
<table>
<tr><td></td><td>Capacity [m^3]</td><td>Numbers</td></tr>
<tr><td>Excavator</td><td>-</td><td>-</td></tr>
<tr><td>Tipper</td><td>-</td><td>-</td></tr>
</table></td><td></td></tr>
<tr><td></td><td>[viii] Impact of excess deployment of loading equipments [excavators] and transporting equipments on environment.
[a] Air pollutants
[b] Water Quality
[c] Land Quality
[d] Noise level</td><td>No excess equipment.</td></tr>
<tr><td></td><td>[ix] Does the deployment of loading equipments[excavators] and trucks fulfill the statutory requirements as per MMR 1961, with respect to the site conditions/</td><td>Yes</td></tr>
<tr><td>13]</td><td>Method of Rock Breaking / Material preparation for the excavation;</td><td>28-32</td></tr>
<tr><td></td><td>[i] Methodology adopted-</td><td></td></tr>
<tr><td></td><td>[a] Drilling and blasting</td><td></td></tr>
<tr><td></td><td>[b] Rock breakers</td><td></td></tr>
<tr><td></td><td>[c] Rippers</td><td></td></tr>
<tr><td></td><td>[d] Surface miners</td><td></td></tr>
<tr><td></td><td>[e] Direct mucking by excavators</td><td></td></tr>
<tr><td></td><td>[f] Manual means</td><td></td></tr>
<tr><td></td><td>[g] Any other methods or combination of above</td><td></td></tr>
</table>

	[ii] Incase of drilling and blasting method	134-175
	[a] Type of blasting ; short hole or deep hole	
	[b] Whether controlled blasting technique adopted / If yes, specify the technique with details of the study , year of study	
	[c] Impacts due to blasting defined as per the studies, if any carried out previously as indicated	
	[d] Dust pollution	
	[e] Noise level[dB[A]]	
	[f] Ground vibration studies and Fly rock projection	
	[iii] Impact of preparation of Ore and waste on environment-	
	[a] Air Pollution	
	[b] Noise Pollution	
	[c] Water Pollution	
	[d] Safety standards	
	[e] Traffic density	
	[f] Road Conditions[vulnerability]	
14]	Construction and Design of Dumps.	49-52
	[a] Place / Location.	
	[b] Approach to Dump form the mine distance and safety standards.	
	[c] Area of extent occupied.	
	[d]Dimension of Dump and No. of terrace with heights [benches].	
	[e] Vegetation covered; If yes, specify the details of plants.	
15]	Construction and Design of Waste Dumps.	49-52
	[i] Numbers and Location of Dumps as per approved Mining Plan.	
	[ii] Specify whether reject dumps are located within or outside mining lease.	
	[iii] Area occupied in excess of the approval mining plan.	
	[iv] Dimension of Terracing, Light, shapes, etc., Dump as per approved Mining Plan.	
	[v] Fresh/Existing Dimension Height, shape, width. etc., of Dumps in the mine.	
	[vi] Volume/Quantity added to Waste / Dump during the violated period.	
	[vii] Approach to the Dump-Dimension, distance.	
	[viii] Number of and type of equipments deployed in Dump.	
	[ix] Provision of Garland drains around the Dumps.	
	[x] Any vegetation made on the slopes.	
	[xi] Provision of safety standards.	

	[xii] Impact of Waste/Dumps on environment.	134-175
	[a] Air Pollution	
	[b] Water Pollution	
	[c] Dust Pollution	
	[d] Noise Pollution	
	[xiii] Terracing	
16]	Construction and Design of Ore and sub grade ore / mineral Stacks;-	NA
	[i] Number and Location of Ore stacks.	
	[ii] Dimension of Ore / sub grade Stacks as per the Approved Mining Plan	
	[iii] Volume / Quantity added during the violation period.	
	[iv] Any Screening plant or any other loading equipment engaged during the violated period.	
	[v] Approach to Ore / sub grade stack – Distance, hazards.	
	[vi] Safety standards adopted while operation.	
	[vii] Impact of ore / sub grade on environment.	
	[a] Air Pollution.	
	[b] Water Pollution.	NA
	[c] Dust Pollution.	
	[d] Noise Pollution.	
17]	Mine Pit Water	156-163
	[i] Intersection of Ground water table, specify the measures taken.	
	[ii] Ground water table as per hydro geological Studies [Pumping test].	
	[iii] Provision of Garland drains around pit and dumps.	
	[iv] Water pollution.	
	[v] Management of mine water.	
	[vi] Ultimate pit limit, w.r.t. Ground water intersection and management of drainage of ground water.	
18]	Diversion of General Drainage / River / Nallah course for mining.	No
19]	Clearing of vegetation before the commencement of mining operation – Number of trees [species wise].	No
20]	Man Power.	55
	[a] Statutory management.	
	[b] Regular [Non-statutory] Manpower.	
21]	Occupational Health and Safety.	173-174
	[a] Periodical monitoring of health standards of persons employed as per Mine Act, 1952.	

	[b] Failure to inform statutory bodies periodically, if any.	
22]	Population [Nearby Habitation].	107, 185
	[i] Population/Significant Population / Dense Population within the buffer zone of 10 km.	
	[ii] People displacement due to mining activities.	
	[iii] Location / Existence of habitation near the river or any other historical / sensitive / forest distance.	
	[iv] Impact of mining on Surrounding and habitation- Air, Water, Noise, Pollution.	134-175
	[v] Socio Economic aspects of mining.	105-120
23]	CSR.	
	[a] Field ground Activities or studies. Actual amount spent towards CSR and the future proposal.	192
24]	NOC from DMG for quantity clarification in respect of settlement of all the amount payable against identified violation.	To be obtained
25]	For the Clearance of EC, Public Hearing is mandated as per MoEF & CC Notification. Give reason for exemption of Public Hearing.	The PH will be conducted
26]	Conceptual post mining land use / restoration.	50-52
27]	Litigation / court cases, if any pending.	NA
28]	Disaster management plan for the mine.	181-183

Proponent 2 - M/s. Karunai Granites Private Limited (11.59.0 Ha)

Compliance of Standard ToR

S. No	ToR	Compliance
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	The lease was granted vide G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 for the period of 10 years. Refer Annexure II in Page no 363. The lease was executed on 03.02.2000 and will be expired on 02.02.2010. Refer Annexure III in Page No 367. After that, the quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010. There was no mining activity before 03.02.2000.
2.	A copy of the document in support of the fact that the proponent is the rightful lease of the mine should be given.	The lease was granted by the Government of Tamil Nadu in favor of **M/s. Karunai Granites Private Limited, Grey Granite Quarry** vide G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 for the period of 10 years. The lease was executed on 03.02.2000 and will be expired on 02.02.2010. It is enclosed in Annexure III.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Contents in all documents are synchronizing with one another in terms of mine lease area, production levels, waste generation, its management and quarrying technology. The Mining plan was approved by the Commissioner of Geology and Mining, Chennai vide letter No.2245/MM9/2004 dated 24.08.2004. The second scheme of mining has been prepared and submitted for approval.
4.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ Toposheet; topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the	The area is bounded by northern latitude of 12°29'9.06"N to 12°29'26.41"N and eastern longitude from 78°20'18.72"E to 78°20'38.29"E. Toposheet No. 57L/7. Details are given in Page No.05 Geomorphology & Geology of the area is

	proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	given in Fig No 2.11. Refer Pg.No.27 of Chapter 2. Land Use details given in Table 3.25 pg. no.126 and also refer Fig No.3.25 pg.no.125. Land use within the lease area is mentioned in Table No 2.9 in Chapter 2. Refer Page No 33.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Survey of India Toposheet No. 57L/7 in 1:50,000 scale indicating physical features of geological map of the area, geomorphology of land forms of the area, existing minerals and quarrying history of the area, important water bodies, streams and rivers and soil characteristics is given in Fig 1.1, 1.2, 2.6, 2.11, 3.25, 3.27, 3.28, 3.29 and Refer Page No 6, 7, 20, 27, 125, 129, 130, 131 respectively.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The details of land proposed for mining activities are given in Table No 2.9 of Chapter 2. Refer Page No: 33.
7.	Whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The	The proponent M/s. Karunai Granites Private Limited is very much conscious of complying with the Environmental Regulations with systematic mining. The proponent will comply with the EC conditions and Consent to Operate issued by the TNPCB with stipulated time.

	system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Quarry Safety pertaining to the failure of pit slope in open cast quarrying is described in Table 7.1, Page No.182. Safety for blasting is given under Table 10.1: in Page 199. General safeguard measures are given in clause 4.9, Page no 145 – 175.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine/ lease period.	The Study area of the existing mining project comprises of 10km zone around the mining Lease boundary has been prepared. Refer Fig No. 1.2 & Pg. No. 7 Data like reserves, waste generation up to life of mine have been incorporated in Chapter 2 (Pg. No. 39-51) of the EIA report.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use of the study area, parks, migratory routes of fauna, water bodies, human settlements, other existing mines/ industrial activity and other ecological features are shown in delineating forest area, agricultural land, grazing land, wildlife sanctuary and national parks. Page no. 121 - 133. Land use plan of the mine lease area is given in Page No. 33, Table No.2.9.
11.	Details of the land for any Over Burden Dumps outside the mine	Details of the dump design area given in Pg. No. 47. The mining operation will not

	lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	disturb/relocate any villages and hence R & R plan not required. (Refer Chapter 7, Clause 7.3, and Page No. 185).
12.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not applicable. The mining area does not involve any forest land (Refer Table 2.3 Pg No.19)
13.	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not applicable. The mining area does not involve any forest land (Refer Table 2.3 Pg No.19)
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable

15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	The details of reserve forest located within study area of 10km radius are given in chapter 2. Refer Table No 2.3 in Page No 19. The details of flora within the study area are given detail in Chapter 3. Refer Clause 3.9.7 in Page No 93.
16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Eco biodiversity (EB) study has been done for the project which details the impact on surrounding wildlife and mitigation measures are discussed and given in Chapter-4, Clause 4.10, Pg. No. 164-170.
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors and Tiger/Elephant Reserves within the 10 km radius of the mining lease area. Refer Page No. (Refer Table 2.3 Pg No.19).
18.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease) shall be carried out. Details of flora and fauna,	Details of Flora and Fauna found in the study area are given in Chapter 3 (Pg. No 93-99) in the EIA Report. No scheduled list of fauna is found in this study area.

	endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
19.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	The project site is neither falling under 'Aravalli range' nor it is located in proximity to area declared as Critically Polluted Area.
20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain	Not Applicable. Bay of Bengal is located 174km away from the lease area towards the SE side (Refer Page No. 19, Table 2.3). Hence the project does not attract the C.R.Z. Notification.

	approval of the concerned Coastal Zone Management Authority).	
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	The existing Grey Granite Quarry project does not involve any kind of displacement of the population since the mining will be concentrated only in the quarry area. Hence, Rehabilitation of settlement is not anticipated under this project as it is not required (Refer Chapter 7, Clause 7.3, and Page No. 185). The Socio-Economic study detailed in included in Clause 3.9 of Chapter 3, Page No 105-120.
22.	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in	Winter season monitoring data for a period of three months (Dec 1st 2022– Feb 28th 2023) on Air quality, Water quality, Noise level, Soil, Flora and Fauna in the core and buffer zones is collected and complied data wise in the EIA report (Chapter 3, Page No. 59-133).

	the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	
23.	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air quality modeling carried out for prediction of impact of the project on the air quality of the area, which is included in Chapter 4, Clause 4.1, Pg. No 134 -146. Wind Rose Pattern is shown in Fig. 3.1, Pg. No: 61 of Chapter 3.
24.	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The water requirement for the Project is 4.0 KLD; the details are given in Chapter – 2, Pg No.56. A detailed water balance is shown in Fig 4.6 of Chapter 4 (Page no.157)
25.	Necessary clearance from the	The grey granite quarry project requires water

	Competent Authority for drawl of requisite quantity of water for the Project should be provided.	for drinking, dust suppression and plantation. Drinking water is obtained from Mineral water industries. For Dust suppression, Green belt and other uses water will be obtained from ordinary water vendors through water tank. There is no extraction of ground water within lease area for the quarry activity. So no clearance from the Competent Authority is required.
26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	At the end of the project the quarried out pit will be used as Water storage pond. It will increase the agricultural activity in the surrounding villages. The rainwater harvesting and rate of evaporation is given in Chapter 7. (Refer Clause 7.4 of Chapter 7, page no.187).
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	The impacts of the project on the water quality are assessed and necessary safe guard measures will be provided. (Refer Clause 4.3 Chapter 4, Page No. 156-162).
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The mining operation will not intersect the ground water table. Schematic representation is shown in Page No: 159, Refer Fig.4.7. The depth of mining is 35m whereas the depth of water table is 50m bgl (for the scheme period). So No NOC is required from CGWA for the proposed project. However detailed Hydro geological study has been carried out and incorporated in Chapter 3 of Clause 3.7, Pg. No: 82 and Chapter 4, of Clause 4.6.5, Pg. No: 161.

29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream crossing inside the mining lease area and hence there is no need of modification/diversion (Refer Fig 3.27 in Page No.129).
30.	Information on site elevation, working depth, groundwater table etc. should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Elevation of the quarry area is 465m above MSL. The mining operation will be at a maximum depth of 35m (Ultimate). The ground water table is at 50m from the surface in the adjacent tube well, and mine workings are above groundwater table (Refer Fig No 4.7 in Page No.159).
31.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Phase-wise plan of plantation and Compensatory Afforestation and the plant species selected for green belt. The proposed afforestation plan is given in Table 4.31 of Chapter 4. Refer Page No.170.
32.	Impact on local transport infrastructure due to the Project	The transportation of minerals will be carried out through the existing roadways during day

	should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	work hours only with no increase in the existing traffic pattern (Refer Chapter 2, Fig No: 2.7, Page No.21).
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Details of the onsite shelter and facilities to be provided to the mine workers are discussed in Chapter 2 Clause 2.13. Refer Pg.No.56.
34.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual mining plan is given in Chapter 2. Refer Fig 2.21 in Page No.54.
35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the Project are detailed in EIA report (Refer Clause 4.13 of Chapter 4, Page no. 173).
36.	Public health implications of the	All control measure for public health

	Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	implications, air emission, noise control, and waste management will be duly considered as per norms and the remedial measures are detailed along with budgetary allocation in Chapter 10, Pg. No: 196-204.
37.	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details of community welfare activities to be done for the local community along with proposed budget have been incorporated in EIA Report (Refer Chapter 8, Pg. No: 190-194)
38.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management Plan (EMP) for the proposed quarry project has been prepared and incorporated in Chapter 10. (Pg. No. 196-204).
39.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	This draft EIA report has been prepared for conducting public hearing.
40.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation pending against the project.
41.	The cost of the Project (capital cost	Project Cost – 81.5 Lakhs

	and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	EMP cost- 10.50 Lakhs Refer Chapter 2, Clause 2.14, Page No.57)
42.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	A detailed Risk and Disaster Management Plan has been prepared and detailed in Chapter 7. (Pg. No: 181-183).
43.	Benefits of the Project if implemented shall clearly indicate environmental, social, economic, employment potential, etc.	Project Benefits have been detailed in Chapter 8. (Refer Chapter 8, Pg. No: 190-194).

General Points to be followed as per ToR

S.No .44	ToR	Compliance
a)	Executive Summary of the EIA/EMP Report	Executive Summary is furnished separately and given in Chapter 11.
b)	All documents to be properly referenced with index and continuous page numbering.	Yes, all documents are properly referenced with index and continuous page numbering.
c)	Where data are presented in the report especially in Tables, the period in which the data were collected and the sources should be indicated.	Yes. The data Collection period and sources are mentioned in table in EIA report.
d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	The Baseline Monitoring Report with all analytical reports done by a MoEF&CC/NABL accredited laboratory is enclosed with the EIA Report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	The documents are provided in English
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Yes, environmental appraisal of mining projects also submitted along with the EIA report.

g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should also be followed.	Yes, we followed the instructions for the proponents and consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009 while preparing EIA report.
h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	No changes have been made.
i)	As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified Report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	NA. The project is under violation as proponent operated the quarry before obtaining EC from competent authority.
j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All details of lease area and surface plan, geological maps and sections are included in Chapter 2 & Drainage, contour features are given in Chapter 3 in Fig 2.2, 2.4, 2.15, 2.16, 2.17, 2.19, 2.21 and Refer Page No 15, 17, 40, 41, 42, 48, 54 respectively.

Compliance of Additional TOR given by SEAC

S.No.	CONDITIONS	COMPLIANCE
1	The PP shall furnish an Independent Chapter 13 as per the MOEF&CC Violation Notification – S.O. 804(E), dated 14.03.2017 prepared by the accredited consultants within a period of one year from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance.	The detail of ecological damage assessment, remediation plan, CRAP and NRAP are given in independent chapter 13. Refer Page No 231-246
2	The Project Proponent shall conduct and furnish Minutes of Public Hearing as per ToR issued Dt: 18.05.2018 & 30.07.2018. Accordingly, the PP shall submit revised EIA/EMP.	Agreed. The draft EIA/EMP has been prepared for conducting public hearing. After conducting PH, the revised EIA/EMP will be submitted to SEIAA/SEAC.
3	As a part of procedural formalities as per the MoEF&CC Violation Notification – S.O. 804, dated 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environmental (Protection) Act, 1986 against violation.	The demand notice for this grey granite quarry has been issued by Department of Geology and Mining, Krishnagiri District vide Rc.No.1042/2018/C-52/Mines dated 17.07.2020. Refer Annexure XVII in Page No 440.
4	Copy of valid mining lease approval obtained from the competent Authority.	M/s. Karunai Granites Private Limited has been granite quarry lease vide G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999. Refer Annexure II in Page No 363. The lease was executed on 03.02.2000 and had expired on 02.02.2010. Refer Annexure III in Page No.367. The project proponent had submitted an application on 22.01.2004 for renewal of quarry lease of 11.59.0 Ha and the renewal applications are pending. The quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.
5	Letter stating that the quarry lease deed has not been cancelled or terminated and is	The Letter from competent authority stating that the quarry lease deed has not

	subsisting as on date.	been cancelled or terminated will be submitted during EC appraisal.
6	Copy of request letter submitted for renewal of mining plan.	The project proponent had submitted an application on 22.01.2004 for renewal of quarry leases of 11.59.0 Ha and the renewal applications are pending. Refer Annexure VI in Page No 393.
7	Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The second scheme of mining has been submitted to Department of Geology and Mining for getting their approval.
8	Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining, and copy of remittance of total penalty by PP.	Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining is attached as annexure. PP still not paid penalty and PP is waiting for judgment of High Court on SOP of penalty for violation case.
9	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	The latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site will be obtained and attached in Final EIA Report. It is under process.
10.	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	It is under process. It will be submitted during appraisal of EC application.
11.	In the case of proposed lease in an existing (or old) quarry where the benches are nonexistent (or) partially formed critical of the bench geometry approved in the Mining plan, the Project Proponent (PP) shall prepare and submit an 'Action plan' for carrying out the realignment of the 'high wall' benches of 16 m to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.	Agreed. Wherever, the bench is not as per previous approved mining plan, the "Action Plan" will be made to realignment the irregular benches and submitted to Asst. Director of Geology and Mining for attestation.
12.	The Proponent shall submit a conceptual 'Slope Stability plan' for the proposed	Agreed, the 'Slope Stability plan' will be prepared for the existing quarry indicating

	quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	the stabilizing measures as the depth of mining proposed is 35m bgl. It will be submitted during appraisal of EC application.
13.	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Agreed. The affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 will be attached in Final EIA report
14.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	As it is granite quarry, only mild blasting will be carried out to remove blocks from the parent rock by forming crack. So there will be no fly rocks in this project. Also there is no weathered rock deposited in this lease area.
15.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the state with video and photographic evidences.	The video taken by drone covering cluster of quarries is attached in CD. Refer Pouch of EIA report.
16.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, a) What were the period or the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out. c) Highest production achieved in any one year. d) Detail of approved depth of mining. e)Actual depth of the mining achieved	The quarry is not in operation due to violation case. The quantity of granite excavated during violation period is mentioned in demand notice. Refer Annexure XVII in Page No 440. The existing depth of mining is 25m bgl.

	earlier. f) Name of the person already mined in that leases area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
17.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The Toposheet showing location of the lease area is attached in Chapter 1. Refer 1.2 in Page No.7. The geology and geomorphology of the 10km radius of proposed area is given in Chapter 2. Refer Page No 27. The land use/land cover image is given Chapter 3. Refer Page No 125.
18.	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.	The Drone survey has been carried out. The video is attached in CD. Refer Pouch of EIA report.
19.	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including re plantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The fencing and green belt development along the periphery is under process. The photographs will be attached in Final EIA Report.
20.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, and proposed working methodology with justifications, the anticipated impacts of the mining on the surrounding environment and the remedial measures for the same.	The details of reserves, production capacity and methodology are given in Chapter – 2. Refer Page No 28-54 & 134-175 in chapter 4.
21.	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials	The employment potential of proposed project is given in Chapter 2. Refer Page No 55

	and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	
22.	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may be clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro geology study has been conducted within the study area of project site. Refer Page No 82-85 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page no 19. The depth of water table identified by Geo resistivity survey is 50m bgl whereas the proposed depth of mining is 35m bgl. Therefore the mining activity will not intersect ground water table. The schematic diagram is given in chapter 4. Refer Page No 159.
23.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water & ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data for the environmental and ecological parameters were collected. Refer Chapter 3.
24.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly' the Environment management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The anticipated cumulative impact on various environments such as air, water, soil and noise etc due to proposed mining activity are given in Chapter 4 with appropriate mitigation measures. The environmental management plan is given in Chapter 10.

25.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) is submitted.	The studies on rain water harvesting are given in Chapter 7. Refer Page No 187.
26.	Land, use of the study area delineating forest area, Agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The land use/land covers of 10km radius of proposed mining lease area are given in Chapter 3. Refer Fig No 3.25 in Page No 125.
27.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. All waste and rejects shall be dumped within the lease area of 11.59.0 Ha of M/s.Karunai Granites Private Limited.
28.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	No. There is no boundary of critically polluted area found within 10km radius proposed mining lease area.
29.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the project, if any, should be provided.	At the end of mining, the quarried out pit will be used for storing rain water which will enhance agricultural activity around the lease area. The rain harvesting plan is given detail in Chapter 7. Refer Page No 187.

30.	Impact on local transport infrastructure due to the project should be indicated.	No. The existing roads are available to withstand the traffic generated due to proposed project. Refer Fig No.2.7 in Page No 21 of Chapter 2.
31.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Only mango plantations are mostly found around the lease area. The age of mango trees in the buffer zone are 8-10 years.
32.	A detailed mine closure plan for the proposed project which should be site specific.	The mine closure plan for the proposed project is included in the EIA report. Refer Fig No 2.21 in Chapter 2. (Page No 54)
33.	Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the project and to be submitted to SEIAA/SEAC with regard to the office Memorandum of MoEF& CC accordingly.	Agreed. Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions shall be included in the final EIA report.
34.	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Agreed. The Public hearing advertisement will be published in one major National daily and one most circulated vernacular daily
35.	The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.	Agreed. The EIA report and executive summary will be translated to Tamil language and same will be displayed for public.
36.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Agreed. The EIA coordinator will educate the local students on the importance of preserving local flora and fauna during public hearing meeting.

37.	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Agreed. In consultation with the DFO, State Agriculture University, the green belt will be made around the boundary of lease area to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated
38.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Agreed. Taller/one year old Saplings will be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices.
39.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period..	The Disaster management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 181 of Chapter 7.
40.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk Assessment and management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 181 of Chapter 7.
41.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical	An occupational Health impact of the Project has been anticipated and the appropriate mitigation measures are given in Chapter 4 of EIA report. Refer Clause 4.13 in Page No.173.

	examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
42.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Yes it is given in EIA report. Refer Clause 4.13.3 in Page No.173 of EIA report
43.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The study on Socio-economic for the proposed project is mentioned in Clause 3.10 of Chapter 3. Refer Page No 105 of EIA report.
44.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	Nil
45.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	The benefits of the proposed project are given detail in Chapter 8. Refer Page No 190-194
46.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	The PP operated the quarry after 15.01.2016 without EC and the quarry comes under violation as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. At present, the quarry is not in operation.

47.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP for the proposed project is mentioned in Chapter 10 along with EMP cost. The affidavit stating to abide the EMP for the entire life of mine will be attached in final EIA report.
48.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Agreed.

Compliance of conditions mentioned in TOR letter by SEAC

S.No	ToR's	Compliance
1.	The ToR issued only to carry out EIA Studies and mere preparation of EIA report will not entitle the PP to EC.	Agreed. As per TOR letter, draft EIA report has been prepared. After conducting PH, the EC application will be made in PARIVESH portal for obtaining EC from SEIAA/SEAC.
2.	The project proponent shall furnish the status of the court case.	The high court order is attached in EIA report. Refer Annexure VII in Page No 397.
3.	The project proponent shall furnish approved and valid scheme of mining plan along with EIA report.	The 2nd scheme of mining has been prepared and submitted to Department of Geology and Mining for getting their approval.
4.	The project proponent shall furnish the letter obtained from AD mines regarding extension of lease/execution of new lease along with EIA report.	The lease renewal application has been submitted on 22.01.2004 and the renewal applications are pending. The renewal application is attached as annexure VI in Page No 393.
5.	The project proponent shall furnish valid EMP.	Yes, EMP is furnished in separate chapter 10. Refer Page No 196-202
6.	The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC.	NA. The PP operated the quarry after 15.01.2016 without EC and the quarry comes under violation as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. At present, the quarry is not in operation.
7.	The PP shall furnish Copy of valid mining lease approval obtained from	M/s. Karunai Granites Private Limited has been granite quarry lease vide

	the competent Authority.	G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999. Refer Annexure II in Page No363. The lease was executed on 03.02.2000 and had expired on 02.02.2010. Refer Annexure III in Page No 367. The project proponent had submitted an application on 22.01.2004 for renewal of quarry lease of 11.59.0 Ha and the renewal applications are pending. The quarry was worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.
8.	The PP shall furnish Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The second scheme of mining has been submitted to Department of Geology and Mining for getting their approval.
9.	The PP shall furnish EMP for the project life including progressive mine closure plan with detailed budget plan.	The detailed environment management plan including mine closure plan with budget is mentioned in Chapter 10. Refer Page No.196-202
10.	The PP shall study in detail about CO_2 release and temperature rise and add to micro climate alterations and the same shall be included in the Final EIA report.	The carbon emission, its impacts and mitigation measures are mentioned in Chapter 4. Refer Page No 146-147.
11.	The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.	The study on water environment (both surface water and ground water) is given detail in Chapter 4. Refer Page No.156-162.
12.	The PP shall study in detail about soil health, climate change leading to droughts, floods etc.	The physical and chemical characteristic of soil in core and buffer zone is mentioned in chapter 3. Refer Table No 3.9 in page No.89.
13.	The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.	The carbon emission, its impacts and mitigation measures are mentioned in Chapter 4. Refer Page No 146-147.
14.	The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.	The study on water contamination and impact on aquatic ecosystem health in given in Table 4.29. Refer Page No 169 in Chapter 4.

15.	The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA report.	The study impact on ecology and biodiversity and on ground water table is given chapter 4. Refer Page no.159 and 164-166 in chapter 4.
16.	The PP shall study the impact on Invasive Alien Species (IAS).	There are no Invasive Alien Species found within the study area.

Compliance of Annexure 'B'

S.No.	CONDITIONS	COMPLIANCE
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as member including the existing as well as proposed quarry.	Agreed. The Cluster Management Committee will be formed as per SEAC guidance.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. After forming CMC, the all the members will implement environment management plan effectively. Effective plan has been given in Chapter – 4
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The List of members of the committee formed will be submitted to AD/Mines before the commencing the quarry activity.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Certified Blaster will be engaged for blasting having adequate knowledge in Environmental safety aspects. Plan will be included in Final EIA report. The usage of haul roads by the individual quarry is attached in EIA report. Refer Fig No 2.21 in page No 54 of Chapter 2.
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk Management is elaborated in Chapter 7 of the Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice	Agreed. The CMC will form Environmental Policy to practice

	sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	sustainable mining in a scientific and systematic manner. The same shall be displayed within the cluster area.
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	The conceptual plan for the quarry area 11.59.0 Ha is attached in draft EIA report. Refer Fig No 2.21 in page No 54 of Chapter 2. After forming CMC, the restoration strategy of individual quarry will be submitted to AD Mines, Krishnagiri.
8	The committee shall furnish the Emergency Management plan within the cluster.	Agreed. After forming CMC, the committee will furnish the Emergency Management plan to AD Mines, Krishnagiri
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Occupational safety and Health care of the workers are included in Chapter – 4 in draft EIA report
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. After forming CMC, he committee will furnish the action plan to achieve sustainable development goals with reference to water, sanitation & safety to AD Mines, Krishnagiri.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. After forming CMC, he committee will furnish fire safety and evacuation plan to AD Mines, Krishnagiri.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following i) Soil health & bio-diversity. j) Climate change leading to Droughts,	Impact on Soil Health, biodiversity, carbon emission and impact on water environment including aquatic ecosystem and

	Floods etc. k) Pollution leading to release of Greenhouse gases (CHG), rise in Temperature, & Livelihood of the local people. l) Possibilities of water contamination and impact on aquatic ecosystem health. m) Agriculture, Forestry & Traditional practices. n) Hydrothermal/Geothermal effect due to destruction in the Environment. o) Bio-geochemical processes and its foot prints including environmental stress. p) Sediment geochemistry in the surface streams.	on agricultural environment are discussed in detail in Chapter 4.
Agriculture & Agri - Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining area.	The impact on surrounding agricultural fields is given in chapter 4. Refer Clause 4.14 in page No.174
14	Impact on soil flora & vegetation around the project site.	The impact on ecology and biodiversity including soil flora & vegetation around the project site is mentioned in Chapter 4. Refer Page No.164-170
15	Details of type of vegetations including no of trees & shrubs within the proposed mining area and if so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in the EMP.	This is existing grey granite quarry, so there are only few numbers of mango trees found within the quarry area. During operation of quarry all the trees will be transplant along the mining lease boundary.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural ecosystem.	The impact on ecology and biodiversity including the soil micro flora, fauna and soil seed banks around the project site is mentioned in Chapter 4. Refer Page No.164-170
17	Action should specifically suggest for sustainable management of the area and	At the end of mining, the quarried out pit will be used as

	restoration of ecosystem for flow of goods and services.	water storage pond which improves the agricultural activity in the buffer zone. Refer Page No 53 in Chapter 2. The afforestation plan for five years is given in Chapter 4. Refer Table No 4.31 in Page No.170.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, horticulture, Agriculture and livestock.	Anticipated impact on Agriculture, Horticulture and livestock is given Chapter 4. Refer Clause 4.14.2 in Page No 175.
Forests		
19	The project proponent shall detailed study on impact of mining on reserve forests free ranging wildlife.	There are five reserve forest located within 10km radius and the nearest forest is Thogarapalli R.F located at the distance of 2.41km in south direction. There are no wildlife sanctuaries within 10km radius. Refer Table 2.3 in Page No 19 of Chapter 2. The impact on reserve forest and wild life sanctuary is given in Chapter 4. Refer Clause 4.10 in page No 164.
20	The Environmental Impact Assessment should study on impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no endangered species found within 10km radius study area.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	As it is existing grey granite quarry, no trees and shrubs are present in the quarry area.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There are no protected areas, National Parks, Corridors and Wildlife pathways within 10km radius of the project site. There are 5 reserve forest located within 10km radius. The impact on reserve forest is given in Chapter 4. Refer Clause 4.10 in page No 164.
Water Environment		
23	Hydro-geological study considering the	The hydro geology study has

	contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. Within 1km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	been conducted within the study area of project site. Refer Page No 82-85 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page no 19. The depth of water table identified by Geo resistivity survey is 50m bgl whereas the proposed depth of mining is 35m bgl. Therefore the mining activity will not intersect ground water table. The schematic diagram is given in chapter 4. Refer Page No 159.
24	Erosion Control measures.	To control the erosion, the tree sapling will be planted along the mining lease boundary. Garland drainage will be developed around the dump to control the washout of dump due to hydrostatic pressure.
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/Rivers, & any ecological fragile areas.	The impact of mining on the nearby villages and water bodies are given detail in chapter 4.
26	The Project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	The detailed study of impact on fish habitation and food WEB/ food chain in the water body and reservoir is given in Chapter 4. Refer Table 4.29, Page No 169.
27	The Project Proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The detailed impact studies are given in Chapter 4.
28	The Project Proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological site possible land form changes visual and	The study and the impact on aquatic plants and animals in water bodies are mentioned in Chapter 4. Refer Clause 4.10 in Page No 183. There are no caves, heritage site,

	aesthetic impacts.	and archaeological site found within 10km radius of project site.
29	The terms of reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact study on soil health and erosion is given in Clause 4.7 in Chapter 4. Refer Page no 163. The soil physical, chemical components and microbial components are given in Chapter 3. Refer Page No.89, 90.
30	The Environmental Impact Assessment should study on wet lands, water bodies, rivers, streams, lakes and farmer sites.	The impact study on surface water bodies and agricultural land is given in Chapter 4. Refer Page No 156-161, 173-175.
Energy		
31	The measures taken to control Noise, Air, Dust control and steps adopted to efficiently utilise the energy shall be furnished.	The mitigation measure for air pollution and noise pollution is given in chapter 4. Refer Page No 145 and 152.
Climate change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter 4. Refer Clause 4.2 in Page No 146.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter4. Refer Clause 4.2 in Page No 146.
Mine closure plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued is given in Chapter 2, pg.No. 53-54
EMP		
35	Detailed Environmental Management Plan along with adaption, mitigation & remedial strategies covering the entire mine lease	Detailed environmental management plan is given in Chapter 10, pg. No. 196.

	period as per precise area communication order issued.	
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The environmental management plan is given chapter 10. The cost for green belt development is mentioned in Table 10.4 in Chapter 10. Refer Page No 203. Budget for mine closure plan is given in Table 10.5 in Page No 204 of Chapter 10. The disaster management plan is given in Chapter 7. Refer page no 181
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.	Disaster management plan is given in Chapter 7, pg. No. 181
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details are furnished in Table 7.1 in chapter 7, pg.No. 181
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank etc.	The letter regarding approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank within 300m radius will be obtained from VAO. It is under process
40	As per the MoEF&CC office memorandum F.No22-65/2017-IA.III dated. 30.09.2020 and 20.10.2020 the proponent shall	Draft EIA is been prepared for conducting public hearing. The points raised in PH and funds

	address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	allocated will be included in Final EIA report.
41	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The study on pollution due to plastic and micro plastic and its ecological risk is mentioned in Chapter 7. Refer Clause 7.5 in Page no 188.

Additional TOR specified by SEAC to deal with the violation aspects of the mining projects

Sl. No	ADDITIONAL TOR CONDITIONS	COMPLIANCE
SECTION A	**Step 1: Enumerate the aspects of Violation:** d) The proponent should enumerate the violations as applicable to the project. e) Furnish a description of each violation with quantitative and qualitative data. f) Violation categories are to be decided taking into consideration the stage at which the project execution stands.	Kindly Refer Chapter 13 for the detail violation report.
	Step 2: Ecological Damage Assessment: a) For each aspect of violation enumerated in step (1), identify the resultant environmental damage that may have been caused. b) Furnish a description of the environmental damages with quantitative and qualitative data.	Reference: Clause 13.2, 13.5, 13.6, (Page No.231, 239-245).
	Step 3: Remediation Plan: c) For the Environmental damage(s) identified in the step (2) above, prepare the remediation plan for each or combination of damages. d) The remediation plan should essentially consists of problem statement, target to be achieved (quantity), standards, technology/procedure for remediation, equipment and machinery to be used, time schedule and remediation cost (direct and indirect cost, capital as well as O&M costs).	The remediation plan for each damages assessed is given detail. Reference: Clause 13.3, 13.4 (Page No. 239-245). Reference: Table No. 13.6.5.2, (Page No.245).
SECTION B	**1. Natural resource Augmentation:** d) The resources that should be considered for augmentation should essentially consist of land, biota, air, water and other resources as applicable e) Proponent may choose one or more of the	Reference: Table No. 13.5, (Page No.245).

	resource augmentation as applicable and provide a description of the augmentation proposal in detail for each resource. f) The proponent should also furnish the cost for each augmentation scheme.	
	2. Community resource Augmentation: c) The proponent should prepare a plan of action for addressing the needs of the community in terms of resources in the sectors of education, health and sports primarily and other such resources as applicable to the community in the vicinity of the project. d) The community resource augmentation plan should consist of rehabilitation of houses and people, budget allocation and time schedule for completing the activity.	Reference: Table No. 13.5, (Page No.245). Not applicable
SECTION C	The proponent should prepare content for the ecological damage assessment, remediation plan, natural resource augmentation and community resources augmentation separately in a chapter and include in the EIA/EMP report	Reference: Chapter 13 (Page No.239-246)
SECTION D	d) After the appraisal of the EIA/EMP report submitted by the proponent, the SEAC will make a judgment of the quality of the content in the EIA/EMP report specifically with reference to the chapter covering the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.	Yet to be appraised
	e) In the judgment of SEAC, if the quality of the content in the chapter is not satisfactory, the SEAC may direct the proponent to further revise the chapter and resubmit the EIA/EMP report.	Yet to be appraised
	f) If SEAC concludes that the technical part is satisfactory and the costing aspect is not satisfactory then the SEAC may revert to	Yet to be appraised

	legal provisions, MoEF & CC guidelines and similar expert committee recommendations for finalizing the cost aspects or the SEAC may use its own expertise and experience in finalizing the cost.	
SECTION E	The proponent is directed to furnish data as per the questionnaire appended in Annexure I. It will help the SEAC in arriving the ecological damage and the associated cost.	It is furnished in Annexure-I of ToR compliance
SECTION F	In compliance with the Supreme court order stated in MoEF & CC letter F.NO. 3-50/2017 IA.III-pt dated:05th January 2018, the proponent is required to submit the No Objection Certificate obtained from the department of Geology and Mining, Government of Tamilnadu regarding payment of 100% cost of illegally mined mineral under section 21(5) of MMDR Act 1957 which would account for mining operations in violations of the following: f) Without Environmental Clearance(EC), or in excess of the quantity approved in EC g) Without Consent to Operate (CTO) or in excess of the quantity approved in CTO and h) Without mining plan/scheme of mining or in excess of the quantity approved in mining plan/scheme of mining i) Without Forest Clearance j) Any other violation List out the details of reserve forest and wildlife sanctuary nearby the project site (the details should also include other districts which are nearby the project site) and also furnish the detail of distance between the project site and reserve forest/wildlife sanctuary. Whether the project site attracts the HACA	To be obtained The list of reserve forest within in 10km radius is given in Table No 2.3 in Page No 19 of Chapter 2. There is no wildlife sanctuary within 10km radius of project site. The project site is not HACA land.

	clearance? If so, also furnish the HACA clearance for the mining from the competent authority. The proponent is instructed to fill in the form contained in **Annexure 1** to work out the details of the ecological damage during the violation period.	It is furnished in Annexure I of ToR compliance

ANNEXURE 1

Additional Information for Considering EC for Mining Projects

S. No.	Details to be provided	Page No.
1]	Name of the project lease & owner	1
2]	Lease Extent	1
3]	Lease Validity	1
4]	Approved Mining Plan/Scheme – Review a] Specify whether DSR is provided [applicable in case of minor minerals only]	DSR is given in TOR application
5]	Specify – Nature and type of violation	Without EC
	VI. Without EC or in excess of quantity approved in EC	
	VII. Without CTO or in excess of quantity approved in CTO	
	VIII. Without mining plan/Scheme of mining or in excess of quantity approved in Mining Plan/Scheme of mining	
	IX. Without Forest Clearance	
	X. Any other violation	
6]	Violation period	Nil One year
	III. Number of months	
	IV. Number of Years	
7]	Exploitation/Excavation quantity – Reserves proved through exploration by drilling	Pg No.39
8]	Give details of production from the date of execution of the lease deed / since 1994	Pg No.47
9]	Quantity mined out during the violation period & if, yes indicate the violated quantity, in term of % of consented quantity.	Refer Annexure XVII
10]	State illegal mining / encroachments outside the lease boundary? Percentage of quantity mined out outside the lease boundary.	Not applicable
11]	Method of working	[a]
	III. Category type ;[a] Mechanised [b] Semi-Mechanised [c] Manual	
	IV. Construction and design of haul roads	
	[a] Dimension as per the statutory requirements which were followed or otherwise	29
	[b] Number of vehicles plying on the main haul roads inside the mine and the approach road to the pit located outside the mine, if any.	

<table>
<tr><td></td><td>[c] Are any measures taken to minimize fugitive dust generated form mine haul roads /Does it comply with the CPCB/PCB Guidelines/</td><td>145</td></tr>
<tr><td></td><td>[d] Is there a possibility that air pollutants emitted from the project area that do not comply with air quality standards as per CPCB/PCB/</td><td>No</td></tr>
<tr><td>12]</td><td>Mechanized /Semi- Mechanized Method of Mining</td><td></td></tr>
<tr><td></td><td>[i] Number of loading/excavating equipments as per approved mining plan and capacity.</td><td>29</td></tr>
<tr><td></td><td>[ii] Number of loading/excavating equipments actually being deployed and capacity.</td><td></td></tr>
<tr><td></td><td>[iii] Type and number of transporting equipments.</td><td></td></tr>
<tr><td></td><td>[iv] Type of transporting system used –[a] trucks
[b] Any other mode</td><td></td></tr>
<tr><td></td><td>[v] Capacity and No. Trucks used as per approved mining plan</td><td></td></tr>
<tr><td></td><td>[vi] Capacity and No. Trucks used actually in the mine</td><td></td></tr>
<tr><td></td><td>[vii] Number and Capacity of loading equipments and trucks used not in line with approved mining plan
<table>
<tr><td></td><td>Capacity [m^3]</td><td>Numbers</td></tr>
<tr><td>Excavator</td><td>-</td><td>-</td></tr>
<tr><td>Tipper</td><td>-</td><td>-</td></tr>
</table></td><td></td></tr>
<tr><td></td><td>[viii] Impact of excess deployment of loading equipments [excavators] and transporting equipments on environment.
[a] Air pollutants
[b] Water Quality
[c] Land Quality
[d] Noise level</td><td>No excess equipment.</td></tr>
<tr><td></td><td>[ix] Does the deployment of loading equipments[excavators] and trucks fulfill the statutory requirements as per MMR 1961, with respect to the site conditions/</td><td>Yes</td></tr>
<tr><td>13]</td><td>Method of Rock Breaking / Material preparation for the excavation;</td><td>28-32</td></tr>
<tr><td></td><td>[i] Methodology adopted-</td><td></td></tr>
<tr><td></td><td>[a] Drilling and blasting</td><td></td></tr>
<tr><td></td><td>[b] Rock breakers</td><td></td></tr>
<tr><td></td><td>[c] Rippers</td><td></td></tr>
<tr><td></td><td>[d] Surface miners</td><td></td></tr>
<tr><td></td><td>[e] Direct mucking by excavators</td><td></td></tr>
<tr><td></td><td>[f] Manual means</td><td></td></tr>
<tr><td></td><td>[g] Any other methods or combination of above</td><td></td></tr>
</table>

	[ii] Incase of drilling and blasting method	134-175
	[a] Type of blasting ; short hole or deep hole	
	[b] Whether controlled blasting technique adopted / If yes, specify the technique with details of the study , year of study	
	[c] Impacts due to blasting defined as per the studies, if any carried out previously as indicated	
	[d] Dust pollution	
	[e] Noise level[dB[A]]	
	[f] Ground vibration studies and Fly rock projection	
	[iii] Impact of preparation of Ore and waste on environment-	
	[a] Air Pollution	
	[b] Noise Pollution	
	[c] Water Pollution	
	[d] Safety standards	
	[e] Traffic density	
	[f] Road Conditions[vulnerability]	
14]	Construction and Design of Dumps.	49, 53, 54
	[a] Place / Location.	
	[b] Approach to Dump form the mine distance and safety standards.	
	[c] Area of extent occupied.	
	[d]Dimension of Dump and No. of terrace with heights [benches].	
	[e] Vegetation covered; If yes, specify the details of plants.	
15]	Construction and Design of Waste Dumps.	49, 53, 54
	[i] Numbers and Location of Dumps as per approved Mining Plan.	
	[ii] Specify whether reject dumps are located within or outside mining lease.	
	[iii] Area occupied in excess of the approval mining plan.	
	[iv] Dimension of Terracing, Light, shapes, etc., Dump as per approved Mining Plan.	
	[v] Fresh/Existing Dimension Height, shape, width. etc., of Dumps in the mine.	
	[vi] Volume/Quantity added to Waste / Dump during the violated period.	
	[vii] Approach to the Dump-Dimension, distance.	
	[viii] Number of and type of equipments deployed in Dump.	
	[ix] Provision of Garland drains around the Dumps.	
	[x] Any vegetation made on the slopes.	
	[xi] Provision of safety standards.	134-175

	[xii] Impact of Waste/Dumps on environment.	
	[a] Air Pollution	
	[b] Water Pollution	
	[c] Dust Pollution	
	[d] Noise Pollution	
	[xiii] Terracing	
16]	Construction and Design of Ore and sub grade ore / mineral Stacks;-	NA
	[i] Number and Location of Ore stacks.	
	[ii] Dimension of Ore / sub grade Stacks as per the Approved Mining Plan	
	[iii] Volume / Quantity added during the violation period.	
	[iv] Any Screening plant or any other loading equipment engaged during the violated period.	
	[v] Approach to Ore / sub grade stack – Distance, hazards.	
	[vi] Safety standards adopted while operation.	
	[vii] Impact of ore / sub grade on environment.	
	[a] Air Pollution.	
	[b] Water Pollution.	NA
	[c] Dust Pollution.	
	[d] Noise Pollution.	
17]	Mine Pit Water	156-163
	[i] Intersection of Ground water table, specify the measures taken.	
	[ii] Ground water table as per hydro geological Studies [Pumping test].	
	[iii] Provision of Garland drains around pit and dumps.	
	[iv] Water pollution.	
	[v] Management of mine water.	
	[vi] Ultimate pit limit, w.r.t. Ground water intersection and management of drainage of ground water.	
18]	Diversion of General Drainage / River / Nallah course for mining.	No
19]	Clearing of vegetation before the commencement of mining operation – Number of trees [species wise].	No
20]	Man Power.	55
	[a] Statutory management.	
	[b] Regular [Non-statutory] Manpower.	
21]	Occupational Health and Safety.	173-174
	[a] Periodical monitoring of health standards of persons employed as per Mine Act, 1952.	

	[b] Failure to inform statutory bodies periodically, if any.	
22]	Population [Nearby Habitation].	107, 185
	[i] Population/Significant Population / Dense Population within the buffer zone of 10 km.	
	[ii] People displacement due to mining activities.	
	[iii] Location / Existence of habitation near the river or any other historical / sensitive / forest distance.	
	[iv] Impact of mining on Surrounding and habitation- Air, Water, Noise, Pollution.	134-175
	[v] Socio Economic aspects of mining.	105-120
23]	CSR.	
	[a] Field ground Activities or studies. Actual amount spent towards CSR and the future proposal.	192
24]	NOC from DMG for quantity clarification in respect of settlement of all the amount payable against identified violation.	To be obtained
25]	For the Clearance of EC, Public Hearing is mandated as per MoEF & CC Notification. Give reason for exemption of Public Hearing.	The PH will be conducted
26]	Conceptual post mining land use / restoration.	53, 54
27]	Litigation / court cases, if any pending.	NA
28]	Disaster management plan for the mine.	181-183

CHAPTER – 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

The Applicant, **M/s. Karunai Granites Private Limited** has been granted two quarry leases from the State Government for quarrying grey granite over an extent of 3.15.5 Ha and 11.59.0 Ha in S.F.No 299/2 (P) & 301/1 (P) and in S.F.No 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A respectively located in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 and G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 respectively for the period of ten years.

The mining plan for the areas 3.15.5 Ha and 11.59.0 Ha was approved by commissioner of geology and mining, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994 and letter No.2245/MM9/2004 dated 24.08.2004 respectively. For the lease area 3.15.5 Ha, the lease deed was executed on 02.02.1995 and had expired on 01.02.2005 and for the lease area 11.59.0 Ha, the lease deed was executed on 03.02.2000 and had expired on 02.02.2010.

The project proponent had submitted an application on 21.01.2004 and 22.01.2004 for renewal of quarry leases of 3.15.5 Ha and 11.59.0 Ha respectively and the renewal applications are pending. The quarries were worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.

Accordingly Scheme of mining is prepared under Rule 18 (3) of GCDR, 1999 and Rule 41 of TNMMCR, 1959 for the existing mining lease once in five years for systematic and scientific development of quarry. Now the 3rd and 2nd scheme of mining has been prepared for the lease area 3.15.5 Ha and 11.59.0 Ha respectively and it is waiting for approval from department of geology and mining.

The grey granite quarries of M/s Karunai Granites Private Limited falls under violation case as they started working before grant of EC as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. Therefore, the Proponent, M/s Karunai Granites Private Limited applied for grant of Terms of Reference to SEIAA/SEAC, TN under violation for lease area 3.15.5 Ha and 11.59.0 Ha.

The proposals have been placed in 340th and 357th SEAC meeting and in 585th and 603rd SEIAA meeting and SEIAA granted Terms of Reference for preparation of EIA/EMP report, Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation for obtaining an Environment Clearance from SEIAA/SEAC, Tamil Nadu. The details of Terms of reference are given in below table.

Table No1.1 Details on Terms of Reference

S.No	Name of Proponent	ToR Application No	SEAC and SEIAA Meeting No	TOR letter No
1	M/s. Karunai Granites Private Limited (3.15.5 Ha)	SIA/TN/MIN/26168/2018 Dated 22.05.2018	340th and 357th SEAC meeting, dated 23.12.2022 and 23.02.2023 respectively 585th and 603rd SEIAA meeting, dated 13.01.2023 and 21.03.2023 respectively	Lr.No.SEIAA TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023
2	M/s. Karunai Granites Private Limited (11.59.0 Ha)	SIA/TN/MIN/53603/2016 Dated 10.05.2016	340th and 357th SEAC meeting, dated 23.12.2022 and 23.02.2023 respectively 585th and 603rd SEIAA meeting, dated 13.01.2023 and 21.03.2023 respectively	Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023

In TOR letters, it is mentioned that public hearing needs to be conducted for the existing granite quarries of M/s. Karunai Granites Private Limited for obtaining EC. As per MOEF&CC SO 141 (E) dated 15.01.2016-Appendix XI, there shall be one public consultation for entire cluster after which the final Environmental Impact Assessment Report or Environmental Management Plan report for the cluster shall be prepared.

Based on the OM issued by MOEF & CC, the combined Draft EIA/EMP report has been prepared as per the Terms of Reference including Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation for the two quarries in the cluster of 14.745 Ha for conducting public hearing. The points raised in the public hearing and the commitments of the project proponent will be given detail in the Final EIA Report which will be submitted to SEAC/SEIAA, TN for obtaining environmental clearance.

1.2. IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

Table 1.2 Details on Project and Project Proponent

A. Proposed Projects to Conduct Public Hearing	
1. M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)	
Particulars	**Details**
Address of the Project Proponent	**M/s. KARUNAI GRANITES PRIVATE LIMITED** Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.
Lease Area	3.15.5 Hectares (Patta Land)
Site Location	S.F.No: 299/2 (P) & 301/1 (P), Jagadevipalayam Village, Bargur Taluk and Krishnagiri District and Tamil Nadu
Geographical Co-ordinates	Latitude: 12°29'14.95"N to 12°29'22.53"N Longitude: 78°20'26.88"E to 78°20'36.60"E
Toposheet No.	57 L/7
Elevation	Elevation of the area is 455-457m above MSL
G.O Letter	G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995.
Period of Lease	10 years (02.02.1995 to 01.02.2005)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Mining Plan Approval Details	Mining plan approved by Commissioner of Geology and Mining, Guindy, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994. Now the 3rd scheme of mining has been prepared for the period from 2020-2021 to 2024-2025 and submitted for approval.
2. M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)	
Particulars	**Details**
Address of the Project Proponent	**M/s. KARUNAI GRANITES PRIVATE LIMITED** Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.
Lease Area	11.59.0 Hectares (Patta Land)
Site Location	S.F. No. 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village, Bargur Taluk and Krishnagiri District and Tamil Nadu
Geographical Co-ordinates	Latitude: 12°29'9.06"N to 12°29'26.41"N Longitude: 78°20'18.72"E to 78°20'38.29"E

Toposheet No.	57 L/7
Elevation	Elevation of the area is 465m above MSL
G.O Letter	G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999
Period of Lease	10 years (03.02.2000 to 02.02.2010)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Mining Plan Approval Details	Mining plan approved by Commissioner of Geology and Mining, Guindy, Chennai vide letter No.2245/MM9/2004 dated 24.08.2004. Now the 2nd scheme of mining has been prepared for the period from 2020-2021 to 2024-2025 and submitted for approval.

Table No: 1.3 Land Particulars

1. M/s. Karunai Granites Private Limited (3.15.5 Ha)				
State & District	**Taluk**	**Village**	**S.F.No**	**Applied area for quarrying**
Tamilnadu & Krishnagiri	Bargur (Formerly Krishnagiri)	Jagadevipalayam	299/2 (P)	3.15.5Ha
			301/1 (P)	
Total				**3.15.5Ha**
2. M/s. Karunai Granites Private Limited (11.59.0 Ha)				
State & District	**Taluk**	**Village**	**S.F.No**	**Applied area for quarrying**
Tamilnadu & Krishnagiri	Bargur (Formerly Krishnagiri)	Jagadevipalayam	294/4	2.27.0
			295/2A	0.81.0
			295/2B	0.78.0
			295/2C	1.21.0
			298/2	0.65.0
			298/1C2	1.17.0
			301/1(P)	0.64.5
			301/2	0.10.0
			301/3A	3.95.5
Total				**11.59.0**

1.3. BRIEF DESCRIPTION OF THE PROJECT

1.3.1. Nature and Size of the Project

Open cast Mechanized mining shall be adopted to raise the production in this area and transportation of granite and waste. Hydraulic excavators and tippers have been used for loading and transporting the rejects and wastes. Cranes are used for loading the granite blocks in the tipper. The wire saw cutting is adopted below second bench

to recover more granite blocks to increase the rate of recovery. Granite is being used for decorative purposes in building, monument, Institutional, commercial and residential buildings in the form of slabs, tiles, cut to size, markers etc.

For the lease area of 3.15.5Ha, the geological resource is estimated as 991353 m^3 whereas mineable reserves area is estimated as 616470m^3 up to a depth of 35m from the surface. The production shall be 45113m^3 at the rate of 25% recovery for five years. The above said reserves and productions are as per 3rd scheme of mining (2020-21 to 2024-25).

For the lease area of 11.59.0Ha, the geological resource is estimated as 26,62,984 m^3 whereas mineable reserves area is estimated as 18,60,000m^3 up to a depth of 35m from the surface. The production shall be 1,32,460m^3 at the rate of 25% recovery for five years. The above said reserves and productions are as per 2nd scheme of mining (2020-21 to 2024-25).

1.3.2. LOCATION OF THE PROJECT

The proposed sites are easily accessible from Krishnagiri. By travelling from Krishnagiri via NH77 (Krishnagiri to Uthangarai) Jagadeveipalayam Village is reached at the distance of 11km. From the Jagadeveipalayam Village, by travelling via Jagadevi-Bargur road, a road section near super granite is reached at the distance 1.4km. From the road section, by travelling right side or eastern direction, the project site is reached at the distance of 1.9km. The area is represented by Survey of India Toposheet No. **57L/7.** The location map is given in fig no 1.1. The latitude and longitude of two lease areas are given in below table

Table No.1.4 Latitude and Longitude of two existing quarries

S.No	Project Site	Latitude	Longitude
1	M/s. Karunai Granites Private Limited (3.15.5Ha)	12°29'14.95"N to 12°29'22.53"N	78°20'26.88"E to 78°20'36.60"E
2	M/s. Karunai Granites Private Limited (11.59.0ha)	12°29'9.06"N to 12°29'26.41"N	78°20'18.72"E to 78°20'38.29"E

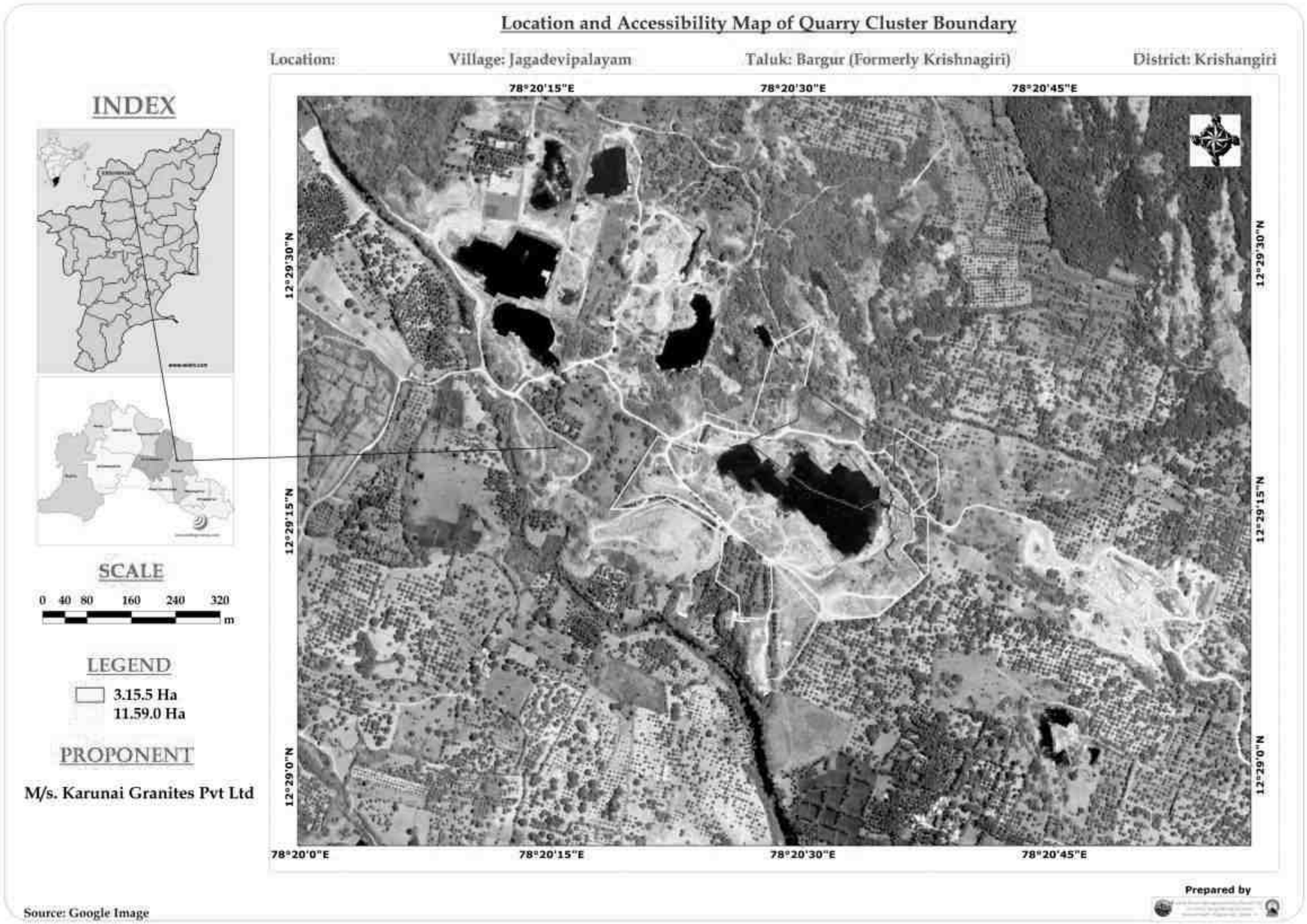


Fig.No:1.1 Showing Location and Route Map for two existing Granite Quarries

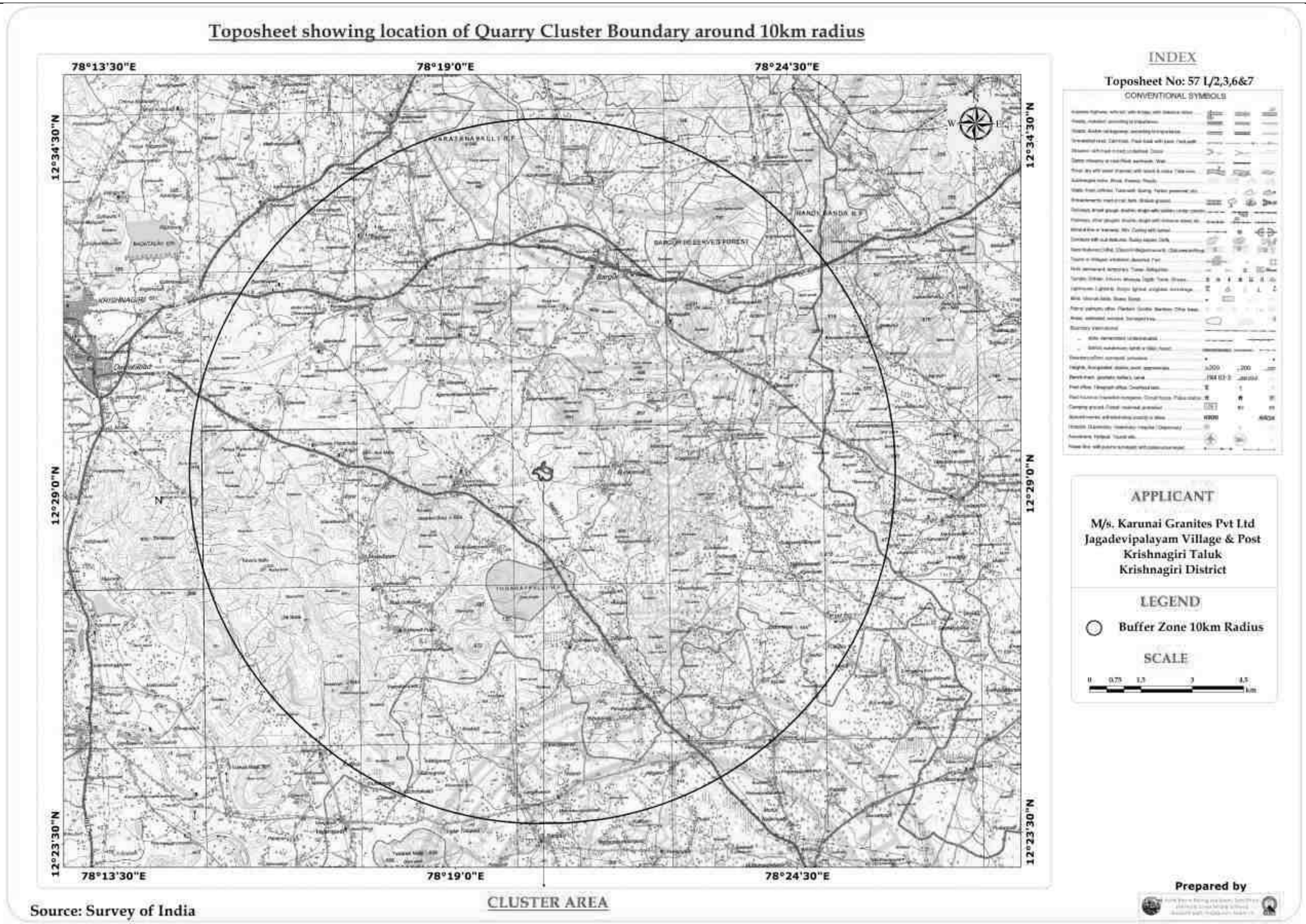


Fig 1.2: Toposheet showing Location of the Two Existing Granite Quarries

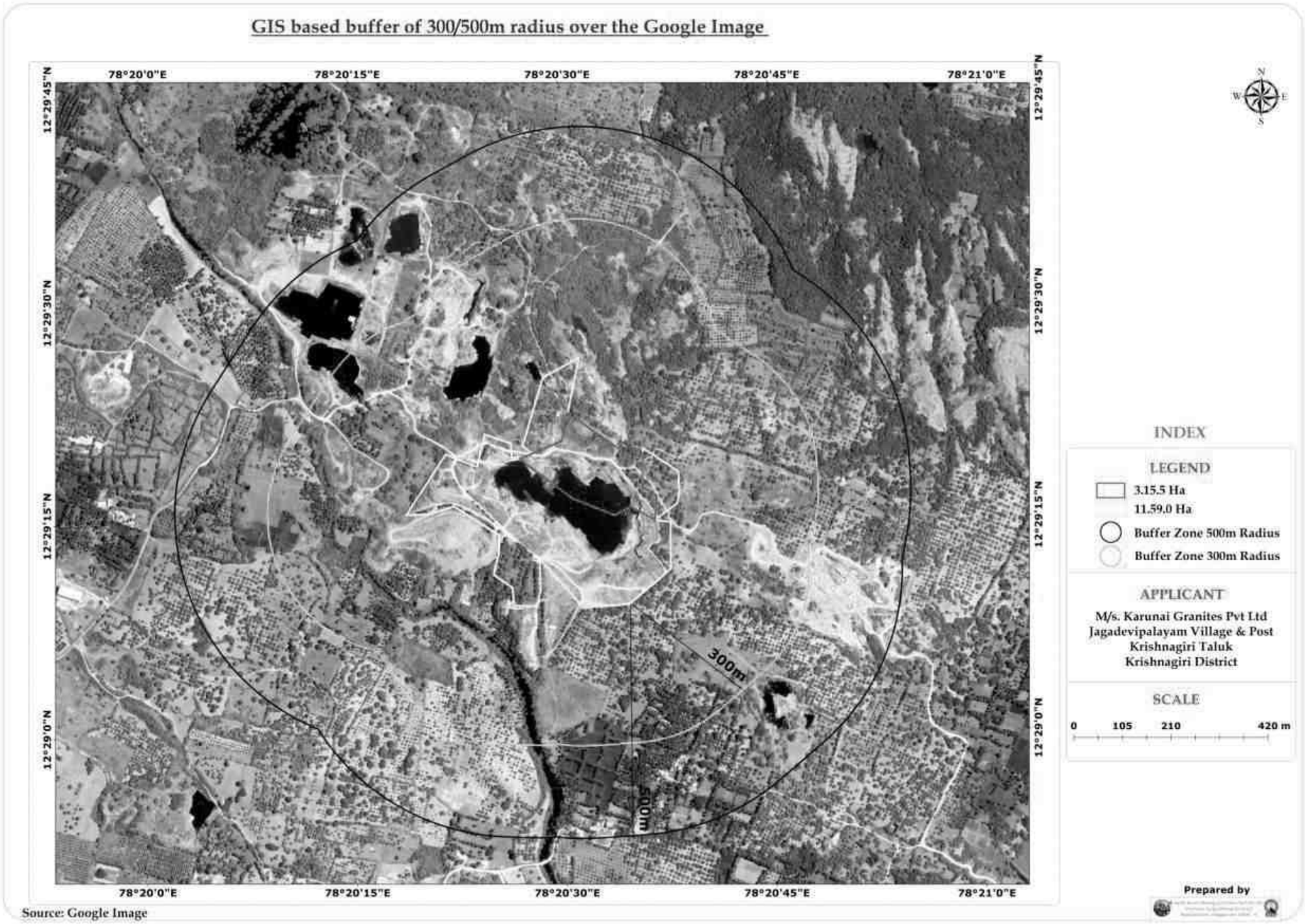


Fig 1.3: Google Earth Image showing 300m and 500m radius around two Existing Granite Quarries

1.4. SCOPE OF THE PROJECT

The proposal for Environment Clearance for two existing Grey Granite Quarry (11.59.0Ha & 3.15.5Ha) of M/s. Karunai Granites Private Limited & M/s. Karunai Granites Private Limited requires Combined Environmental Impact Assessment (EIA) study to be carried out as per Standard, Specific and additional TOR specified by the SEAC & SEIAA. Based on the documents furnished for TOR, the Committee observed that the project falls under the category B1(Cluster)- violation as the cluster area is greater than 5 Ha and less than 250 Ha. This is primarily to ascertain the potential impacts of the mining activity on environmental components, prediction and evaluation of environmental impacts including Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation to delineate Environment Management Plan.

The EIA/EMP report includes an independent chapter prepared by an Accredited Consultant. The collection and analysis of air, water and soil sample required for preparation of EIA report data has been done by an Environmental Laboratory duly notified under the Environment (Protection) Act, 1986, accredited by NABET/NABL.

The scope of the study includes a detailed characterization of the environment in an area of 10km radius from the mine lease Area. The EIA covers one season baseline environmental data, as per the standard generic model given by the MoEFCC, New Delhi.

In order to assess the likely impacts arising out of this project on the surrounding environment and evaluating the quantum of likely negative impacts, if any, from this mine, the proponent has selected Aadhi Boomi Mining and Enviro Tech Pvt. Ltd., Salem as their EIA consultant for this project. ABM prepared an Environmental Impact Assessment (EIA) report including ecological damage assessment and made an effective Environment management Plan (EMP) for various environmental components likely to be affected.

The scope covers all the conditions along with the specific and additional TOR prescribed by SEAC/SEIAA, Tamil Nadu vide

i) Lr.No.SEIAA-TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 for the lease area 3.15.5 Ha

ii) Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for the lease area of 11..59.0 Ha

1.5 METHODOLOGY OF EIA STUDY

The EIA study includes detailed baseline data generation and characterization of existing status of environment in an area of 10km radius with the project as its centre for various environmental components viz. air, noise, water, land, geo-hydrology, Noise & Vibration, biological and socio-economic components and other parameters of interest. The envisaged scope of EIA is as follows:

- To assess the present status of air, noise, water, land, biological and socio-economic components of environment.
- To identify and quantify the significant positive and negative impacts due to various mining operation in various components of the environment through identification and prediction of impacts.
- To prepare a detailed Environment Management Plan (EMP) for implementation of mitigation measures.
- To suggest a monitoring program to evaluate the effectiveness of mitigation measures.
- Post-project environmental quality monitoring program to be followed.
- To prepare a capital and running cost estimates for Environmental Management Plan (EMP).
- To enumerate the aspects of violation study and Ecological Damage Assessment & Remediation Plan.

The baseline monitoring study has been carried out during the December 1st 2022 to February 28th 2023 for various environmental components so as to assess the anticipated impact on the environment and suggest suitable mitigation measures for likely adverse impacts due to the project. Environmental attributes, source and frequency of monitoring are outlined in Table No 1.5.

Table: 1.5 Environment Attributes

S. No	Attributes	Parameters	Source and Frequency
1	Meteorology	Temperature, Wind Speed, Wind Direction, Rain fall, Relative Humidity,	Secondary sources of IMD station, Krishnagiri. Hourly recorded data for the period of 3months.
2	Ambient Air Quality	PM_{10}, $PM_{2.5}$, SO_2, NO_x	8 hour samples twice in a week for three months at 5 locations.
3	Water Quality	Physical, Chemical and Biological parameters	Grab sampling at 4 locations once during study period.
4	Noise levels	Noise levels in dB (A)	At 5 locations data monitored once in a Month for three months for 24

			hours during EIA study.
5	Soil Characteristics	Physical and Chemical parameters	Once at 4 locations during study period
6	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected through field investigation devices once in a study.
7	Land use	Existing land use for different categories	Based on Survey of India Toposheet and Google Earth imagery
8	Ecology and Biodiversity	Existing terrestrial flora and fauna within 10Km radius	Field observation and utilization of Secondary data.
9	Socio–Economic aspects	Socio–economic and demographic characteristics, worker characteristics	Based on collection of primary data through questionnaire analyses and utilization of Secondary data from census records (2001 –2011), statistical hand books, topo sheets, health records and relevant official records.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances if any	Based on the findings of risk associated with explosives, landslides, slips and fire/explosion during blasting etc..,

The impacts of the project activities on environmental components can be quantified through EIA Studies within the impact zone of the project activities. The results of EIA Studies form the basis for the preparation of a viable EMP for mitigation of the adverse impacts.

CHAPTER – 2: PROJECT DESCRIPTION

2.1. NEED FOR THE PROJECT

The Applicant, **M/s. Karunai Granites Private Limited** has been granted two quarry leases from the State Government for quarrying grey granite in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 and G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 respectively for the period of ten years. The mining plan for the areas 3.15.5 Ha and 11.59.0 Ha was approved by commissioner of geology and mining, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994 and letter No.2245/MM9/2004 dated 24.08.2004 respectively.

The project proponent had submitted an application on 21.01.2004 and 22.01.2004 for renewal of quarry leases of 3.15.5 Ha and 11.59.0 Ha respectively and the renewal applications are pending. The quarries were worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010. Now the 3rd and 2nd scheme of mining has been prepared for the lease area 3.15.5 Ha and 11.59.0 Ha respectively and it is waiting for approval from department of geology and mining.

Granite is one of the important materials for the building construction. Granite is used in many outdoor and indoor projects. Outdoor projects like bridges, monuments, buildings, paving etc. Indoor projects like countertops, floor etc. Using granite for kitchen tops, shelves, tabletops etc makes it look elegant. Apart from elegance, it has great strength and is durable. It looks stylish and is easy to clean. Granite sinks like the under-mount sink, angular basin, modern or pedestals sink are some different granite basins available. These are water-resistant and maintenance is also easy. So it is very need to excavate the granite for economic and infrastructure development of our Nation.

2.2 DEMAND – SUPPLY GAP

Construction of building, temple and monuments takes place in all villages, towns, cities and metropolitan cities. There is great demand in availability of granite. So it is necessary to fulfill the demand by starting the existing grey granite quarry.

2.3 LOCATION

The areas are represented by Survey of India Toposheet No. 57 F/7. The lease boundary with Geo Co-ordinates is shown in Fig no 2.1 and 2.2. The latitude and longitude of four lease areas are given in below table 2.1.

Table No.2.1 Latitude and longitude of two existing quarry

S.No	Project Site	Latitude	Longitude
1	M/s. Karunai Granites Private Limited – 11.59.0 Ha	12°29'14.95"N to 12°29'22.53"N	78°20'26.88"E to 78°20'36.60"
2	M/s. Karunai Granites Private Limited – 3.15.5 Ha	12°29'9.06"N to 12°29'26.41"N	78°20'18.72"E to 78°20'38.29"E

Latitude and Longitude of all boundary Pillars of two quarries are given in below Table 2.2.

Table No-2.2 Co-ordinates of two Quarries lease Boundary Pillars

M/s. Karunai Granites Private Limited – 3.15.5 Ha					
P.No	**Latitude**	**Longitude**	**P.No**	**Latitude**	**Longitude**
1	12°29'14.95"N	78°20'36.49"E	8	12°29'22.53"N	78°20'30.35"E
2	12°29'15.91"N	78°20'34.76"E	9	12°29'19.93"N	78°20'34.05"E
3	12°29'15.28"N	78°20'33.60"E	10	12°29'20.52"N	78°20'34.08"E
4	12°29'16.52"N	78°20'30.61"E	11	12°29'19.66"N	78°20'35.68"E
5	12°29'19.02"N	78°20'27.24"E	12	12°29'17.28"N	78°20'35.63"E
6	12°29'19.34"N	78°20'26.88"E	13	12°29'16.64"N	78°20'36.60"E
7	12°29'20.58"N	78°20'29.91"E			
M/s. Karunai Granites Private Limited – 11.59.0Ha					
S. No	**Lattitude**	**Longitude**	**S. No**	**Lattitude**	**Longitude**
1	12°29'9.06"N	78°20'26.33"E	20	12°29'20.57"N	78°20'29.91"E
2	12°29'10.28"N	78°20'26.25"E	21	12°29'19.04"N	78°20'27.30"E
3	12°29'11.22"N	78°20'24.91"E	22	12°29'16.52"N	78°20'30.61"E
4	12°29'12.71"N	78°20'25.29"E	23	12°29'15.31"N	78°20'33.63"E
5	12°29'13.99"N	78°20'25.38"E	24	12°29'15.88"N	78°20'34.78"E
6	12°29'16.05"N	78°20'22.12"E	25	12°29'14.94"N	78°20'36.48"E
7	12°29'15.54"N	78°20'20.40"E	26	12°29'16.65"N	78°20'36.61"E
8	12°29'15.55"N	78°20'18.72"E	27	12°29'17.29"N	78°20'35.62"E
9	12°29'19.73"N	78°20'21.58"E	28	12°29'20.01"N	78°20'35.68"E
10	12°29'19.05"N	78°20'23.10"E	29	12°29'18.35"N	78°20'38.20"E
11	12°29'18.81"N	78°20'23.84"E	30	12°29'17.05"N	78°20'38.29"E
12	12°29'21.09"N	78°20'24.39"E	31	12°29'16.09"N	78°20'38.09"E
13	12°29'20.45"N	78°20'26.25"E	32	12°29'14.76"N	78°20'37.61"E
14	12°29'19.48"N	78°20'26.31"E	33	12°29'11.52"N	78°20'37.59"E
15	12°29'19.34"N	78°20'26.87"E	34	12°29'9.04"N	78°20'34.62"E
16	12°29'19.72"N	78°20'27.74"E	35	12°29'8.86"N	78°20'31.32"E
17	12°29'20.26"N	78°20'27.09"E	36	12°29'12.24"N	78°20'28.22"E
18	12°29'25.02"N	78°20'28.59"E	37	12°29'10.18"N	78°20'28.27"E
19	12°29'26.41"N	78°20'31.21"E	38	12°29'8.97"N	78°20'27.99"E

- No Trees will be uprooted due to this quarrying operation.
- The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of granite.

PLATE - II

N

INDEX

- LEASE BOUNDARY
- APPROACH ROAD
- PERMISSIBLE AREA
- SAFETY BARRIER
- SURVEY PILLAR

LOCATION OF QUARRY

EXTENT : 7.80Acres(3.15.5Ha)
S.F.NO : 299/2(P),301/1(P)
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/S.KARUNAI GRANITES
PRIVATE LIMITED,
JAGADEVAPALAYAM VILLAGE,
&(POST),
BARGUR TALUK,
KRISHNAGIRI DISTRICT.

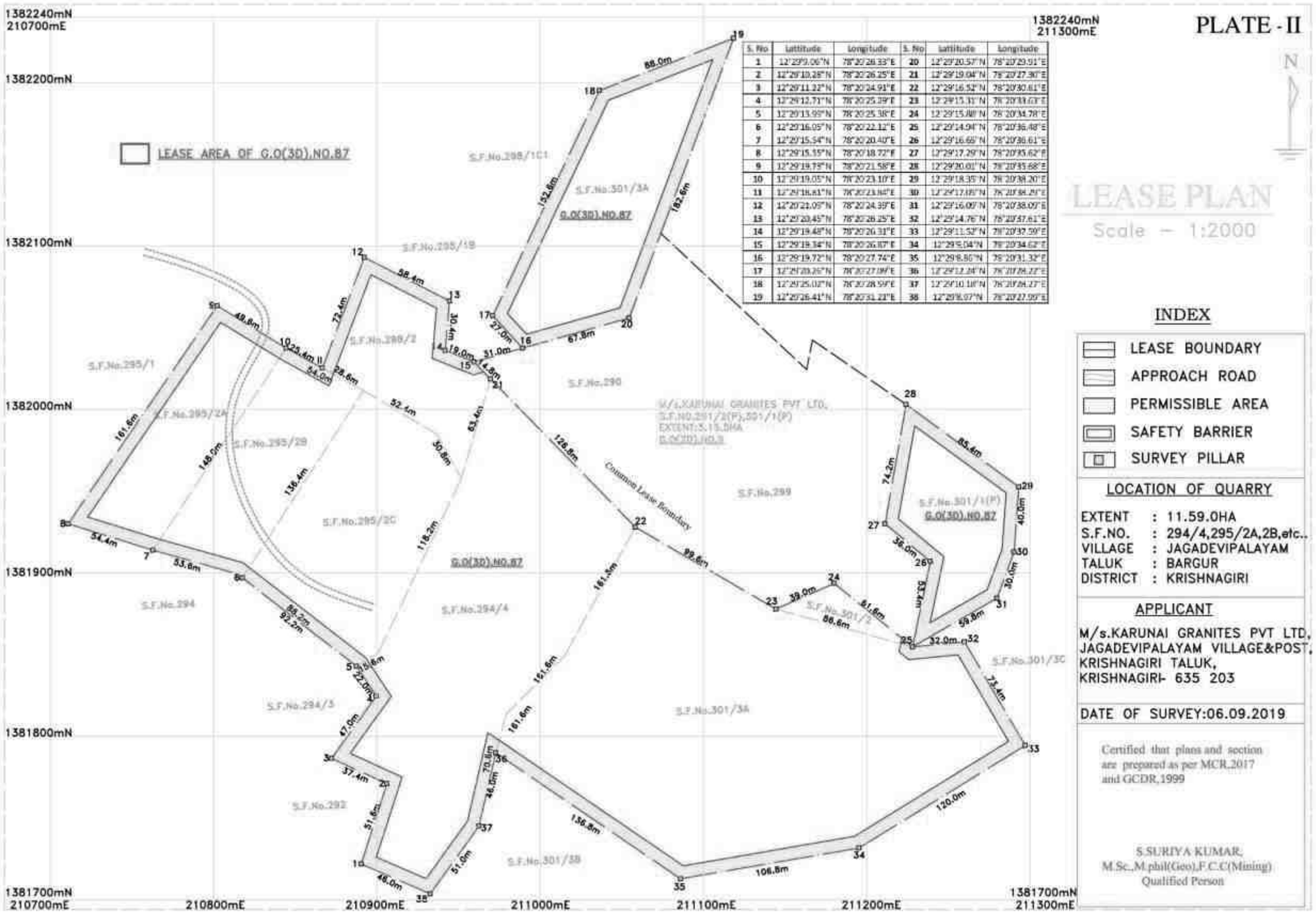
DATE OF SURVEY: 06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

S.SURIYA KUMAR.
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

P.No	Latitude	Longitude
1	12°29'14.95"N	78°20'36.49"E
2	12°29'15.91"N	78°20'34.76"E
3	12°29'15.28"N	78°20'33.60"E
4	12°29'16.52"N	78°20'30.61"E
5	12°29'19.02"N	78°20'27.24"E
6	12°29'19.34"N	78°20'26.88"E
7	12°29'20.58"N	78°20'29.91"E
8	12°29'22.53"N	78°20'30.35"E
9	12°29'19.93"N	78°20'34.05"E
10	12°29'20.52"N	78°20'34.08"E
11	12°29'19.66"N	78°20'35.68"E
12	12°29'17.28"N	78°20'35.63"E
13	12°29'16.64"N	78°20'36.60"E

Fig.No.2.1: Lease Plan of Existing Grey Granite Quarry (3.15.5 Ha)



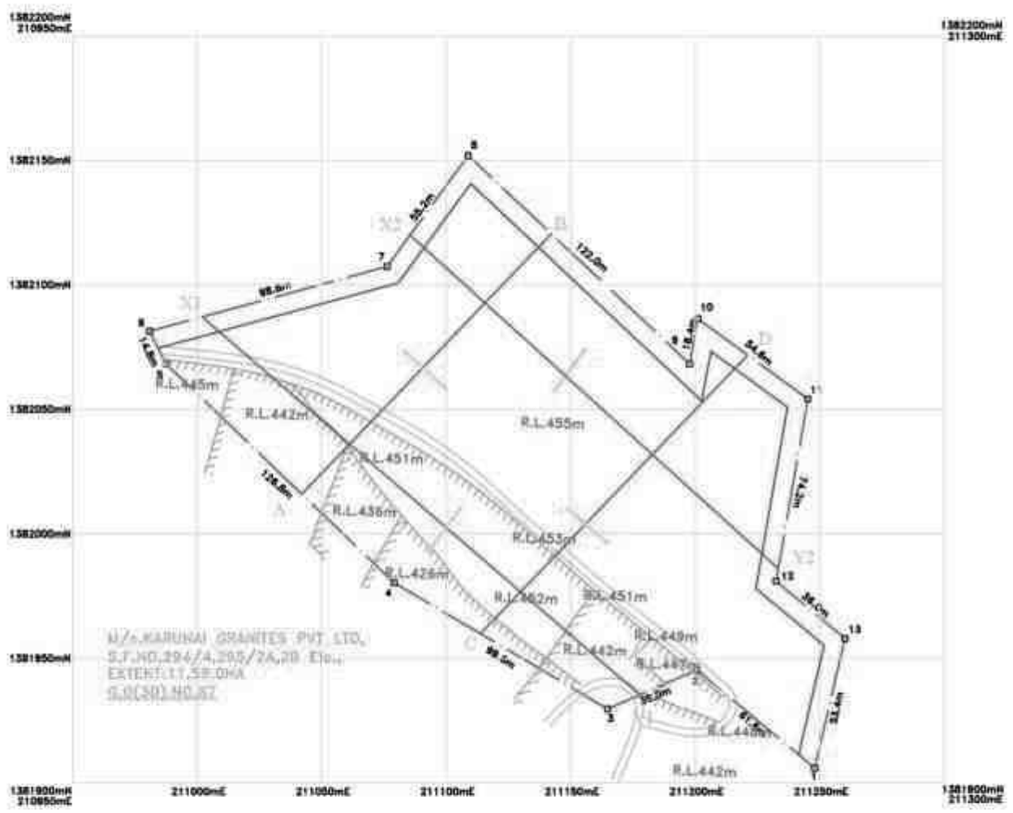
S. No	Latitude	Longitude	S. No	Latitude	Longitude
1	12°29'9.06"N	78°20'26.33"E	20	12°29'20.57"N	78°20'29.91"E
2	12°29'10.28"N	78°20'26.25"E	21	12°29'19.04"N	78°20'27.30"E
3	12°29'11.22"N	78°20'24.91"E	22	12°29'16.52"N	78°20'30.61"E
4	12°29'12.71"N	78°20'25.29"E	23	12°29'15.31"N	78°20'33.03"E
5	12°29'13.99"N	78°20'25.38"E	24	12°29'15.08"N	78°20'34.78"E
6	12°29'16.05"N	78°20'22.12"E	25	12°29'14.94"N	78°20'36.48"E
7	12°29'15.54"N	78°20'20.40"E	26	12°29'16.65"N	78°20'36.61"E
8	12°29'15.35"N	78°20'18.72"E	27	12°29'17.29"N	78°20'35.62"E
9	12°29'19.75"N	78°20'21.58"E	28	12°29'20.01"N	78°20'35.68"E
10	12°29'19.05"N	78°20'23.10"E	29	12°29'18.35"N	78°20'38.20"E
11	12°29'18.61"N	78°20'23.94"E	30	12°29'17.18"N	78°20'38.29"E
12	12°29'21.09"N	78°20'24.39"E	31	12°29'16.09"N	78°20'38.07"E
13	12°29'20.45"N	78°20'26.25"E	32	12°29'14.76"N	78°20'37.61"E
14	12°29'19.48"N	78°20'26.31"E	33	12°29'11.52"N	78°20'37.59"E
15	12°29'19.34"N	78°20'26.10"E	34	12°29'5.04"N	78°20'34.62"E
16	12°29'19.72"N	78°20'27.74"E	35	12°29'8.86"N	78°20'31.32"E
17	12°29'20.26"N	78°20'27.09"E	36	12°29'12.24"N	78°20'28.22"E
18	12°29'25.02"N	78°20'28.59"E	37	12°29'10.18"N	78°20'24.27"E
19	12°29'26.41"N	78°20'31.23"E	38	12°29'8.07"N	78°20'27.09"E

Fig.No.2.2: Lease Plan of Existing Grey Granite Quarry (11.59.0 Ha)

SURFACE PLAN

Scale – 1:2000

PLATE - V



EXISTING PIT DIMENSION			
S.NO	L(m)	W(m)	D(m)RL
1	190m	48m	RL455m-426m

PERCENT LAND USE PATTERN

COLOUR	LAND USAGES	EXTENT(Ha)
	MINING AREA	0.86.18Ha
	ROAD	0.05.90Ha
	SAFETY AND PLANTATION AREA	0.44.90Ha
	LABOUR SHED AND OFFICE	0.00.80Ha
	VIRGIN	1.77.72Ha
TOTAL		3.15.5Ha

INDEX

- LEASE BOUNDARY
- APPROACH ROAD
- PERMISSIBLE AREA
- MINE WORKING

LOCATION OF QUARRY

EXTENT : 7.80Acres(3.15.5Ha)
S.F.NO : 299/2(P),301/1(P)
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DATE OF SURVEY: 06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

Fig.No.2.3: Surface Plan of Existing Grey Granite Quarry (3.15.5 Ha)

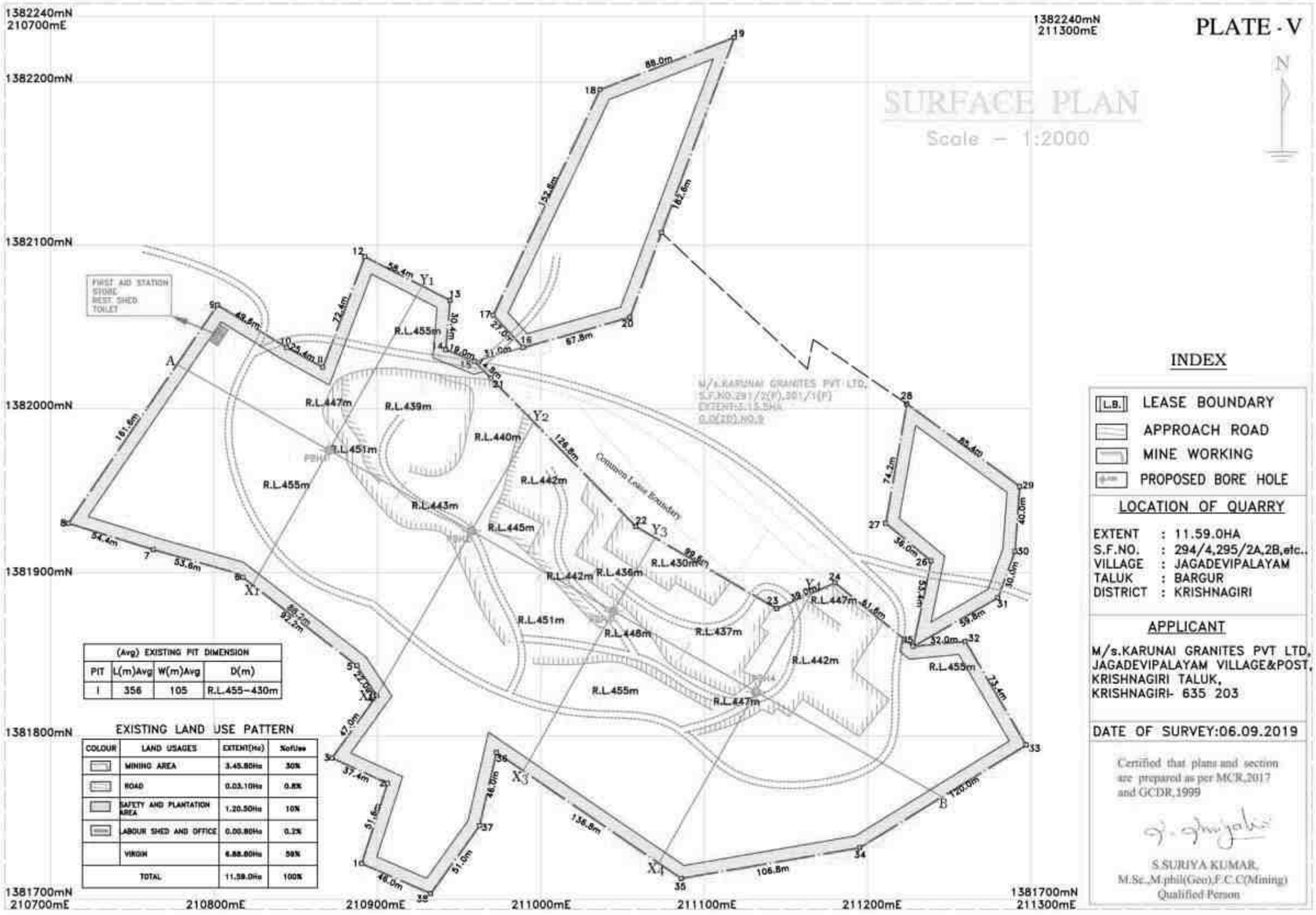


Fig.No.2.4: Surface Plan of Existing Grey Granite Quarry (11.59.0 Ha)

Fig. No. 2.5 General View of the existing lease area of M/s. Karunai Granites Private Limited.

Table 2.3.: Environmental Settings

<table>
<tr><th colspan="5">Accessibility</th></tr>
<tr><td>Nearest Villlage</td><td colspan="4">Jagadevipalayam
• For Lease Area of 3.15.5 Ha – 2.0km – SW
• For Lease Area of 11.59.0- 1.8km – SW</td></tr>
<tr><td>Nearest Settlement</td><td colspan="4"><table>
<tr><th>Sno</th><th>Village Name</th><th>Total population as per 2011 census</th><th>Distance with Direction</th></tr>
<tr><td>1</td><td>Jagadevipalayam</td><td>6747</td><td>4.7 km-SW</td></tr>
<tr><td>2</td><td>Gangavaram</td><td>3122</td><td>8.6 km-S</td></tr>
<tr><td>3</td><td>Orappam</td><td>3512</td><td>7.4 km-SW</td></tr>
<tr><td>4</td><td>Sigaralapalli</td><td>7765</td><td>6.9km-E</td></tr>
<tr><td>5</td><td>Kandikuppam</td><td>5734</td><td>7.6 km-NW</td></tr>
<tr><td>6</td><td>Gandhinagar</td><td>9114</td><td>4.0km-S</td></tr>
<tr><td>7</td><td>Oppathavadi</td><td>9604</td><td>7.5km-NE</td></tr>
</table></td></tr>
</table>

	8	Batlapalli	3724	6 km-SE
	9	Pasinayanapalli	20749	6.57 km-SE
	10	Kannandahalli	8562	9.53 km-S
Nearest Town	Krishnagiri– 12 km - W			
Nearest Roadway	MDR-860– Kaveripattinam to Pochamapalli – 15km - SW NH -77 – Krishnagiri to Uthangarai – 1.5 km - South SH-131 – Bargur to Tirupatturi – 5.5 km – NE Jagadevi to Bargur Village road – 1.4km - W			
Nearest Railway station	Patchur Railway Station– 18 km –NE			
Nearest Airport	Kampegowda International Airport, Bengaluru –102km – NW			
Environmental Sensitiveness				
Interstate Boundary	Tamil Nadu –Andhra Pradesh –16km (NE)			
Coastal Zone	Bay of Bengal – 174km – East			
Reserve Forest	1. Thogarapalli R.F. -2.41km – S 2. Bargur R.F – 6.41km – NE 3. Varatanapalli – 6.6km – NW 4. Nandibanda R.F – 8.6km – NE 5. Neralakotta R.F – 9.7km - NE The proposed projects site does not attract Forest Conservation Act, 1980.			
Wildlife sanctuary	Nil within 10km radius. Cauvery Wildlife Sanctuary – 40km – W The Proposed projects site does not the Wildlife (Protection) Act, 1972.			
Water bodies	1. Mattur Stream – 80m – S 2. A lake – 941m – S 3. A lake near Gettur village – 3.0km – W 4. A lake near Blinayanapalli village – 4.2km – NW 5. A lake near Simanur Village– 3.6km - NW 6. Bargur River – 4.5km - NE			
Defense Installations	Nil within 10km radius			
Critically Polluted area	Nil within 10km radius			
Seismic zone	Zone-III, Moderate damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002			

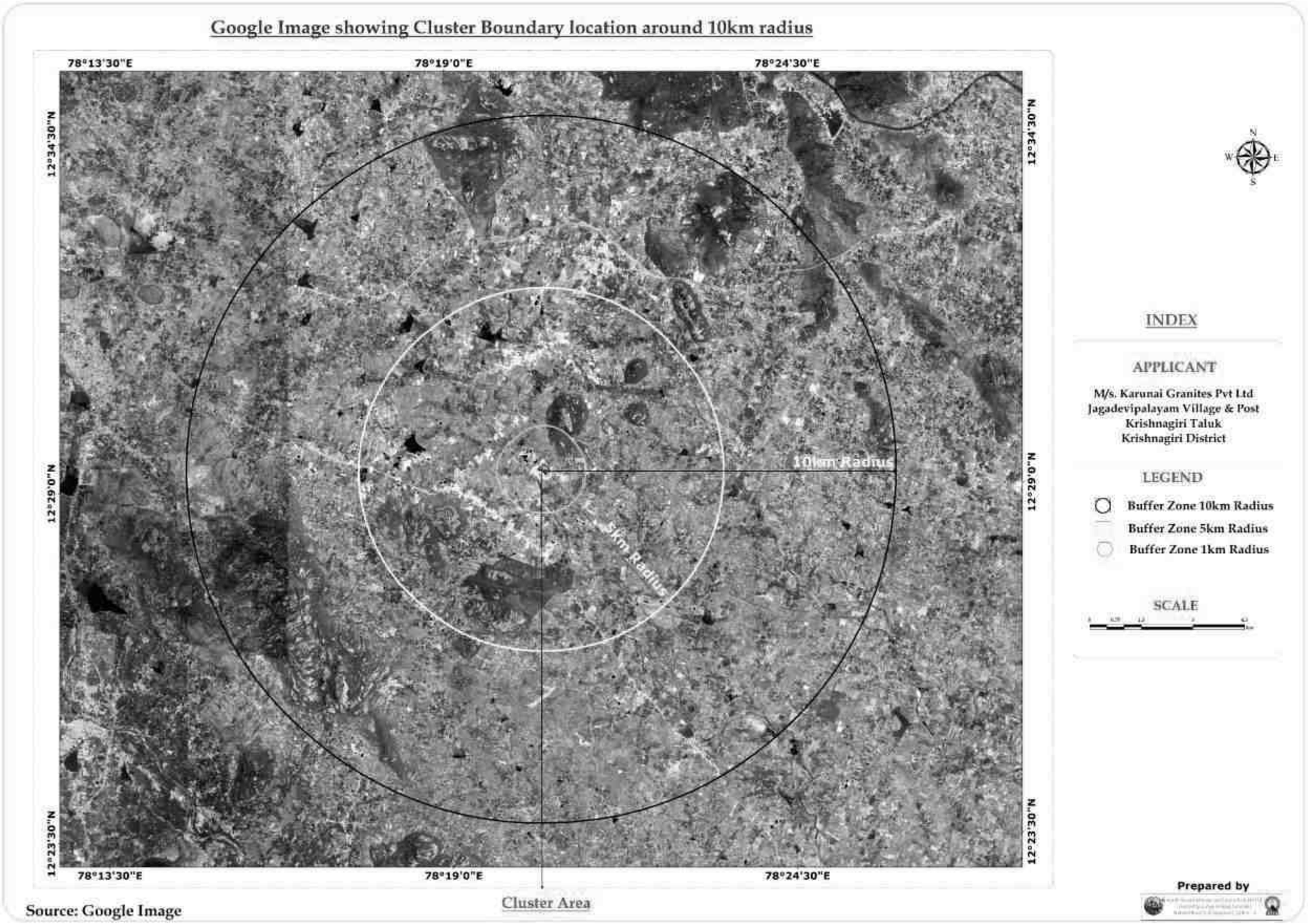


Fig No: 2.6 Google Earth Image showing 1km, 5km, 10 km radius around two existing grey granite quarries

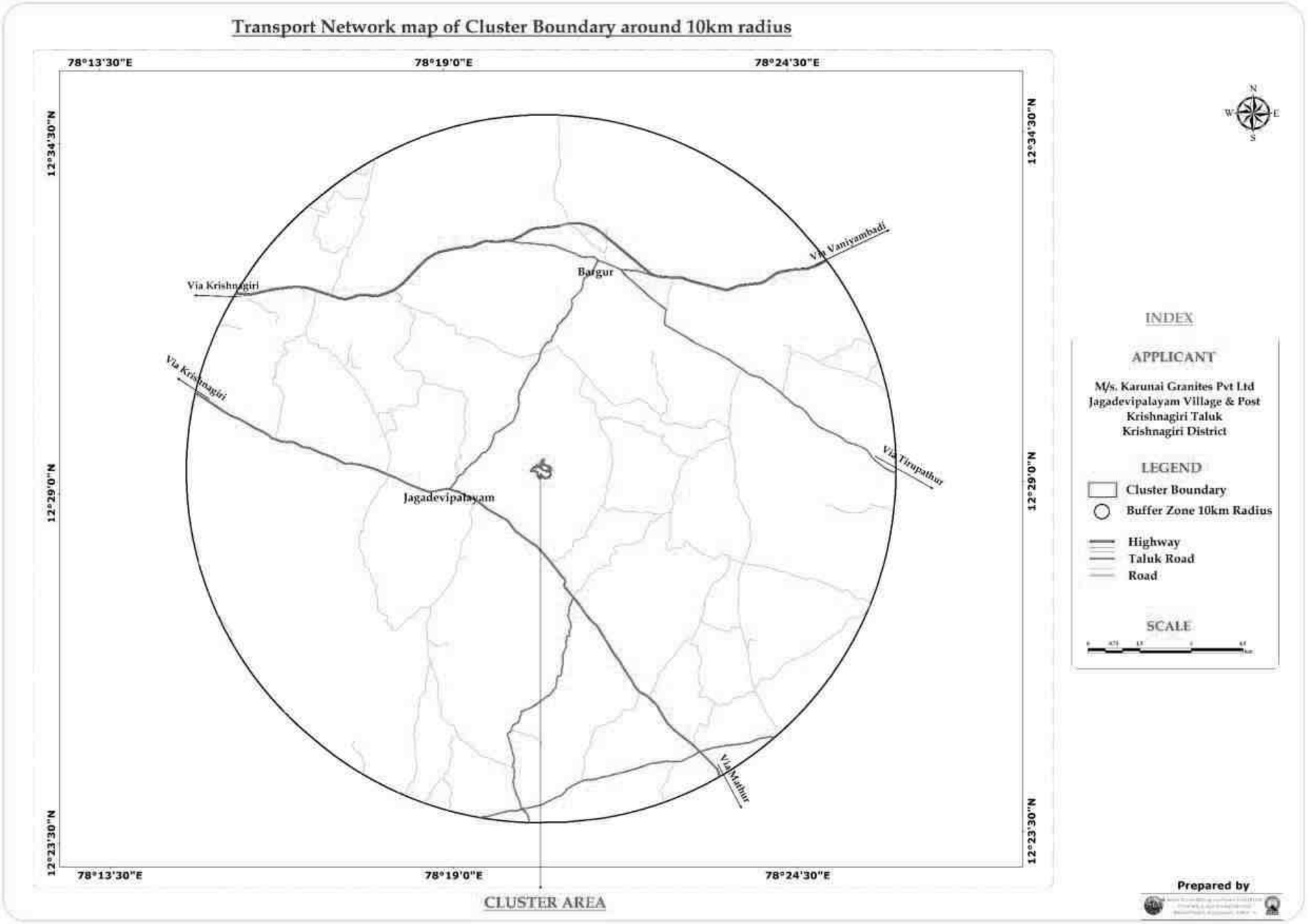


Fig No 2.7: Google Earth Image showing Transport Network of 10 km radius around two existing grey granite quarries

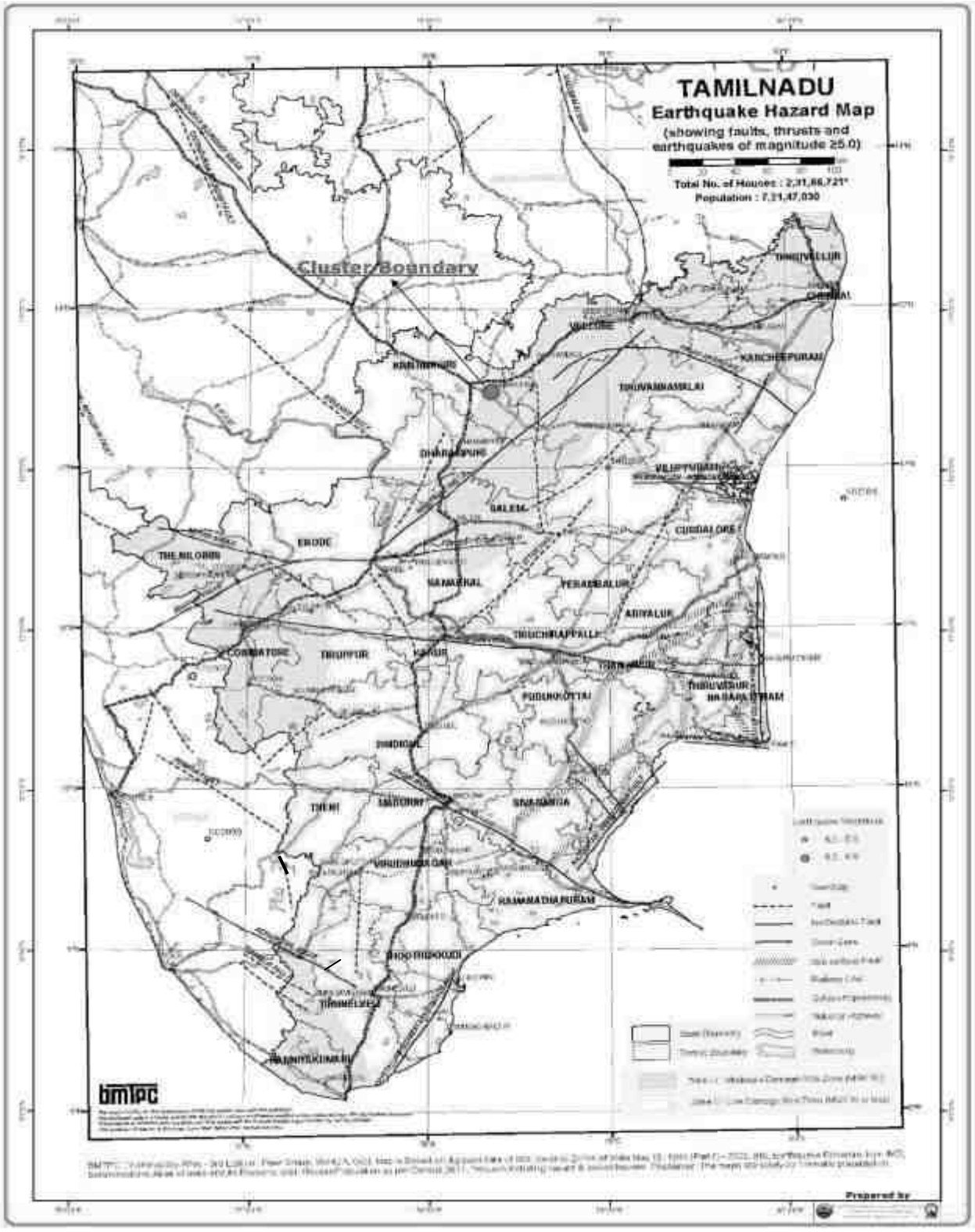


Fig No: 2.8 Earthquake Hazard Map

The cluster area falls under Zone-III, Moderate damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002.

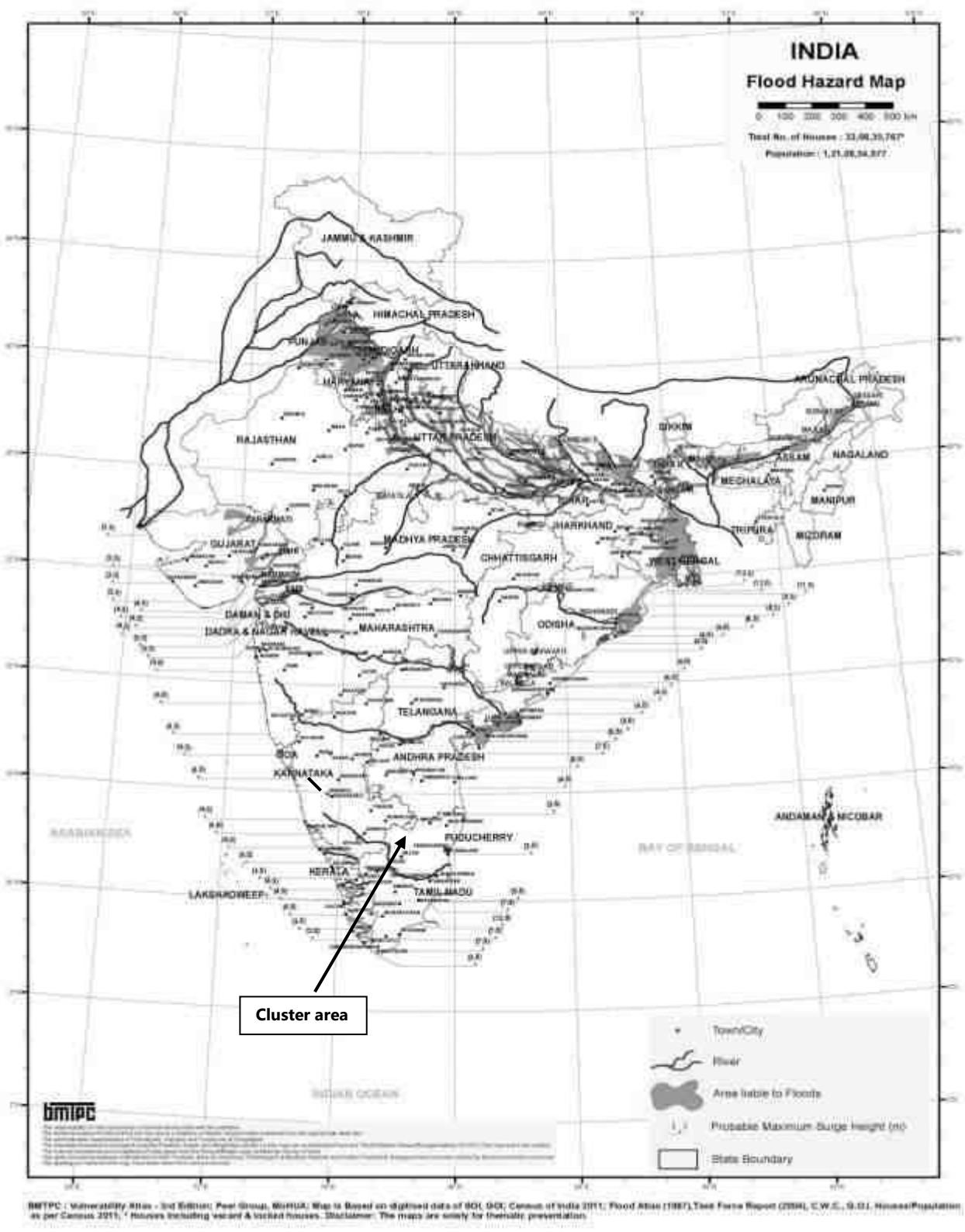


Fig No: 2.9 Flood Hazard Map

The cluster area falls under Probable Maximum Surge Height of 5m.

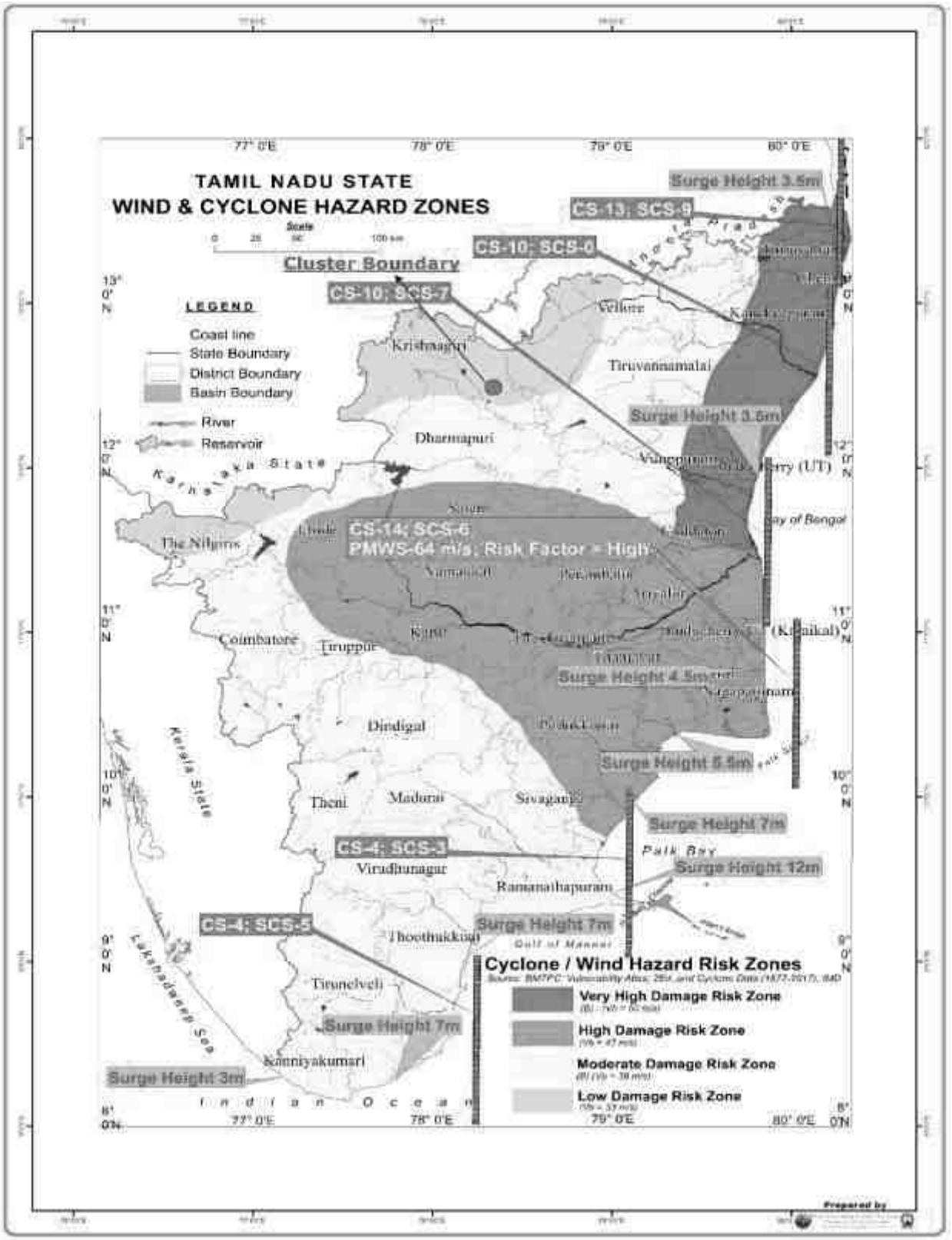


Fig No: 2.10 Winds and Cyclone Hazard Map

The cluster area falls under Low Damage Risk Zone-B (V_b = 33 m/s).

2.4 Size or Magnitude of Operation

Table 2.4: Mining Details

M/s. Karunai Granites Private Limited (3.15.5 Ha)	
Method of Mining	Open cast Semi -Mechanized method of mining
Geological resources	9,91,353m^3
Mineable reserves	6,16,470m^3
Production (25%)	45,113m^3 for five years or 9022.6 m^3/annum(Avg)
Top soil	25593m^3 for plan period (2020-25)
Reject (75%)	1,35,338 m^3
Ore: Waste ratio	1: 4.07
Depth of Mining	35m bgl
Water Table	50 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°
Period of Lease	10 years (02.02.1995 to 01.02.2005)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Existing pit dimension	**Pit** / **L(m)** / **W(m)** / **Max.D(m)** I / 190m / 48m / RL(455-426m)29m
Project Cost	Rs 78.0 Lakhs
EMP Cost	Rs 9.50 lakhs
CER Cost	Rs.1.56 lakhs
M/s. Karunai Granites Private Limited (11.59 Ha)	
Method of Mining	Open cast Semi -Mechanized method of mining
Geological resources	2662984m^3
Mineable reserves	2044654m^3
Production (25%)	33,115m^3 for five years or 6,623 m^3/annum(Avg)
Top soil	-
Reject (75%)	99345 m^3
Ore: Waste ratio	1: 0.05
Depth of Mining	35m bgl.
Water Table	50 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°
Period of Lease	10 years (03.02.2000 to 02.02.2010)
Renewal of quarry	20 years

	(Under Deemed Extension as Per GCDR, 1999)			
Existing pit dimension	**Pit**	**L(m)**	**W(m)**	**Depth in (m)**
	I	356m	105m	RL455m-RL430m (25m)
Project Cost	Rs 81.50 Lakhs			
EMP Cost	Rs 10.5 lakhs			
CER Cost	Rs.1.63 lakhs			

2.5 Proposed schedule for approval and implementation

The proposed activity will be commenced only after obtaining Environment Clearance from SEAC/SEIAA, Tamil Nadu and CTE/CTO from TNPCB and other necessary clearance from concerned departments.

2.6 Technology and process description

2.6.1 Regional Geology

Krishnagiri District is comprised of Archaen peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses, and dolerites migmatites are intruded by younger formations like pegmatite and quartz veins. The dolerite dyke is intruded into the pre-existing country rock namely Biotitic Gneisses and Schist and trending 1-2kms from West to East direction and dipping almost vertical. The width of dyke is about 30m.

The order of superposition of geological sequence are given as under,

Description		**Age**
Top soil – Morum (2m Thick)	-	Recent age
Dolerite dyke	-	Recent age
Peninsular gneisses	-	Archaen age
Biotite gneisses	-	Archaen complex

The Biotite gneisses are oldest rock into which the younger dolerite dykes intruded later.

2.6.2 Exploration

The Systematic geological mapping and demarcation of the commercially viable granite deposit has been prepared with relevant structural features such as Contact of the country rock with commercial grey granite deposit. Different joint pattern and their pattern of repetition etc. have been marked. Based on the features, estimation of geological and mineable reserves has been arrived having considered the market potentiality. Three more bore holes in lease area of 3.15.5 Ha and two bore hole in lease area of 11.59.0 Ha as per plate-III is proposed to be carried out during the next Scheme period.

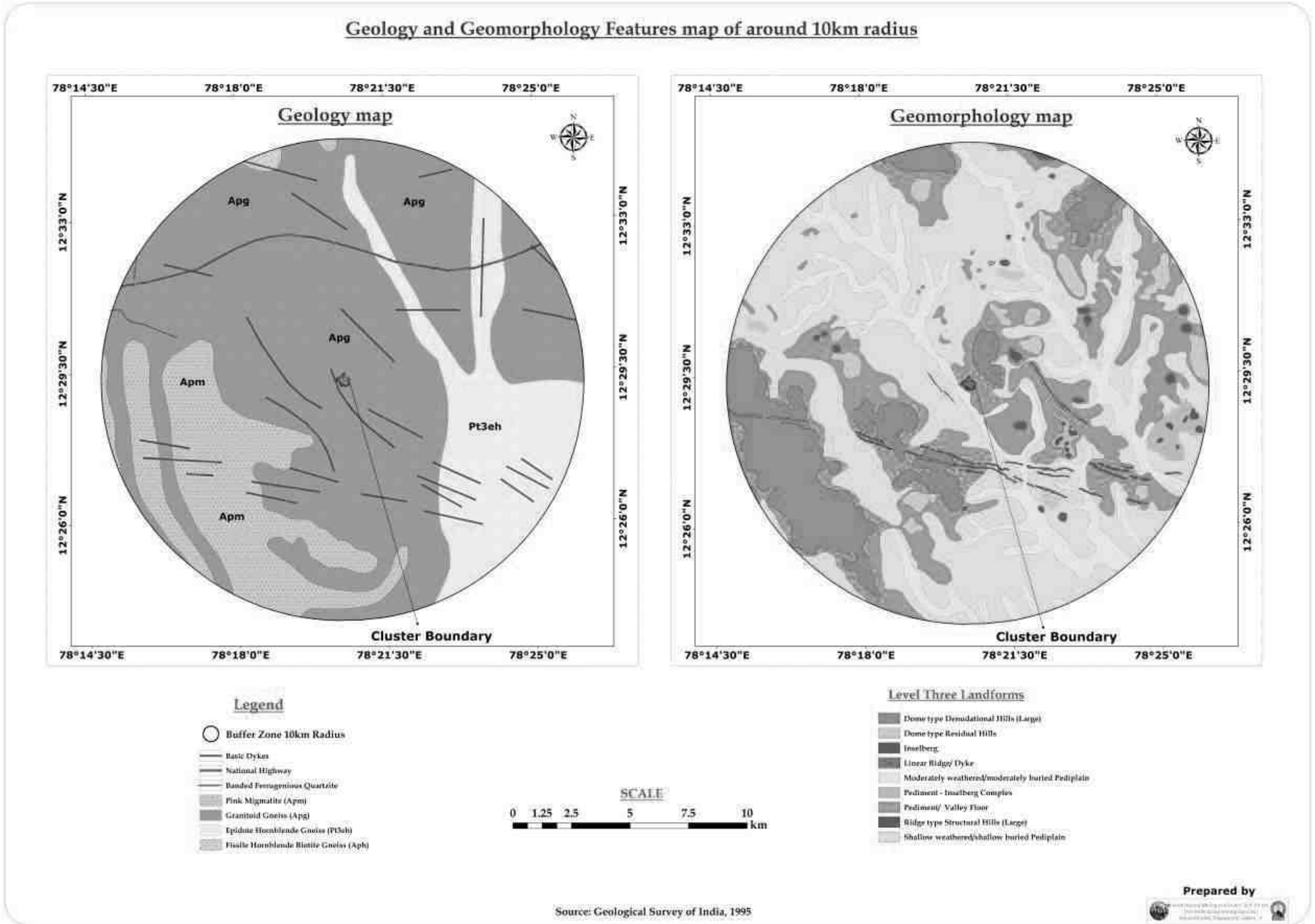


Fig. No: 2.11: Regional Geology & Geomorphology Map

2.6.3 Method of Mining

a) Open cast working:

The quarry an operation will be carried out by open cast mechanized method of mining. Jack hammer drilling and blasting will be adopted to make perfect pre-determined crack to release the block from the parent rock. Hydraulic excavators will be engaged for loading the rejects, top soil and weathered rock and wire saw will be adopted for cutting the rocks. Wire saw cutting is adopted below second bench to recover more granite blocks to increase the rate of recovery. The top soil is found up to 3m depth from surface in the lease area of 3.15.5 and 11.59.0 Ha. The recovery factor is taken as 25% and it may increase further at deeper levels.

Manpower will be engaged for drilling shot-holes, line drilling, smooth blasting, Jet burner operation, dressing of granite blocks, cutting and removal of small amount waste or rejects and support service labors for operation of machineries. The materials required for manual workings are listed as under,

1. Drill rods - 450mm, 800mm, 1650mm, 3900mm and up to 7200mm.
2. Steel alloy chains of sufficient lengths with dia. of 12 - 18mm with "D' shackles.
3. Rubber hose and clamps
4. Feather and wedges of 15 cm and 30 cm sizes utilized for splitting of blocks.
5. Crow bars of 1500 - 1800mm lengths.
6. Spades, Sludge hammers, Iron Pans and chisels.

2.6.4 Extent of Mechanization

The following machinery is proposed to be exclusively for the development and production work at this quarry.

i) Drilling equipment:

Drilling of shot-holes will be carried out using compressor and Jack hammer combination. Depth of holes shall be 2.5m for 3m bench height. The spacing shall be 30 - 40cms and burden from the preface depends upon the size of block. However, it is preferred to have 1 - 2m burden from the preface for effective pulling of blocks.

In case of burden in excess of 1.5m the spacing should be adjusted smaller, less than 30cms. To achieve a correct blasting geometry certain amount of trial blast is pre-requisite to affect a perfect pre-determined crack to release the block from the parent rock.

Table No 2.5: Details of drilling equipment

M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)						
Type	**Nos**	**Dia.of hole**	**Bucket/ Capacity (m^3)**	**Make**	**Motive Power**	**H.P**
Jack Hammer	6	32mm	Hand held	Atlas copco	Diesel	60
Compressor	1	7.5 Kgs/Kg	XAT 266	Atlas copco P600 (IR)	Diesel	120
M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)						
Type	**Nos**	**Dia.of hole**	**Bucket/ Capacity (m^3)**	**Make**	**Motive Power**	**H.P**
Jack Hammer	6	25.5mm	Hand held	Atlas copco	Diesel	60

ii) Loading Equipment: Loading of waste and granite rejects shall be done by hydraulic excavator into tippers for clearing of waste and rejects from the working place periodically. One hydraulic excavator with 1.20m^3 bucket capacity is engaged for clearing of wastes in both the lease areas.

Table No-2.6: Details of loading equipment

M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)					
Type	**Nos**	**Bucket Capacity (m^3)**	**Make**	**Motive Power**	**H.P**
Hydraulic excavator	1	1.20 m^3	L &T or Ex200	Diesel	120
M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)					
Type	**Nos**	**Bucket Capacity (m^3)**	**Make**	**Motive Power**	**H.P**
Hydraulic excavator	1	1.20 m^3	L &T or Ex200	Diesel	120

iii) Transportation:

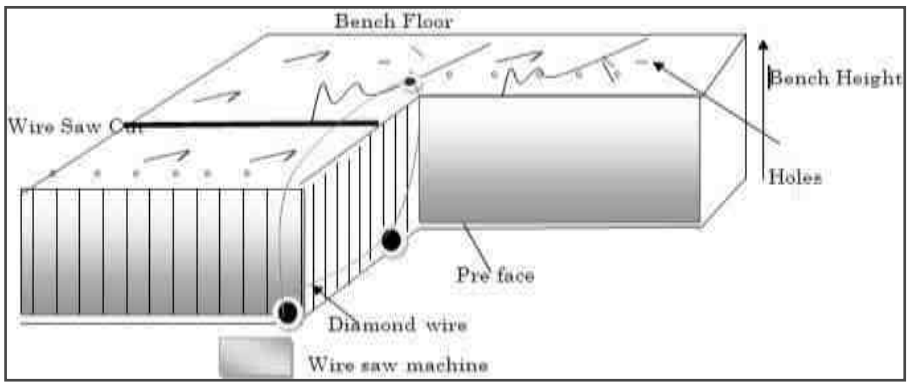
In each lease area, three tippers of 10 Tonnes capacity will be engaged for internal transport of rejects from the working face to the dumps. Details of transporting tippers are tabulated below,

Table No-2.7: Details of transportation vehicles

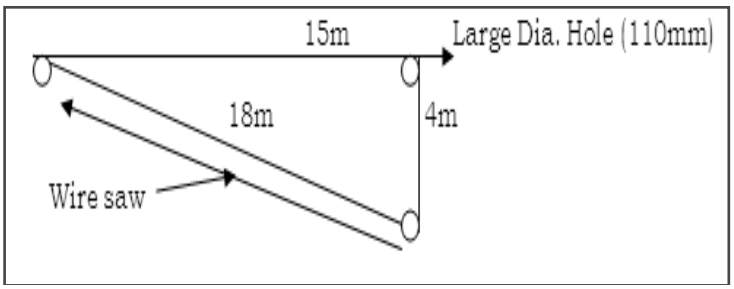
M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)					
Type	**Nos**	**Size/Capacity**	**Make**	**Motive Power**	**H.P**
Tipper	3	10M.T	Ashok Leyland	Diesel	110
M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)					
Type	**Nos**	**Size/Capacity**	**Make**	**Motive Power**	**H.P**
Tipper	3	10M.T	Ashok Leyland	Diesel	110

iv) Diamond wire saw cutting

Diamond Wire saw cutting is an eco-friendly method of quarrying with high rate of recovery, thereby the conservation aspects of GCDR, 1999 is perfectly fulfilled.



PLAN VIEW FOR INITIAL WIRE –CUT:



Details of wire saw cutting machine is given as under

Table No 2.8 Details of wire saw cutting machine

M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)					
Type	**Nos.**	**Capacity (m^3)**	**Make**	**Motive Power**	**H.P.**
Wire saw Machine	1	Port Diamond wire	Stone Tech	Electric Power	60
M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)					
Type	**Nos.**	**Capacity (m^3)**	**Make**	**Motive Power**	**H.P.**
Wire saw Machine	2	Port Diamond wire	Stone Tech	Electric Power	60 Each

iii) Blasting Pattern

Blasting: A controlled Blasting technique is adopted to open a pre-determined crack of the block from the parent body. Shot-hole with 32-40mm dia which are drilled by line drilling and Jack hammers at a close spaced interval of 30cms will be initiated suitably with any one or more of the following methods,

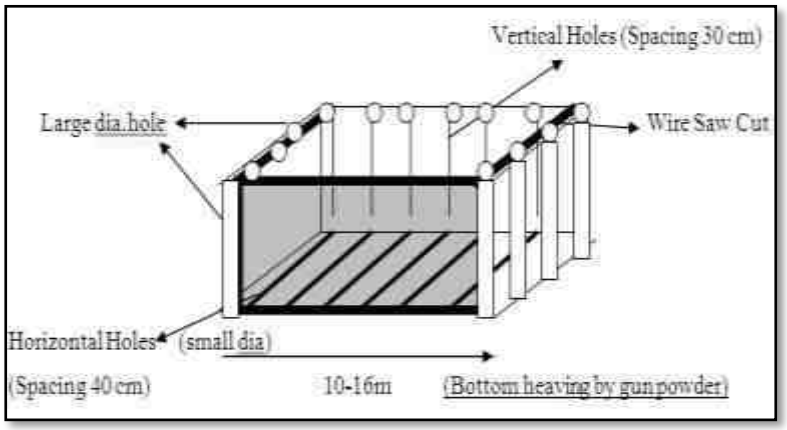
a) Pre-splitting
b) Cushing blasting with low strength and very low dia Cartridges axial priming or standard dia cartridge with intermittent stemming materials.

c) Water impulsion with Detonating cords of sufficient power, preferably 10gms per meter to develop cracks along the line of drilling,

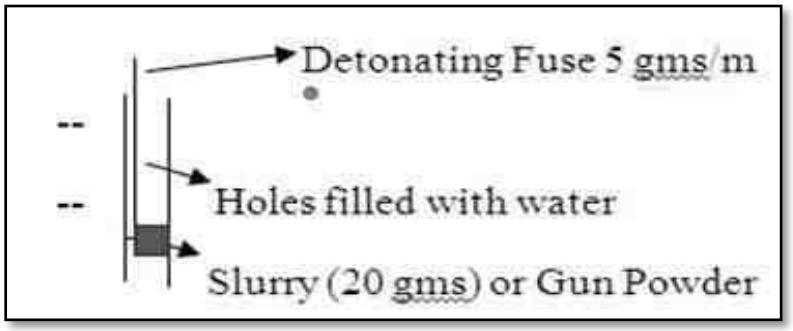
d) BROAD BLASTING PARAMETER:

e) Dia. of the hole **=** 32 - 36 mm
f) Spacing = 30cms
g) Depth = 2.5 m
h) Burden = Min =1m; Max = 2m
i) Charge per Hole = D.cord with water or 70gms of gun powder

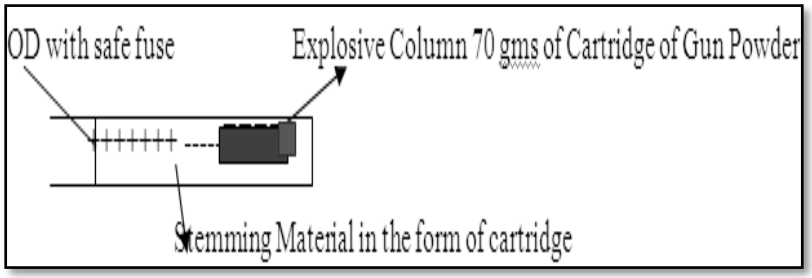
Wire Saw Cut and Drilling Pattern



Charging of Vertical Holes



Charging of Horizontal Holes



In watery holes, the detonating fuse is directly used and water act as a cushion to move the blocks and form a line of crack. In other cases, small vibration created by low explosives open the artificial shear plane \tensional crack formed by a line of drilling. Sometimes wedges are used to cut the major blocks into smaller sizes after drilling of holes to a depth of 30-40cms. Then the blocks are dressed to desire sizes.

b) TYPE OF EXPLOSIVES:

Common explosives used to develop a line of crack along the line of drilling are,

i) Detonating Fuse or Cord with 5-10gms of Explosives Per meter,
ii) Low explosives like Gun powder or 70gms of slurry cartridges,
iii) Ordinary Detonator, class- 6
iv) Safety fuse, class -6.

c) Powder factor: The Powder factor for waste rock development shall be $2m^3$ or 7 tonnes per Kg. of explosives.

d) STORAGE OF EXPLOSIVES

The applicant is advised to store the explosives as per the Indian Explosives Act, 1958. The explosives to be used in mines being a small quantity the District collector may be approached to keep the stocks not exceeding 5 kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types.

2.7 Land Use Pattern of the Core Zone

Depth of mining is estimated as 35m based on the working pits of the lease quarry. The Present and proposed land use pattern is given as under, at the time of closure of mine the pit will be backfilled.

Table No 2.9: Computation of existing and proposed land use pattern

M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)			
S. No	**Head**	**Area put on use at start of plan (Ha) (Present)**	**Total Area used at the end of 5 years plan (Ha)**
i)	Area under mining	0.86.18	2.00.00
ii)	Road	0.05.90	0.05.90
iii)	Safety and Plantation area	0.44.90	0.44.90
iv)	Labour shed and office	0.00.80	0.00.80
v)	Waste dump	---	
v)	Virgin area	1.77.72	0.63.9
		3.15.5	**3.15.5**

M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)					
S. No	**Head**	**Area put on use at start of plan (Ha) (Present)**	**Total Area used at the 5th year of plan (Ha)**	**Total Area used at the End of Life of Mine**	**% of Use**
i)	Area under mining	3.45.80	3.45.80	8.53.0	73.5%
ii)	Dump	Nil	0.67.50	1.05.0	9%
iii)	Top soil Storage	Nil	Nil	0.76.6	7%
iv)	Office-Infrastructure	0.00.80	0.00.80	0.00.80	0. 2%
v)	Mine Roads	0.03.10	0.03.10	0.03.10	0.3%
v)	Area under Safety & Plantation	1.20.50	1.20.50	1.20.50	10%
iii)	Unutilized Area	6.88.80	6.21.30	Nil	0
		11.59.0	**11.59.0**	**11.59.0**	**100**

2.8 ESTIMATION OF RESERVES

2.8.1 M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)

a) Geological resources and reserves

Proved reserves (35m) = **991353**m^3@ 25% = **247838**m^3

a) Probable = --- (Not estimated in absence of drilling)

b) Possible = Not Estimated

TABLE NO-2.10: Computation of Geological Resources and Reserves

SECTION	L (m)	W(m)	D(m)	Volume (m3)	Reserves @25% (m^3)	Reject @75% (m^3)
AB-X1Y1	30	37	3	3330	833	2498
	44	37	2	3256	814	2442
	44	56	1	2464	616	1848
	44	93	8	32736	8184	24552
	70	129	22	198660	49665	148995
AB-X2Y2	75	84	3	18900	4725	14175
	75	84	2	12600	3150	9450
	75	84	30	189000	47250	141750
CD-X1Y1	17	103	3	5253	1313	3940
	52	64	2	6656	1664	4992
	52	64	8	26624	6656	19968

	52	103	16	85696	21424	64272
	61	103	6	37698	9425	28274
CD-X2Y2	94	112	3	31584	7896	23688
	94	112	2	21056	5264	15792
	94	112	30	315840	78960	236880
TOTAL				**991353**	**247838**	**743515**

Total volume of Geological resources up to a depth of 36m = 991353m^3

Recoverable Geological reserves @25% " = 247838m^3

Total Granite Reject of Granite @ 75% " = 743515m^3

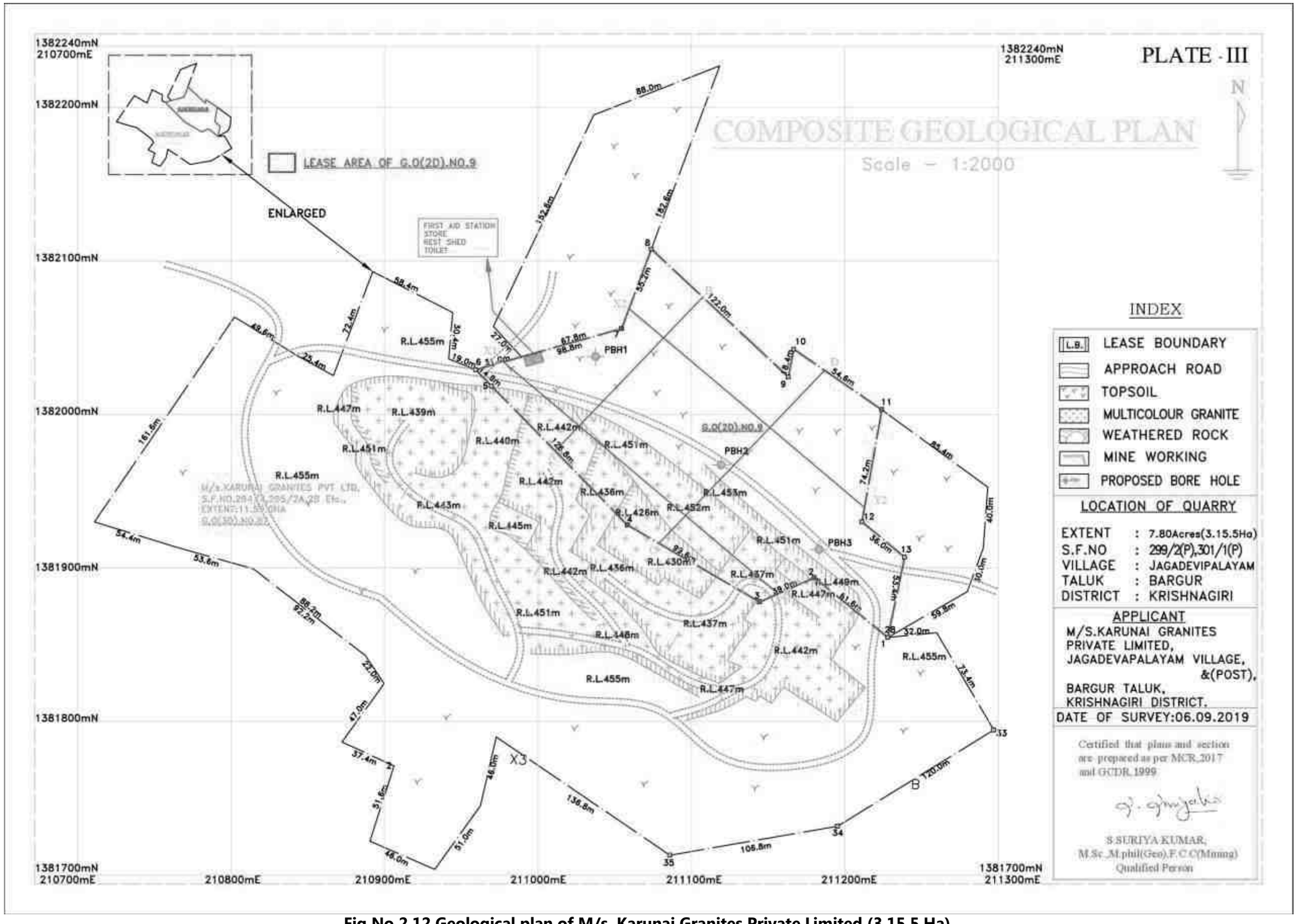


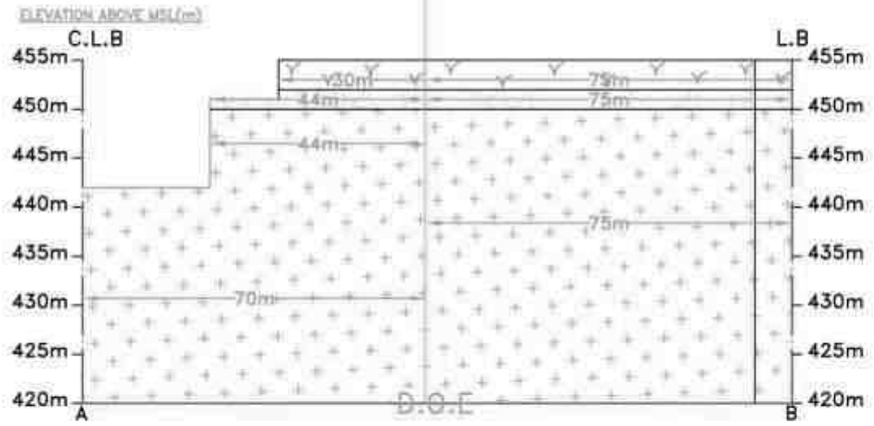
Fig No 2.12 Geological plan of M/s. Karunai Granites Private Limited (3.15.5 Ha)

GEOLOGICAL SECTIONS

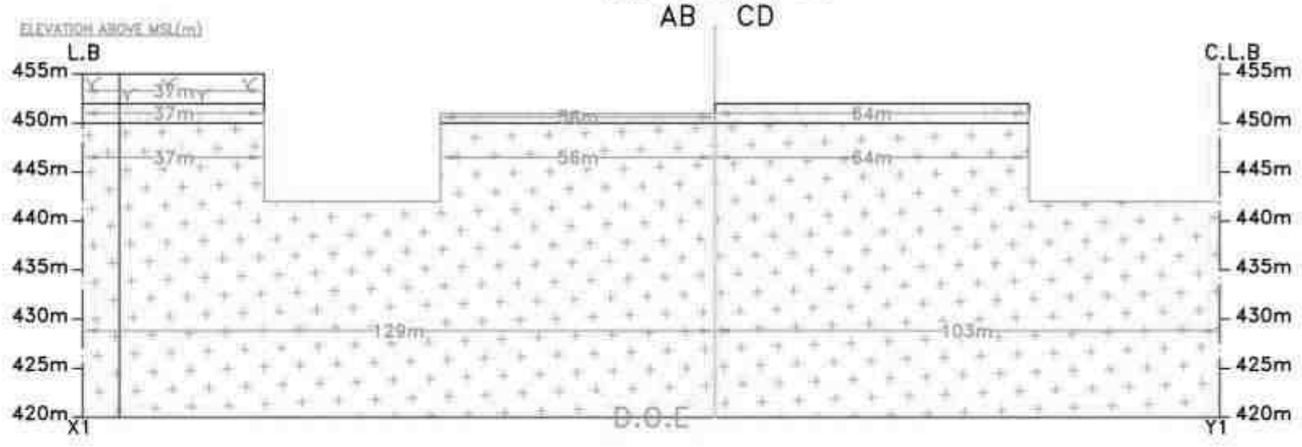
Scale : Horizontal = 1:1000
Vertical = 1:500

PLATE - IV

Mid Section of
X1Y1 X2Y2



Mid Section of
AB CD



INDEX

- L.B. LEASE BOUNDARY
- TOPSOIL&WEATHERED
- MULTI COLOUR GRANITE
- UPL ULTIMATE PIT LIMIT
- D.O.E DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 7.80Acres(3.15.5Ha)
S.F.NO : 299/2(P),301/1(P)
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/S.KARUNAI GRANITES
PRIVATE LIMITED,
JAGADEVAPALAYAM VILLAGE,
&(POST),
BARGUR TALUK,
KRISHNAGIRI DISTRICT.

DATE OF SURVEY: 06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

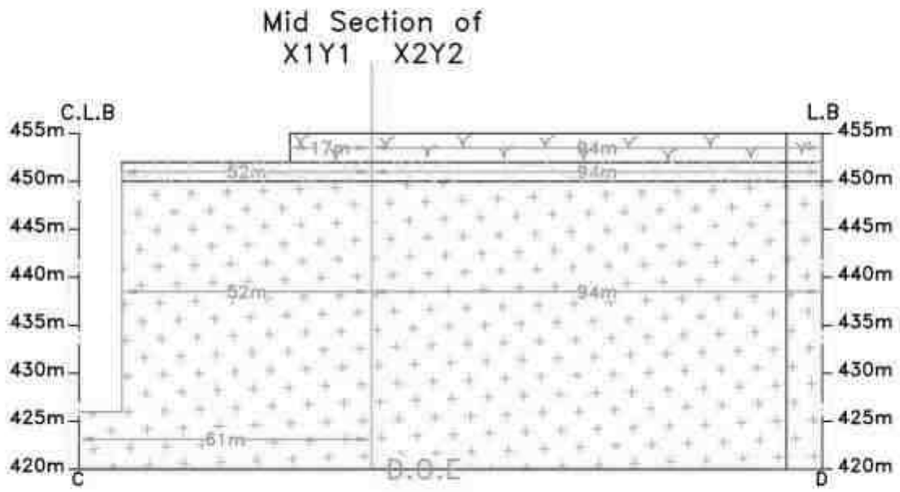
S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

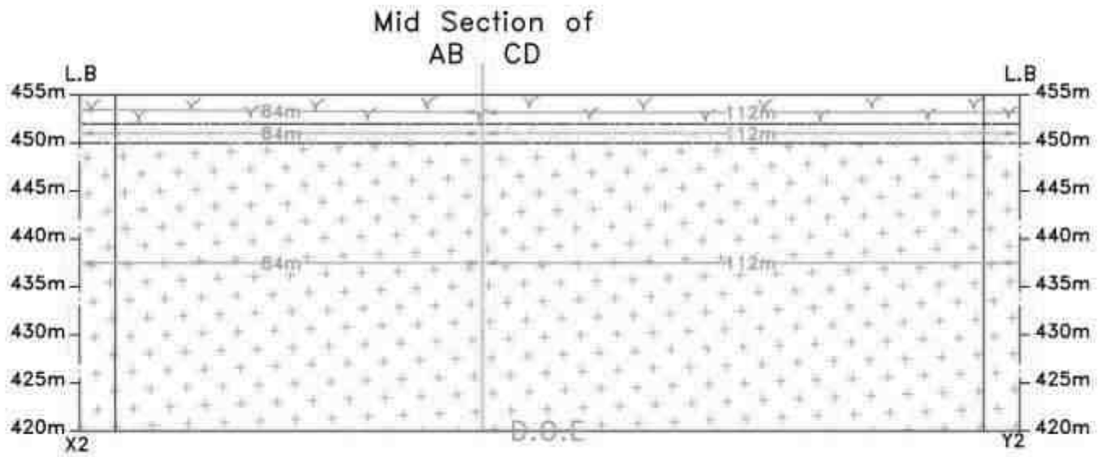
Fig No 2.13 Geological Cross Section of M/s. Karunai Granites Private Limited (3.15.5 Ha) (Plate IV)

GEOLOGICAL SECTIONS

Scale : Horizontal = 1:1000
Vertical = 1:500

PLATE - IVA





INDEX

L.B.	LEASE BOUNDARY
	TOPSOIL&WEATHERED
	MULTI COLOUR GRANITE
UPL	ULTIMATE PIT LIMIT
D.O.E	DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 7.80Acres(3.15.5Ha)
S.F.NO : 299/2(P),301/1(P)
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/S.KARUNAI GRANITES
PRIVATE LIMITED,
JAGADEVAPALAYAM VILLAGE,
&(POST),
BARGUR TALUK,
KRISHNAGIRI DISTRICT.

DATE OF SURVEY: 06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

Fig No 2.14 Geological Cross Section of M/s. Karunai Granites Private Limited (3.15.5 Ha) (Plate IV)

b) MINEABLE/RECOVERABLE RESERVES:

The mineable\recoverable reserves is estimated by cross-sectional method having considered the recovery factor, depth of mining, safety barriers etc., The mineable reserves is estimated as 154118m3@ 25% recovery based on exploration results. Details of estimation of mineable reserves are given in Table no. 2.11

TABLE NO-2.11: Computation of Mineable/Recoverable Reserves

Section	Bench	L (m)	W (m)	D (m)	Volume (m^3)	Reserve (m^3) 25%	Reject (m^3) 75%	Weathered rock (m^3)	Topsoil (m3)
AB-X1Y1	I	30	30	3					2700
	II	44	28	2				2464	
		44	56	1				2464	
	III	44	82	6	21648	5412	16236		
	IV	70	112	6	47040	11760	35280		
	V	70	106	6	44520	11130	33390		
	VI	70	100	6	42000	10500	31500		
	VII	70	94	6	39480	9870	29610		
AB-X2Y2	I	67	77	3					15477
	II	65	75	2				9750	
	III	63	73	6	27594	6899	20696		
	IV	57	67	6	22914	5729	17186		
	V	51	61	6	18666	4667	14000		
	VI	45	55	6	14850	3713	11138		
	VII	39	49	6	11466	2867	8600		
CD-X1Y1	I	17	103	3					5253
	II	52	64	2				6656	
	III	52	64	6	456	114	342		
	IV	52	103	6	32136	8034	24102		
	V	52	103	6	32136	8034	24102		
	VI	52	103	6	32136	8034	24102		
	VII	61	103	6	37698	9425	28274		
CD-X2Y2	I	87	105	3					27405
	II	85	103	2				17510	
	III	83	101	6	50298	12575	37724		
	IV	77	95	6	43890	10973	32918		
	V	71	89	6	37914	9479	28436		
	VI	65	83	6	32370	8093	24278		
	VII	59	77	6	27258	6815	20444		
TOTAL					**616470**	**154118**	**462353**	**38844**	**50835**

Note:

Total volume of ROM up to a depth of 35m = 616470m^3
Total Mineable reserves @25% = 154118m^3
Reject of granite @ 75% = 462353m^3
Top Soil = 50835m^3
Weathered Rock = 38844m^3
Total Waste (Reject+Top soil +Weathered) = (462353m^3+50835m^3 +38844m^3)
= 552032/154118
= 1:3.58

2.8.2 M/s. Karunai Granites Private Limited (11.59.0 Ha)

a. Geological resources and reserves

Proved reserves (35m) = **2662984**m^3@ 25% = **665746**m^3

a) Probable = --- (Not estimated in absence of drilling)
b) Possible = Not Estimated

TABLE NO-2.12: Computation of Geological Resources and Reserves

SECTION	L (m)	W(m)	D(m)	Volume	Recovery @25%	Reject @75%
AB-X1Y1	136	171	5	116280	29070	87210
	156	211	25	822900	205725	617175
AB-X2Y2	74	98	5	36260	9065	27195
	100	193	23	443900	110975	332925
AB-X3Y3	72	120	14	120960	30240	90720
	100	141	6	84600	21150	63450
	100	164	10	164000	41000	123000
AB-X4Y4	104	77	3	24024	6006	18018
	138	190	10	262200	65550	196650
	182	190	17	587860	146965	440895
TOTAL				**2662984**	**665746**	**1997238**

Total volume of Geological resources up to a depth of 35m = **2662984m^3**
Recoverable Geological reserves @25% " =**665746m^3**
Total Granite Reject of Granite @ 75% " =**1997238m^3**

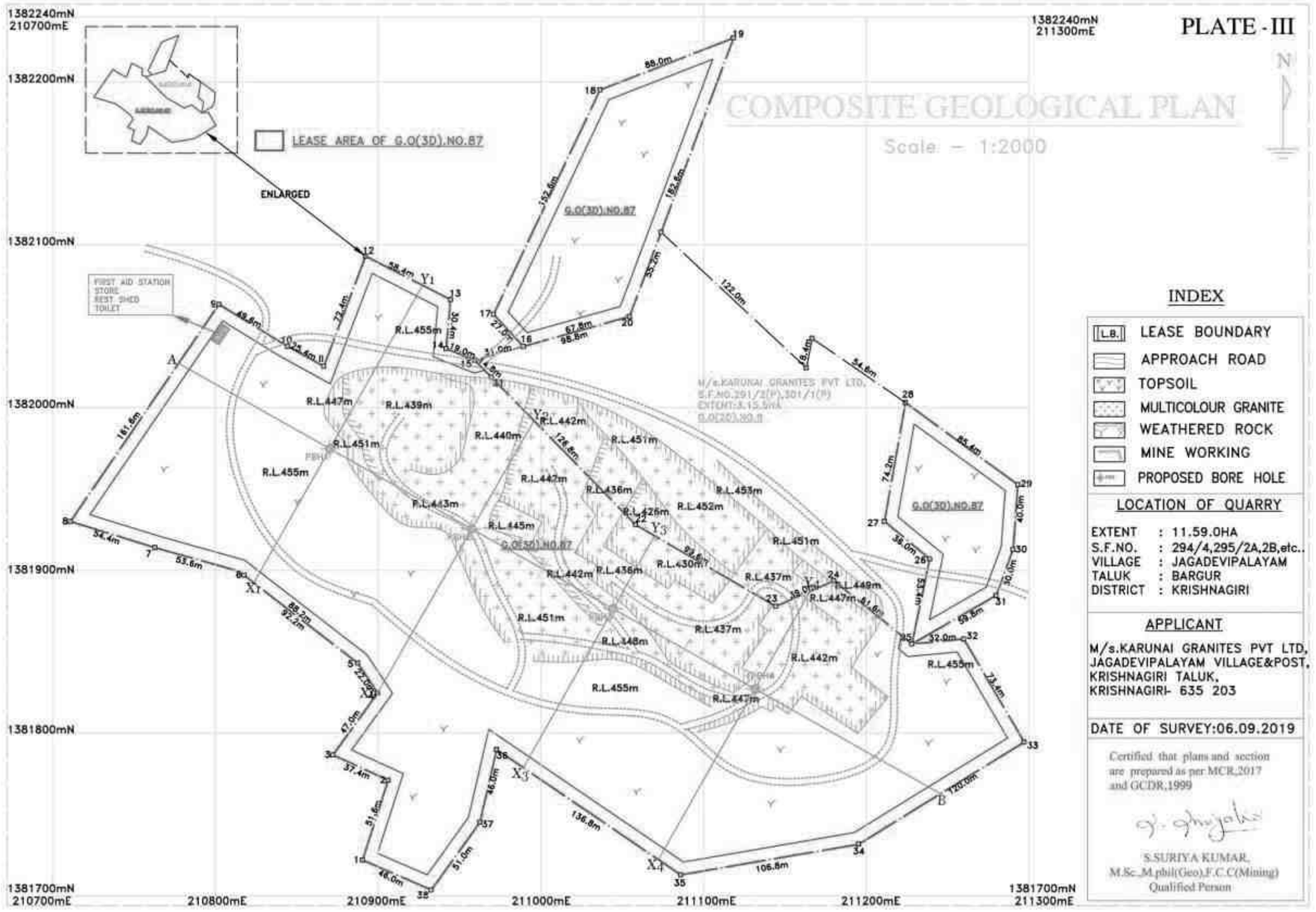
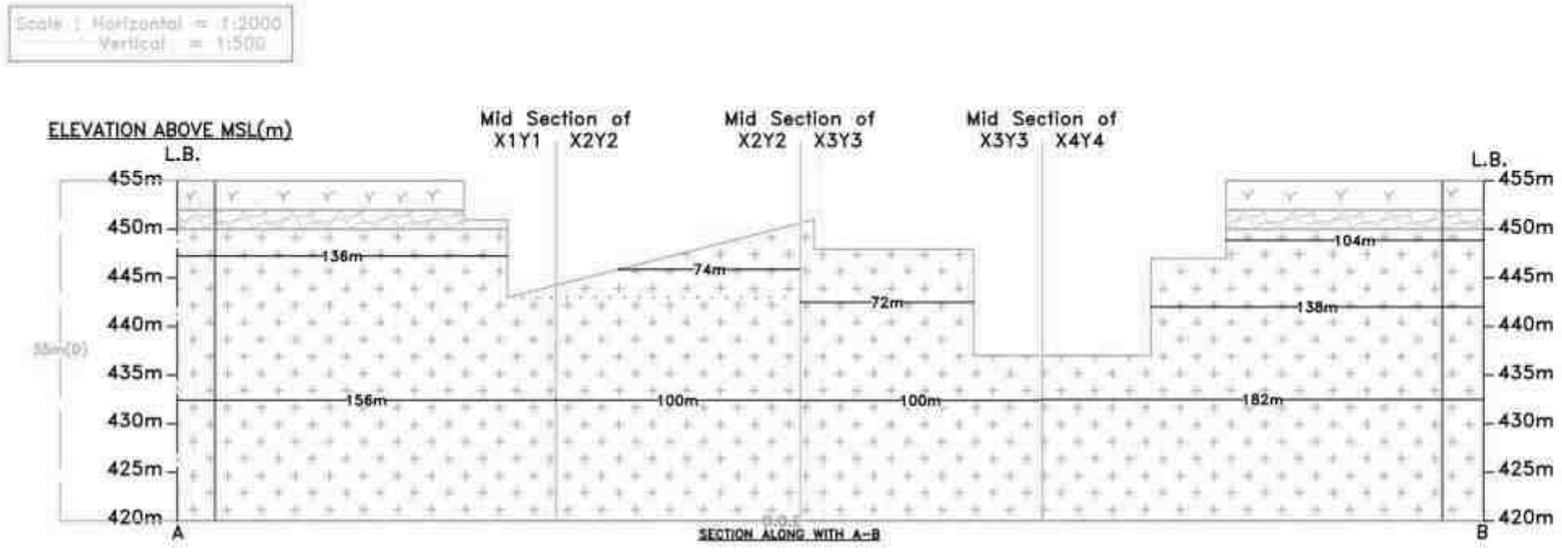
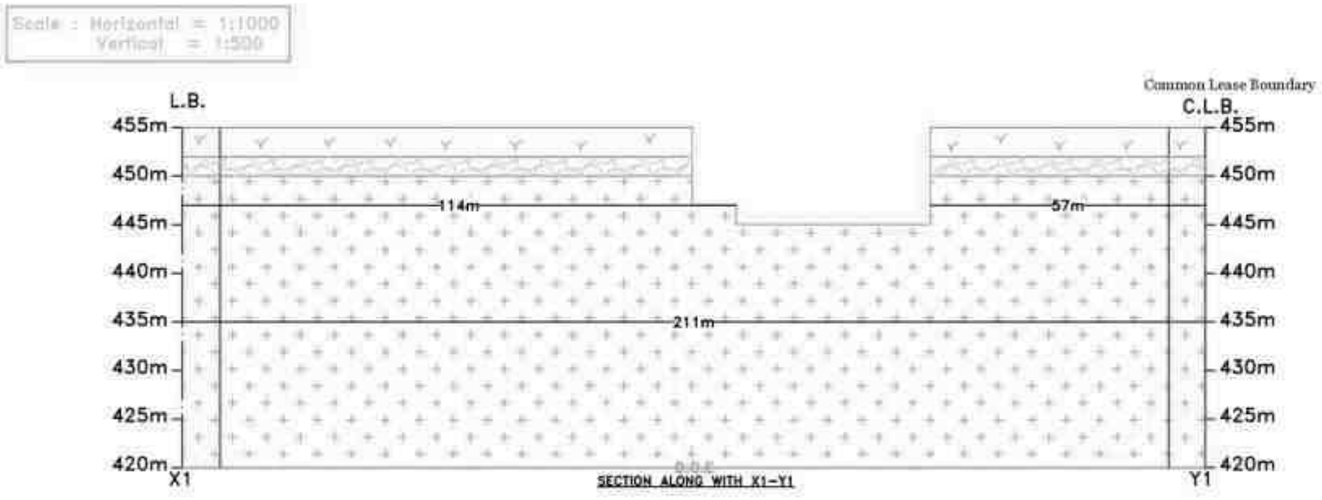


Fig No 2.15 Geological plan of M/s. Karunai Granites Private Limited (11.59.0 Ha)

PLATE - IV

GEOLOGICAL SECTIONS





INDEX

- L.B. LEASE BOUNDARY
- TOPSOIL
- WEATHERED ROCK
- MULTICOLOUR GRANITE
- DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 11.59.0HA
S.F.NO. : 294/4,295/2A,2B,etc..
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/s.KARUNAI GRANITES PVT LTD,
JAGADEVIPALAYAM VILLAGE&POST,
KRISHNAGIRI TALUK,
KRISHNAGIRI- 635 203

DATE OF SURVEY:06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

Fig No 2.16 Geological Cross Section of M/s. Karunai Granites Private Limited (11.59.0 Ha) (Plate – IV)

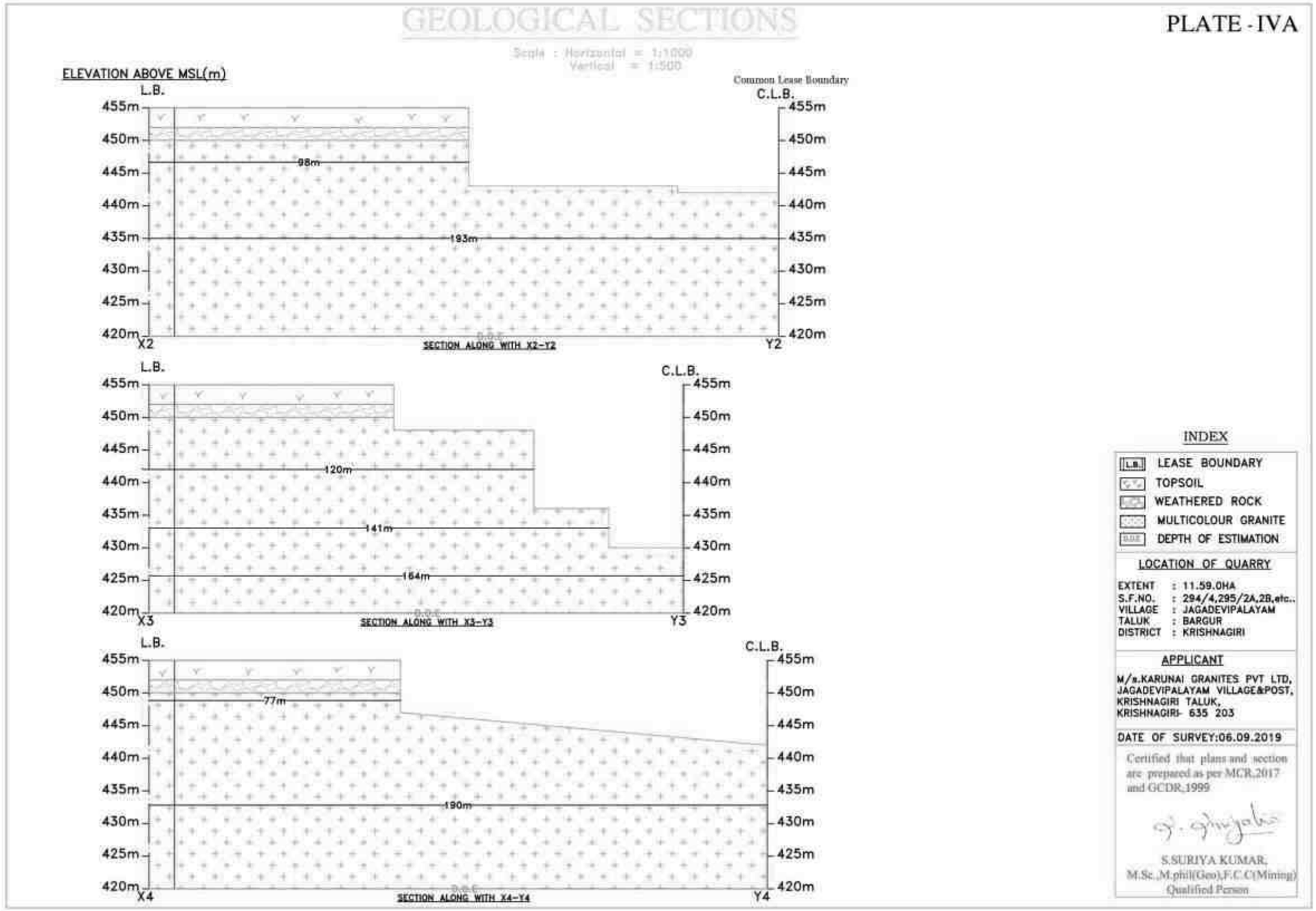


Fig No 2.17 Geological Cross Section of M/s. Karunai Granites Private Limited (11.59.0 Ha) (Plate IV A)

b) MINEABLE/RECOVERABLE RESERVES:

The mineable\recoverable reserves is estimated by cross-sectional method having considered the recovery factor, depth of mining, safety barriers etc., The mineable reserves is estimated as 465000m^3@ 25% recovery based on exploration results. Details of estimation of mineable reserves are given in Table no. 2.13.

TABLE NO-2.13: Computation of Mineable/Recoverable Reserves

Section	Bench	L (m)	W(m)	D(m)	Volume (m^3)	Mineable Granite (m^3)	Reserve (m^3)@25%	Reject @ 75%	Weathered rock (m^3)	Topsoil (m^3)
AB-X1Y1	I	102	146	3	44676					44676
	II	118	140	2	33040				33040	
	III	116	145	6	100920	100920	25230	75690		
	IV	130	173	6	134940	134940	33735	101205		
	V	124	161	6	119784	119784	29946	89838		
	VI	118	149	6	105492	105492	26373	79119		
	VII	112	137	6	92064	92064	23016	69048		
AB-X2Y2	I	100	90	3	27000					27000
	II	100	87	2	17400				17400	
	III	64	85	6	32640	32640	8160	24480		
	IV	100	174	6	104400	104400	26100	78300		
	V	100	168	6	100800	100800	25200	75600		
	VI	100	162	6	97200	97200	24300	72900		
	VII	100	156	6	93600	93600	23400	70200		
AB-X3Y3	I	100	67	3	20100					20100
	II	100	64	2	12800				12800	
	III	72	62	2	8928	8928	2232	6696		
		72	105	4	30240	30240	7560	22680		
	IV	72	99	6	42768	42768	10692	32076		

	V	100	116	6	69600	69600	17400	52200		
	VI	100	133	6	79800	79800	19950	59850		
	VII	100	127	6	76200	76200	19050	57150		
AB-X4Y4	I	90	69	3	18630					18630
	II	86	64	2	11008				11008	
	III	84	64	3	16128	16128	4032	12096		
		116	100	3	34800	34800	8700	26100		
	IV	110	171	6	112860	112860	28215	84645		
	V	148	165	6	146520	146520	36630	109890		
	VI	142	159	6	135468	135468	33867	101601		
	VII	136	153	6	124848	124848	31212	93636		
TOTAL					**2044654**	**1860000**	**465000**	**1395000**	**74248**	**110406**

Total volume of ROM up to a depth of 35m = 2044654m^3

Mineable Granite up to a depth of 35m = 1860000 m^3

Total Mineable reserves @25% = 465000m^3

Reject of granite @ 75% = 1395000m^3

Weathered Rock = 74248m^3

Top Soil = 110406 m^3

Total Waste (Reject+ + Weathered) = (1395000m3+74248m^3)

= 1469248/465000

= 1:3.15

2.9 Year Wise Production and Development

2.9.1 M/s. Karunai Granites Private Limited (3.15.5 Ha)

The five years production is designed upto a depth of 35m. The waste ratio with reference to the production of granite would be 1:4.0.

Table No: 2.14. Computation of year wise production

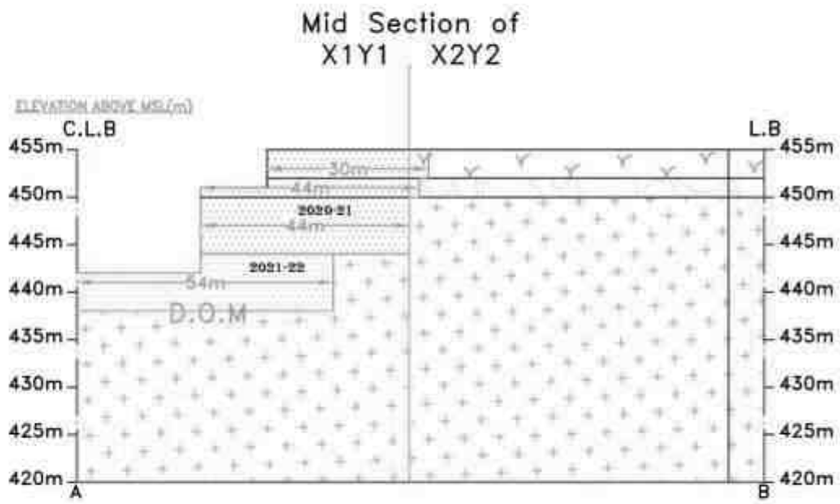
Year	Top Soil	Weathered rock	Rom (m^3)	Production @ 25% (m^3)	Rejects @ 75% (m^3)	Ore to Waste ratio
2020-21	7953	11584	35856	8964	26892	1:5.17
2021-22	-	-	36288	9072	27216	1:3.00
2022-23	17640	11124	36024	9006	27018	1:6.19
2023-24	-	-	36216	9054	27162	1:3
2024-25	-	-	36066	9017	27050	1:2.99
TOTAL	**25593**	**22708**	**180450**	**45113**	**135338**	**1:4.0**

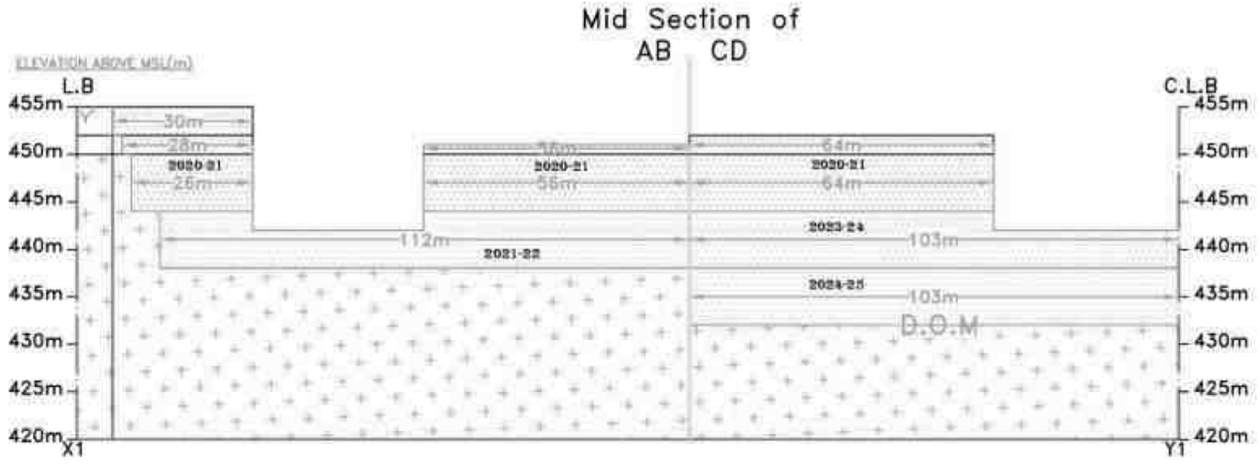
Total Volume of granite for five years =180450m^3
Granite Recovery @25% =45113m^3
Granite Rejects @75% =135338m^3
Weathered rock =22708m^3
Top soil =25593m^3
Total Waste (Top soil (25593m^3) + weathered rock (22708m^3)+ Reject (135338m^3) = 183639m^3
Total Waste ratio to granite =183639/45113 =**1:4.07**

PLATE - VII

SECTIONS OF PRODUCTION AND DEVELOPMENT PLAN

Scale : Horizontal = 1:1000
Vertical = 1:500





COLOR INDEX

	2020–2021 YEAR EXCAVATION
	2021–2022 YEAR EXCAVATION
	2022–2023 YEAR EXCAVATION
	2023–2024 YEAR EXCAVATION
	2024–2025 YEAR EXCAVATION

INDEX

L.B.	LEASE BOUNDARY
	TOPSOIL&WEATHERED
	MULTI COLOUR GRANITE
UPL	ULTIMATE PIT LIMIT
D.O.M	DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 7.80Acres(3.15.5Ha)
S.F.NO : 299/2(P),301/1(P)
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/S.KARUNAI GRANITES
PRIVATE LIMITED,
JAGADEVAPALAYAM VILLAGE,
&(POST),
BARGUR TALUK,
KRISHNAGIRI DISTRICT.

DATE OF SURVEY: 06.09.2019

Certified that plans and section are prepared as per MCR 2017 and GCDR 1999

S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

Fig. 2.18: Section of Production and Development Plan of M/s. Karunai Granites Private Limited (3.15.5 Ha)

2.9.2 M/s. Karunai Granites Private Limited (11.59.0 Ha)

The five years production is designed upto a depth of 35m. The waste ratio with reference to the production of Granite would be 1:3.0.

Table No: 2.15. Computation of year wise production

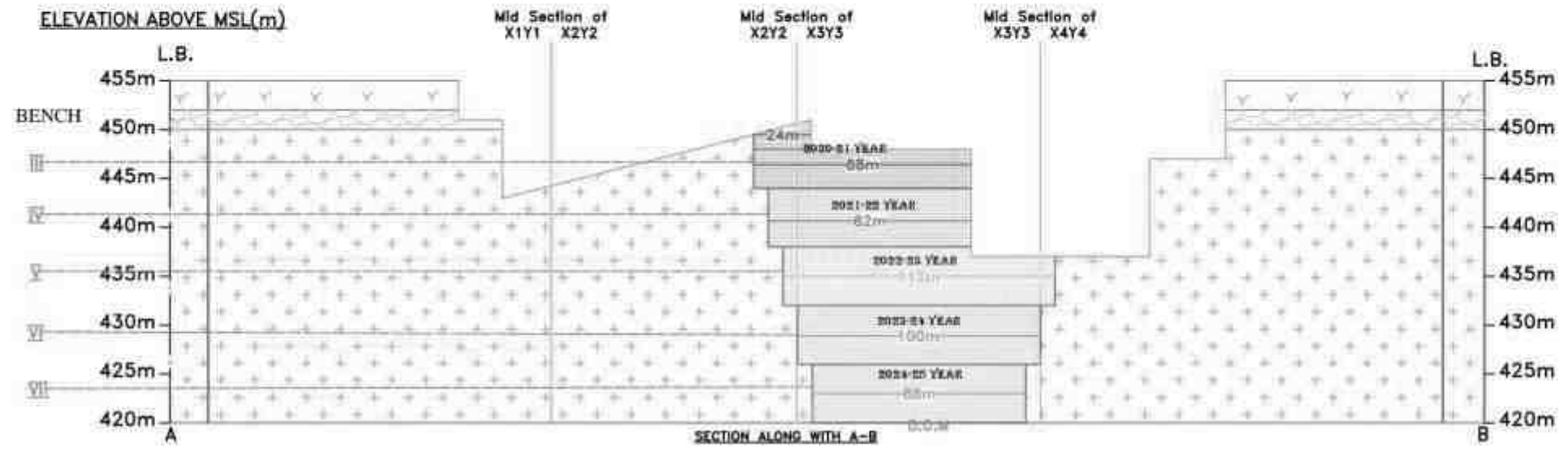
Year	Top Soil	Weathered rock	Rom (m^3)	Production @ 25% (m^3)	Rejects @ 75% (m^3)	Ore to over burden ratio
2020-21	--	--	14800	3700	11100	1:3
2021-22	-	-	15252	3813	11439	1:3
2022-23	-	-	32256	8064	24192	1:3
2023-24	-	-	39000	9750	29250	1:3
2024-25	-	-	31152	7788	23364	1:3
TOTAL	**--**	**--**	**132460**	**33115**	**99345**	**1:3**

Total Volume of granite for five years = 132460m^3
Granite Recovery @25% = 33115 m^3
Granite Rejects 75% = 99345m^3
Total Waste ratio to granite = 99345/33115
= 1:3

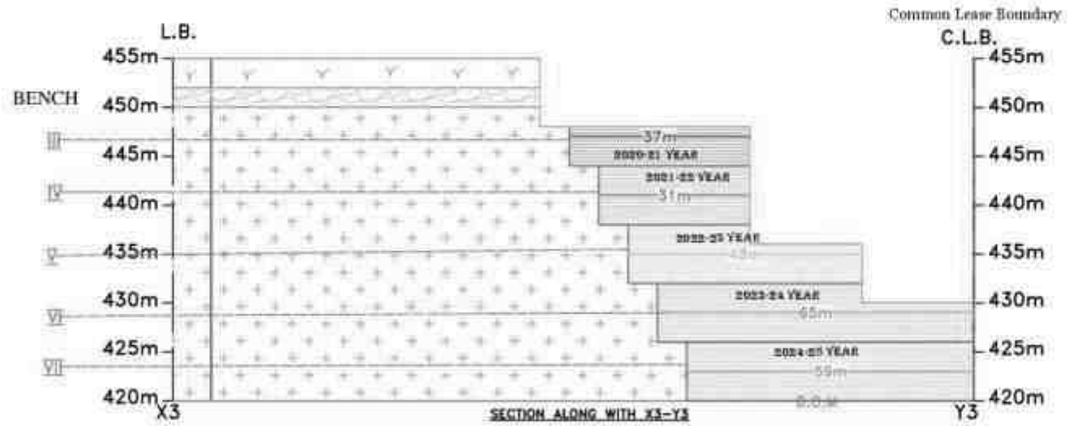
PLATE - VII

SECTIONS OF PRODUCTION AND DEVELOPMENT PLAN

Scale : Horizontal = 1:2000
Vertical = 1:500



Scale : Horizontal = 1:1000
Vertical = 1:500



2020–21 EXCAVATION
2021–22 EXCAVATION
2022–23 EXCAVATION
2023–24 EXCAVATION
2024–25 EXCAVATION

INDEX

- L.B. LEASE BOUNDARY
- TOPSOIL
- WEATHERED ROCK
- MULTICOLOUR GRANITE
- DEPTH OF MINING

LOCATION OF QUARRY

EXTENT : 11.59.0HA
S.F.NO. : 294/4,295/2A,2B,etc..
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

APPLICANT

M/s.KARUNAI GRANITES PVT LTD,
JAGADEVIPALAYAM VILLAGE&POST,
KRISHNAGIRI TALUK,
KRISHNAGIRI- 635 203

DATE OF SURVEY:06.09.2019

Certified that plans and section are prepared as per MCR,2017 and GCDR,1999

S.SURIYA KUMAR,
M.Sc.,M.phil(Geo),F.C.C(Mining)
Qualified Person

Fig. 2.19: Section of Production and Development Plan of M/s. Karunai Granites Private Limited (11.59.0 Ha)

2.10 Stacking of Mineral Rejects and Disposal of Waste

2.10.1 M/s. Karunai Granites Private Limited (3.15.5 Ha)

The waste rocks to be generated from the mine will be fragmented gneisses and rejects of Granite with patches, cracks and small size blocks. The site selected for dumping waste and Granite rejects on the barren area and stable, therefore no chance for instability of dumps and washouts. Total generation of Granite rejects and waste for the plan period will be **1,86,639m^3** and for the whole life of mine will be **5,52,032m^3**.

Table No 2.16: Computation of waste and rejects materials

Year	Top Soil	Weathered + Waste rock	Granite Rejects @ 75 % (m^3)	Total
2020-21	7953	11584	26892	46429
2021-22	-	-	27216	27216
2022-23	17640	11124	27018	55782
2023-24	-	-	27162	27162
2024-25	-	-	27050	27050
TOTAL	**25593**	**22708**	**135338**	**183639**

All waste and reject materials shall be dumped within the lease area maintained by the applicant.

Table No 2.17: Reject Dump Dimensions at the end of 5th year and end of Life of Mine

Description	End of 5th Year	End of Life of Mine
Reject	1,83,639 m^3	5,52,032m^3
Total	1,83,639 m^3	5,52,032m^3

2.10.2 M/s. Karunai Granites Private Limited (11.59.0 Ha)

The waste rocks to be generated from the mine will be fragmented gneisses and rejects of Granite with patches, cracks and small size blocks. The site selected for dumping waste and Granite rejects on the barren area and stable, therefore no chance for instability of dumps and washouts. Total generation of Granite rejects and waste for the plan period will be **99345m^3** and for the whole life of mine will be **1395000m^3** of Rejects, **74248 m^3** Weathered and **110406 m^3** of Top soil.

Table No-2.18: Computation of rejects materials

Year	Topsoil (m^3)	Weathered rock/ Waste (m^3)	Granite Rejects @ 70 % (m^3)	Total
2018-19	--	--	11100	11100
2019-20	--	--	11439	11439
2020-21	--	--	24192	24192
2021-22	--	--	29250	29250
2022-23	---	--	23364	23364
Total	**--**	**---**	**99345**	**99345**

All waste and reject materials shall be dumped within the lease area maintained by the applicant.

Table No2.19 Reject Dump Dimensions at the end of 5th year and end of Life

Description	End of 5^{th} Year	End of Life of Mine
Top Soil	Nil	110406 m^3
Weathered	Nil	74248 m^3
Reject	99345m^3	1395000m^3

2.11 Conceptual Mining Plan/ Final Mine Closure Plan

2.11.1 M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)

Conceptual Mining Plan is prepared with an object of long-term systematic development of bench lay - outs, selection of dump site, setting roads, to determine ultimate pit limit, depth of mining and ultimate pit slope, selection of sites for construction of infrastructures, lying of roads etc. Kindly refer Table no-2.20 & Plate No-VIII in Fig 2.20

The ultimate pit size is so designed based on certain practical factors such as the economical depth of mining, safety zones followed, available area for mining. The Ultimate pit size of the mine in bench-wise arrived and calculated as hereunder.

Table No 2.20: Computation of ultimate pit dimension

Bench	Topsoil/Mineral	L(m)	W(m)	D(m)
I	Top soil	104m	225m	3m
II	Weathered	137m	223m	2m
III	Granite	135m	221m	6m
IV	Granite	129m	215m	6m
V	Granite	123m	210m	6m
VI	Granite	117m	203m	6m
VII	Granite	120m	197m	6m
			TOTAL =	**35m**

All rejects and waste materials are dumped temporarily on barren ground of the lease area and backfilled at the end of mine life.

Table 2.21 Ultimate Dump Dimensions (M)

Description		Volume (m^3)
Top soil	=	50835m3
Weathered	=	38844m^3
Rejects	=	462353m3
Total	**=**	**552032m^3**

Details of pit and dump dimensions are given in plate No-VIII. Ultimate or over all pit slope shall be 45° and each bench height shall be 6m height and vertical.

2.11.1.1 Restoration, Reclamation of already mined out area.

The quarried out pit will be used as water storage pond which improves the agricultural activity in the buffer zone.

The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

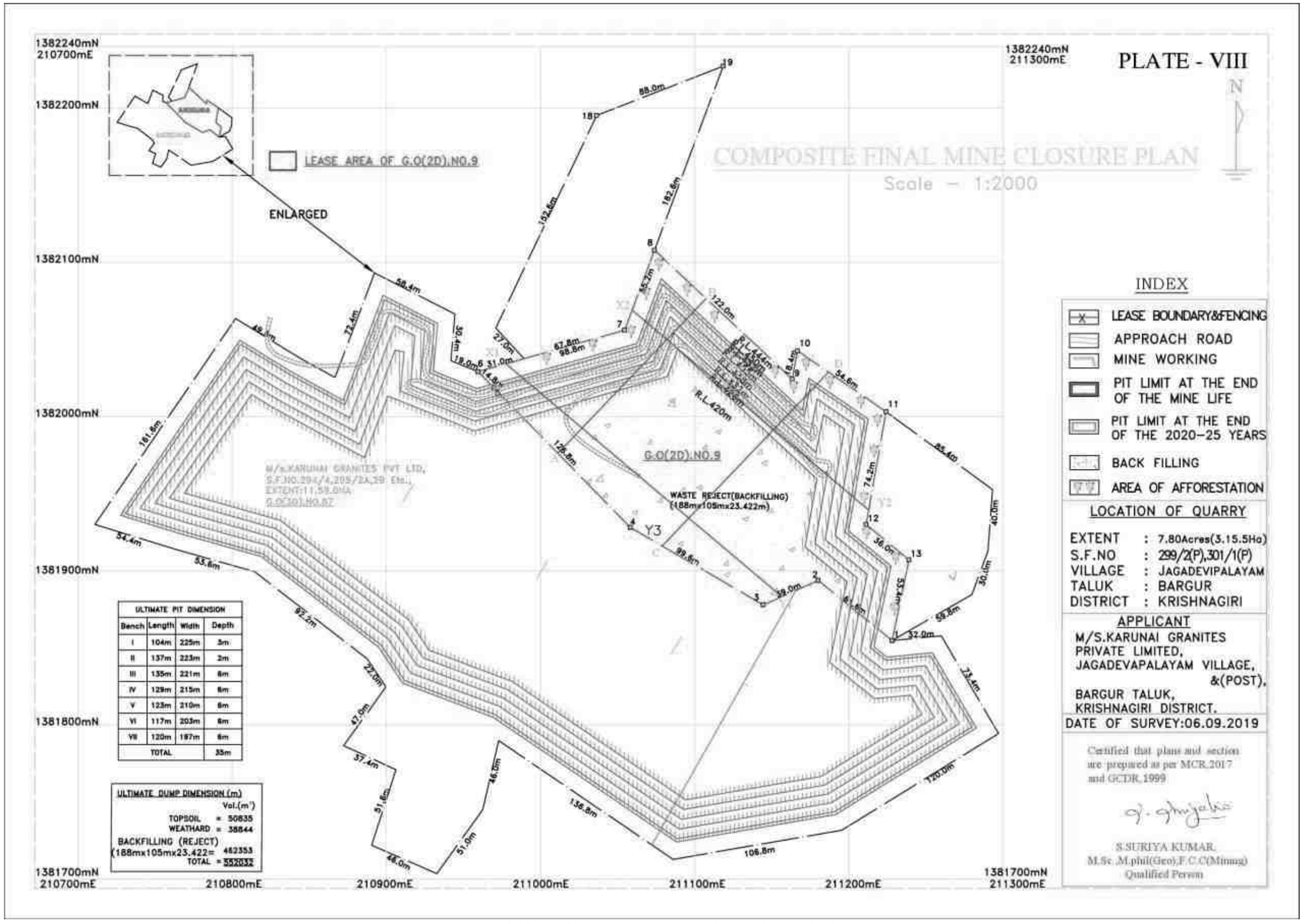


Fig. 2.20: Conceptual plan of M/s. Karunai Granites Private Limited (3.15.0 Ha)

2.11.2 M/s. Karunai Granites Private Limited (11.59.0 Ha)

Conceptual Mining Plan is prepared with an object of long-term systematic development of bench lay - outs, selection of dump site, setting roads, to determine ultimate pit limit, depth of mining and ultimate pit slope, selection of sites for construction of infrastructures, lying of roads etc. Kindly refer Table no-2.22 & Plate No-VIII in Fig 2.21.

The ultimate pit size is so designed based on certain practical factors such as the economical depth of mining, safety zones followed, available area for mining. The Ultimate pit size of the mine in bench-wise arrived and calculated as hereunder.

Table No 2.22 Computation of ultimate pit dimension

PIT	Bench	Topsoil/Mineral	L(m)	W(m)	D(m)
I	I	Top soil	506m	182m	3m
	II	Weathered	500m	182m	2m
	III	Granite	496m	180m	6m
	IV	Granite	484m	174m	6m
	V	Granite	470m	168m	6m
	VI	Granite	458m	162m	6m
	VII	Granite	446m	156m	6m
				TOTAL =	**35m**

All rejects and waste materials are dumped temporarily on barren ground of the lease area and backfilled at the end of mine life.

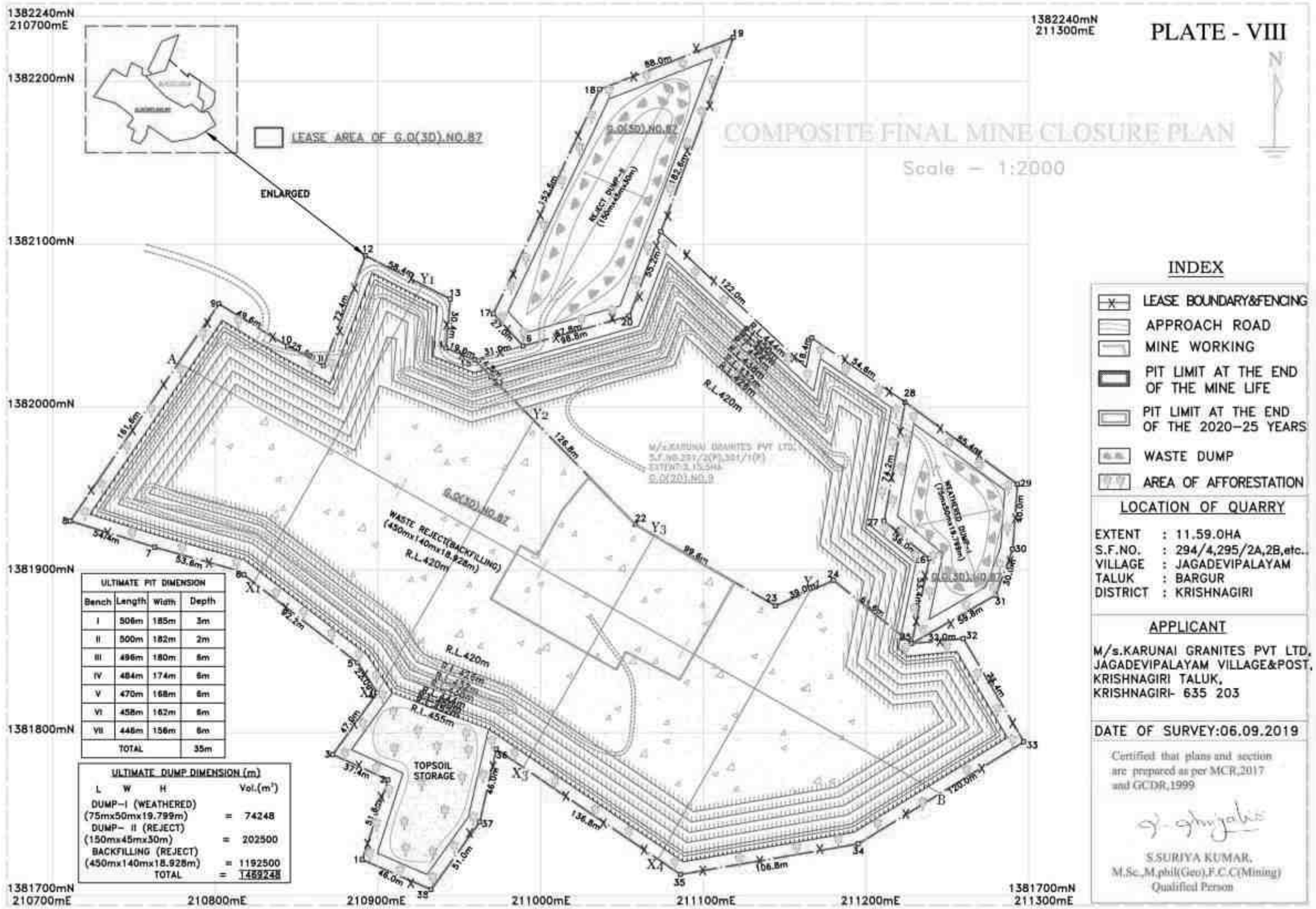
Table 2.23 Ultimate Dump Dimensions (M)

Description		Volume (m^3)
Top soil	=	110406m^3
Dump-I (Weathered) (75m x 50m x 19.799m)	=	74248m^3
Dump-II (Rejects) (150m x 45m x 10.999m)	=	202500m^3
Backfilling (450m x 140m x 18.928m)		1192500 m^3
Total Weathered + Rejects (74248m^3 + 1395000 m^3)	=	1469248m^3

Details of pit and dump dimensions are given in plate No-VIII. Ultimate or over all pit slope shall be 45° and each bench height shall be 6m height and vertical.

2.11.2.1 Restoration, Reclamation of already mined out area.

The quarried out pit will be used as water storage pond which improves the agricultural activity in the buffer zone.The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.



ULTIMATE PIT DIMENSION

Bench	Length	Width	Depth
I	506m	185m	3m
II	500m	182m	2m
III	496m	180m	6m
IV	484m	174m	6m
V	470m	168m	6m
VI	458m	162m	6m
VII	446m	156m	6m
TOTAL			35m

ULTIMATE DUMP DIMENSION (m)

L	W	H	Vol.(m³)
DUMP–I (WEATHERED) (75mx50mx19.799m)			= 74248
DUMP– II (REJECT) (150mx45mx30m)			= 202500
BACKFILLING (REJECT) (450mx140mx18.928m)			= 1192500
TOTAL			= 1469248

Fig. 2.21: Conceptual plan of M/s. Karunai Granites Private Limited (11.59.0 Ha)

2.12 Employment Potential (Management & Supervisory personal)

Table No 2.24: Employment Potential of M/s. Karunai Granites Private Limited (3.15.5 Ha)

Management and supervisory personal		Mines manager	1 no
		Mining Mate	1 no
		Register Keeper	1 no
Workers	**Skilled**	Operator	2 No
		Mechanic	1 No
	Semi-skilled	Driver	2 No
	Unskilled	Musdoors/Labours	5 No
		Cleaners	3 No
		Watchman	1 No
		Office boy	1 No
	Total		**18 nos**

Table No 2.25: Water Requirements (4 KLD) - M/s. Karunai Granites Private Limited (3.15.5 Ha)

Domestic & Sanitary	0.8 KLD
Dust suppression & Green Belt	3.2 KLD
Source	Drinking - Mineral water supply Domestic, Dust suppression and Greenbelt – Water vendors through water tank

Table 2.26: Employment Potential of M/s. Karunai Granites Private Limited (11.59.0 Ha)

Management and supervisory personal		Mines manager	1 no
		Mining Mate	1 no
		Register Keeper	1 no
Workers	**Skilled**	Operator	1 No
		Mechanic	1 No
	Semi-skilled	Driver	3 No
	Unskilled	Musdoors/Labours	5 No
		Cleaners	3 No
		Watchman	1 No
		Office boy	1 No
	Total		**18 nos**

Table No 2.27 Water Requirements (4 KLD) - M/s. Karunai Granites Private Limited (11.59.0 Ha)

Domestic & Sanitary	0.8 KLD
Dust suppression & Green Belt	3.2 KLD
Source	Drinking - Mineral water supply Domestic, Dust suppression and Greenbelt – Water vendors through water tank

2.13 Amenities of two existing quarries

As both quarries are existing quarries good approach road is already available. All site services such as first-aid room, office, rest room, canteen and toilets will be renovate before commencing the project. The workers are supplied with helmets, safety boots, ear plugs, masks, gloves, etc., as personal protective devices.

2.13.1 Sanitary facilities

Semi-permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the main rules, 1955 separately for males and Females. Washing facilities shall also be arranged as per rule (36) of the mines Rules, 1955.

2.13.2 First Aid facility

First Aid station as per provisions under Rule (44) of the Mines Rules, 1955 will be provided and First aid kits kept in mines office room, the qualified first aid personnel should be appointed or nominated to attend emergency first aid treatment.

In case of eventuality, the victim will be given first aid immediately at the site and the injured person will be taken to the hospital located in Jagadevi. The competent and statutory of Foreman / Mate / Permit Manager will be incharge of the First aid.

2.13.3 Labour Health

Periodic medical examination has to be made for occupational health once in a year in addition to attending medical treatment of occupational injuries under Rule 45 (A).

2.13.4 Precautionary safety measures to the Labourers

Safety provisions like helmet, goggles, safety belt, safety shoes etc have to be provided as per the circulars and amendments made for Mine labours under guidance of DGMS.

Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation

2.13.5 The Child labor Employment

As per the Mines Act, 1952, no child labors below 18 years of old were engaged for any work in the quarry.

2.14 Project Cost

2.14.1 M/s. KARUNAI GRANITES PRIVATE LIMITED(3.15.5 Ha)

a) Project cost / investment

i) Land Cost	=	Rs. 13,00,000
ii) Machinery to be used (hire)	=	Rs. 62,00,000*
iii) Building & Welfare amenities	=	Rs 3,00,000
Total	**=**	**Rs. 78,00,000**

(* Part of machineries shall be hired)

b) EMP Cost

i) Personal protective equipment	=	Rs 1,00,000
ii) Environmental Monitoring	=	Rs 2,25,000
iii) Occupation Health	=	Rs 1,00,000
iv) Green Belt & Dust suppression	=	Rs 4,00,000
v) Tyre/Wheel washing station	=	Rs 1,00,000
vi) Sign Boards	=	Rs 25,000
Total	**=**	**Rs 9.50 Lakhs**

2.14.2 M/s. KARUNAI GRANITES PRIVATE LIMITED(11.59.0 Ha)

b) Project cost / investment

i) Land Cost	=	Rs. 25,00,000
ii) Machinery to be used (hire)	=	Rs. 50,00,000*
iii) Building & Welfare amenities	=	Rs 5,00,000
iv) Fencing	=	Rs. 1,50,000
Total	**=**	**Rs. 81,50,000**

b) EMP Cost

i)	Personal protective equipment	=	Rs 1,00,000
ii)	Environmental Monitoring	=	Rs 3,50,000
iii)	Occupation Health	=	Rs 75,000
iv)	Green Belt & Dust suppression	=	Rs 4,00,000
v)	Tyre/Wheel washing station	=	Rs 1,00,000
vi)	Sign Boards	=	Rs 25,000
	Total	**=**	**Rs 10.5 Lakhs**

2.15 End Use

The applicant does not have the facilities to cut and polish the rough blocks of granite. He proposes to export the rough blocks directly to the potential buyers of the domestic and world market.

CHAPTER – 3: DESCRIPTION OF THE ENVIRONMENT

3.0 BASELINE ENVIRONMENTAL STATUS

3.1 INTRODUCTION

The chapter describes the existing environmental settings in the study area and is based upon the secondary information collected from the published sources, reconnaissance survey, primary socio-economic and environmental monitoring of air, and noise, soil, ground and surface water in the study area.

For the purpose of EIA studies, mine lease area was considered as the core zone and area outside the mine lease boundary up to 10km radius from the lease boundary was considered as buffer zone. Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The baseline monitoring study has been carried out during Dec 1st, 2022 – Feb 28th, 2023 to assess the existing environmental scenario in this area.

The Various environmental components studied as a part of the baseline study are discussed in the following project activities are:

- Air Environment
- Noise Environment
- Soil Environment
- Water Environment
- Flora and Fauna
- Socio-economic
- Land Environment

3.2 METHODOLOGY

The guiding factors of the present baseline study are the requirements laid down by the Central Pollution Control Board (CPCB) and guidelines as per the Environmental Impact Assessment Notification.

- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respirable Dust Sampler and Fine Particulate Matter Sample at different locations within the study area and analyzed to find out the existing status of air quality.
- Ground water samples were collected from the existing tube wells, while samples for surface water were collected from river & small ponds. The samples were analyzed for parameters necessary to determine water quality

(based on IS: 10500 criteria) and those, which are relevant from environmental impact point of view of the proposed river bed mining project.

- Soil samples were collected and analyzed for relevant physical and chemical characteristics in order to assess the impact of the proposed mining on soil.
- Inventory of flora and fauna species present in the area was made through field visits and survey by ecologists.
- Socio-economic data was collected from primary sources through village – level surveys and household visits.
- The land use patterns of the study area were assessed through latest satellite imaging and topographical sheets of Survey of India.

Appropriate methodologies have been followed in preparing the EIA-EMP report. The methodology adopted for the study is outlined below. The sampling locations were selected on the basis of the following:

- Predominant wind directions recorded by the India Meteorological Department (IMD), Hosur observatory, Krishnagiri district;
- Existing topography;
- Drainage pattern and location of existing surface water bodies like lakes/ponds, rivers and streams;
- Location of villages/towns/sensitive areas, and;
- Areas, which represent baseline conditions;

3.3 METEOROLOGICAL DATA RECORDED AT IMD STATION, HOSUR OBSERVATORY, KRISHNAGIRI DISTRICT

The meteorology of the project area plays very important role in dispersion of pollutants and build-up of pollution within the air atmosphere. In the present study, in the month of Dec 1st, 2022 – Feb 28th, 2023 meteorological data for site specific has been taken to find the dispersion of pollutant concentration. The mixing height, which is an important parameter to express the dispersive potential of atmosphere, has been taken from the atlas of hourly mixing height and assimilative capacity of atmosphere in India.

Table 3.1 Summary of the Meteorological data for the study period

S. no	Parameters	Months	Dec 2022	Jan 2023	Feb 2023
1	Temperature (°C)	Max	27	29	31
		Min	18	17	19

		Average	22	23	24
2	Rainfall (mm)	Total Average Rainfall	20	4	7
		No. of rainy days	10.5	3.3	3.6
3	Humidity (%)	Average	75	61	53
4	Wind speed (mps)	Average	2.4	2.5	2.6
5	Cloud (%)	Average	39	16	15

3.3.1 Wind Rose

Wind speed and wind direction data is useful in identifying the influence of meteorology on the air quality of the area. The observed wind pattern during the study period is described below. In the present study, in the month of Dec, 2022 to Feb, 2023 meteorological data has been taken to find the dispersion of pollutant concentration. Wind-rose diagram for the study period is shown given below in Fig No. 3.1.

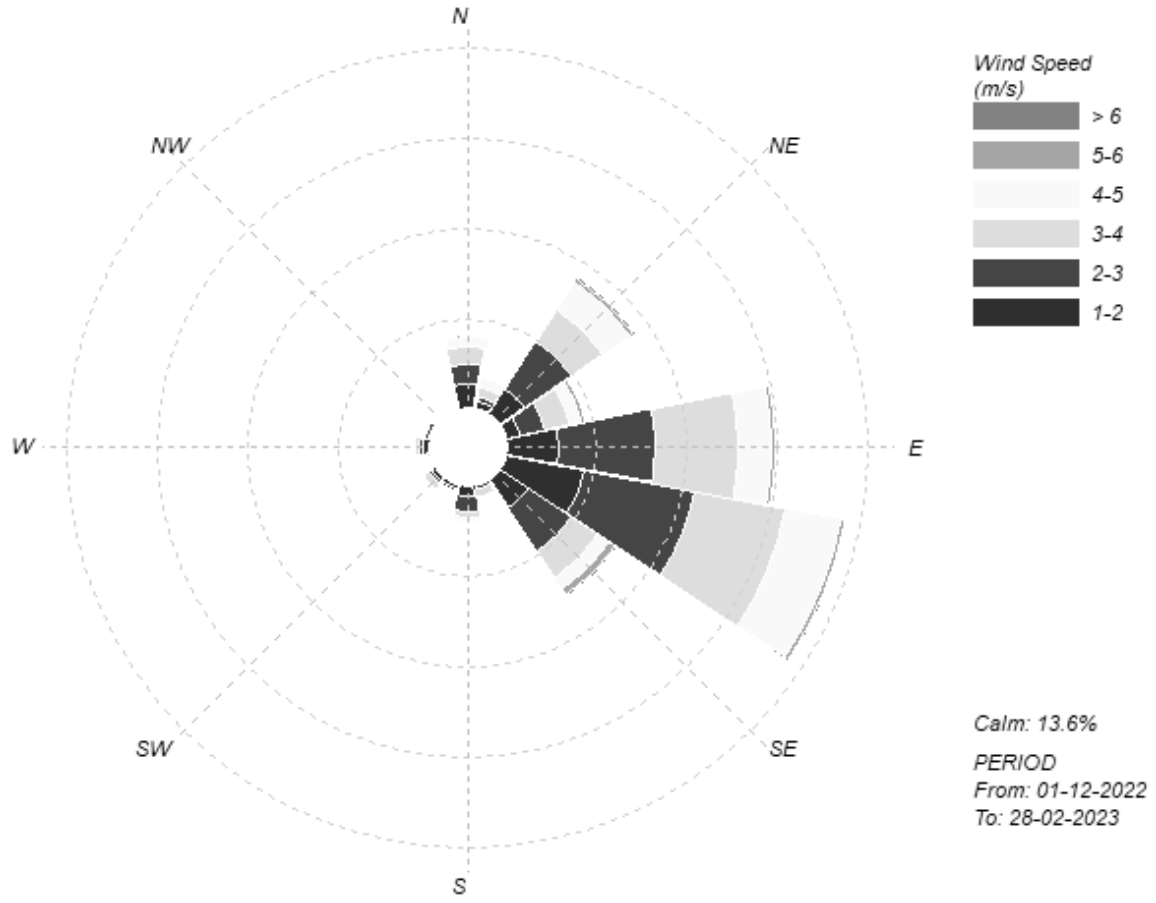


Fig No 3.1 Wind Rose Pattern for the Study period

3.4 AIR ENVIRONMENT

Prevailing air environment i.e. baseline conditions in an area is primarily governed by many factors activities going on in that area. The pollutant level in atmosphere is also governed by the meteorology, topography, natural settings in terms of plantation, forest cover, vegetation etc as these factors in combination with each other are responsible for dispersion, diffusion, transportation and assimilation of pollutants in the local air shed.

3.4.1 Ambient Air Monitoring

The prime objective of baseline air quality study (10km radius) is to assess the existing air quality of the area to form base line information. The study area represents mostly rural environment. Ambient air monitoring was carried out at 5 locations. The locations were identified keeping in view of predominant wind directions prevailing during study period, sensitive receptors, human settlements and mining activities around. The details about sampling locations are mentioned below in Fig No. 3.2, 3.3 and presented in Table 3.1(a).

The existing Ambient Air Quality status (AAQ) has been monitored for parameters PM_{10}, $PM_{2.5}$, SO_2 and NO_X. Ambient air quality monitoring was carried out at a frequency of two days per week at each location for three months at 8 hour continuously. Respirable dust samplers have been used for monitoring the existing PM_{10} status and fine dust samplers are used for monitoring $PM_{2.5}$ status in the study area. Methodologies adopted for sampling and analysis were carried out, as per the approved methods of Central Pollution Control Board (CPCB).

Table 3.1 (a) Ambient Air Quality Monitoring Locations

S. No	Sample Location	Station Code	Direction/ Distance (w.r.t. mine)	Core Zone/ Buffer Zone	Latitude	Longitude
1	Core Zone	AAQ-1	--	Core	12°29'19.06"N	78°20'21.97"E
2	Jagadevipalayam	AAQ-2	2.0 km (W)	Buffer	12°29'9.98"N	78°19'7.08"E
3	Jitanpalli	AAQ-3	2.0 km (S)	Buffer	12°28'5.63"N	78°20'19.73"E
4	Bagimanoor	AAQ-4	1.7km (E)	Buffer	12°28'59.21"N	78°21'31.89"E
5	MGR Nagar, Bargur	AAQ-5	4.7km (N)	Buffer	12°31'53.89"N	78°21'1.03"E

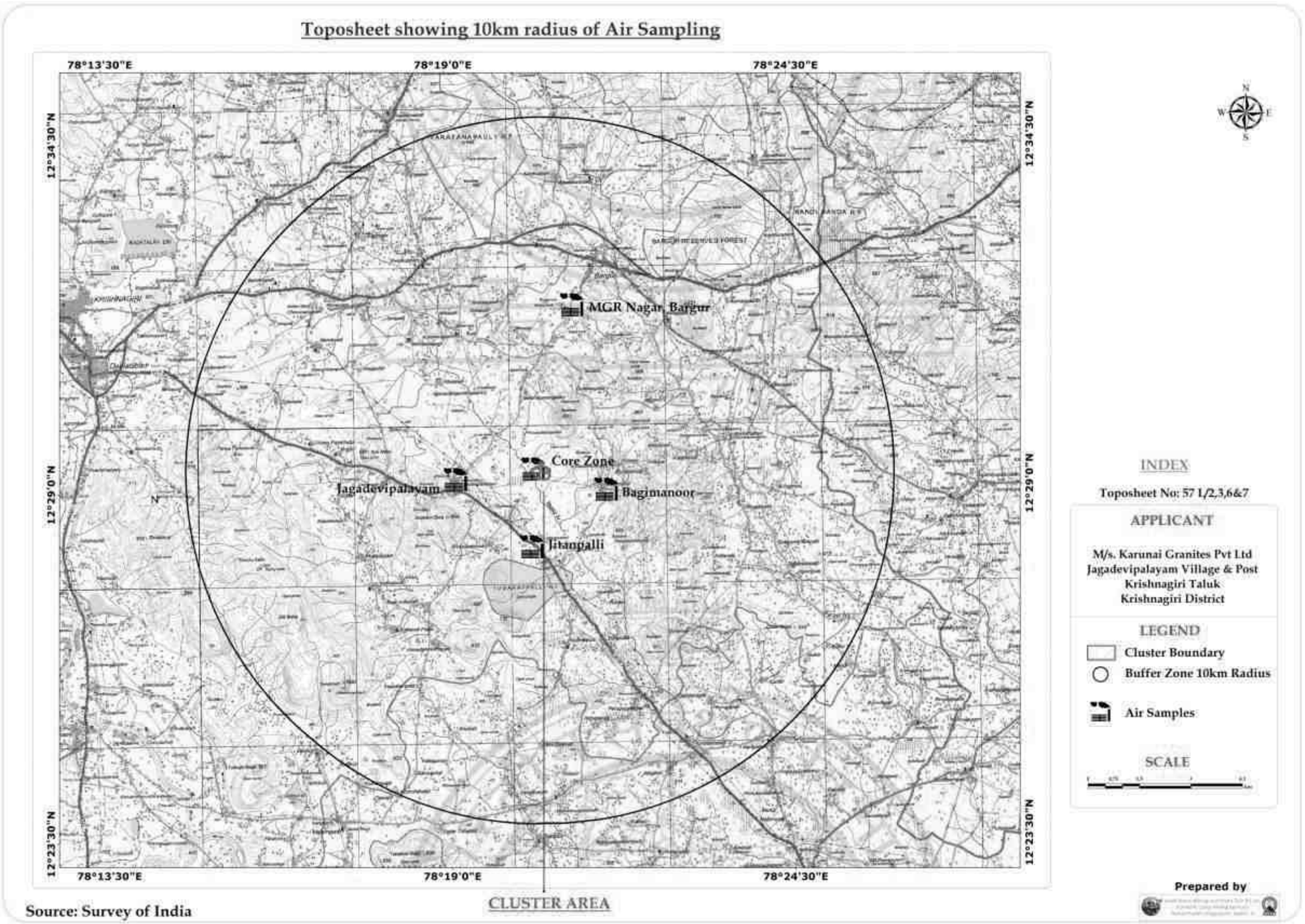


Fig No 3.2 Geo Referenced Toposheet showing Air Sampling station around 10km radius

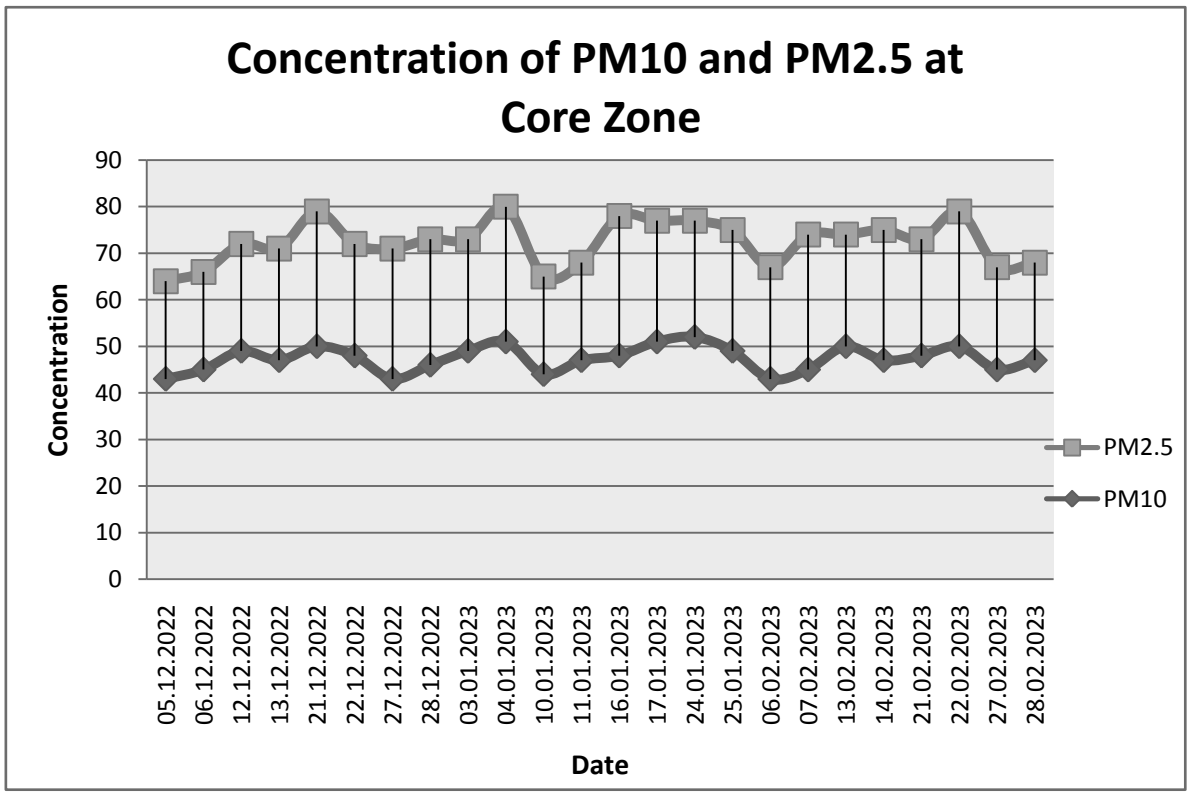
Fig No 3.3 Air Monitoring locations at Core and Buffer Zone

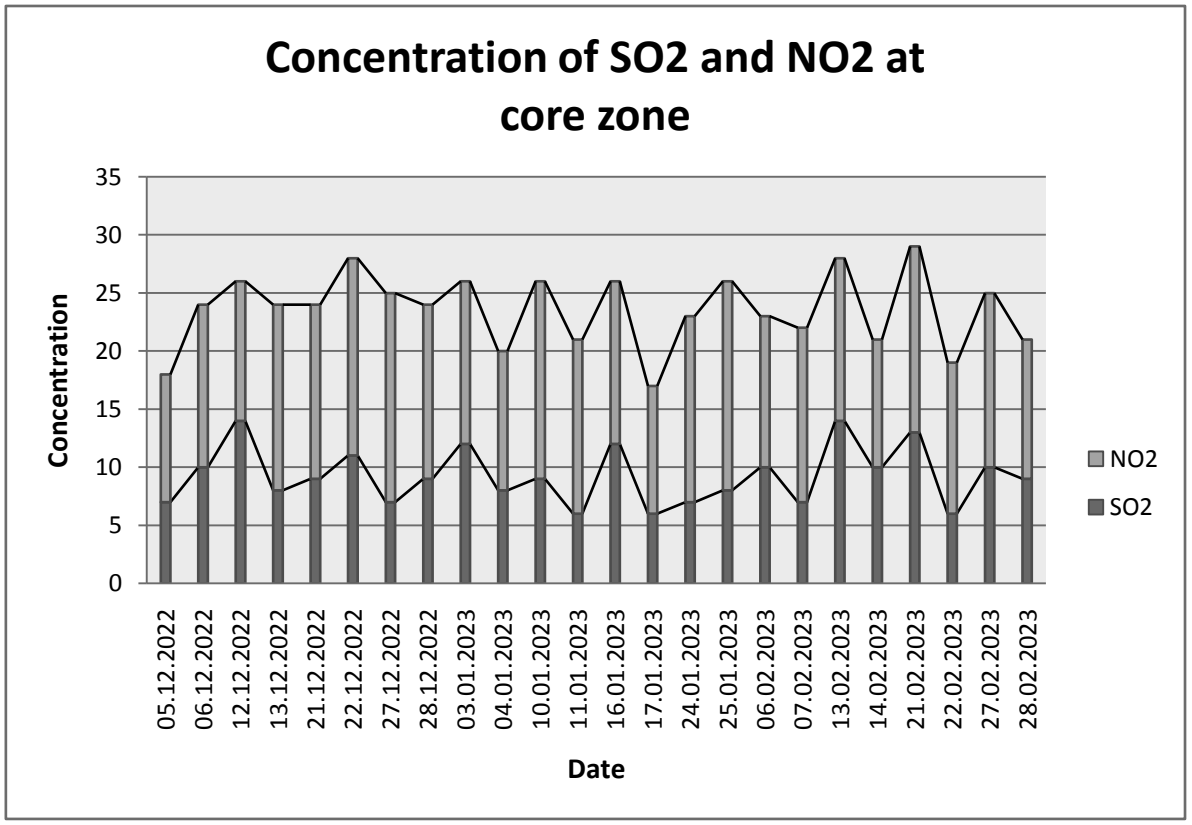
3.4.2 Monitoring Result

Monitoring station-wise minimum and statistical analysis (minimum, maximum, arithmetic mean) for measured levels of PM_{10}, $PM_{2.5}$, SO_2, NO_x in study area for the monitoring period are shown parameter wise in Table 3.2 and graphical representation of concentration pollutants are showing in Fig No 3.4.

Table 3.2 Summaries of Ambient Air Quality Results

Location		Code	PM_{10} (µg/m^3)				$PM_{2.5}$ (µg/m^3)				SO_2 (µg/m^3)				NO_x (µg/m^3)			
			Max	**Min**	**Avg**	**98%**	**Max**	**Min**	**Avg**	**98%**	**Max**	**Min**	**Avg**	**98%**	**Max**	**Min**	**Avg**	**98%**
Core Zone		A_1	52	43	47.3	51.5	30	21	25.0	29.5	14	6	9.3	14	18	11	14.3	18
Buffer zone	Jagadevipal -ayam	A_2	50	42	46.2	50	29	19	24	28	13	6	9.5	12.5	16	9	12.5	16
	Jitanpalli	A_3	48	39	43.0	47	27	19	22.3	26.5	10	4	7.5	10	16	7	11.4	16
	Bagimanoor	A_4	46	38	41.5	46	27	19	22.6	26.5	10	3	6.1	9.5	14	7	9.5	13
	MGR Nagar, Bargur	A_5	50	43	46.6	50	29	20	24.0	28.5	13	6	9.3	12	15	7	11.2	15
NAAQS			**100**				**60**				**80**				**80**			


Concentration of PM10 and PM2.5 at Core Zone
Concentration
90
80
70
60
50
40
30
20
10
0
05.12.2022
06.12.2022
12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
03.01.2023
04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
25.01.2023
06.02.2023
07.02.2023
13.02.2023
14.02.2023
21.02.2023
22.02.2023
27.02.2023
28.02.2023
Date
PM2.5
PM10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Concentration
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25
20
15
10
5
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13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
03.01.2023
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10.01.2023
11.01.2023
16.01.2023
17.01.2023
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25.01.2023
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07.02.2023
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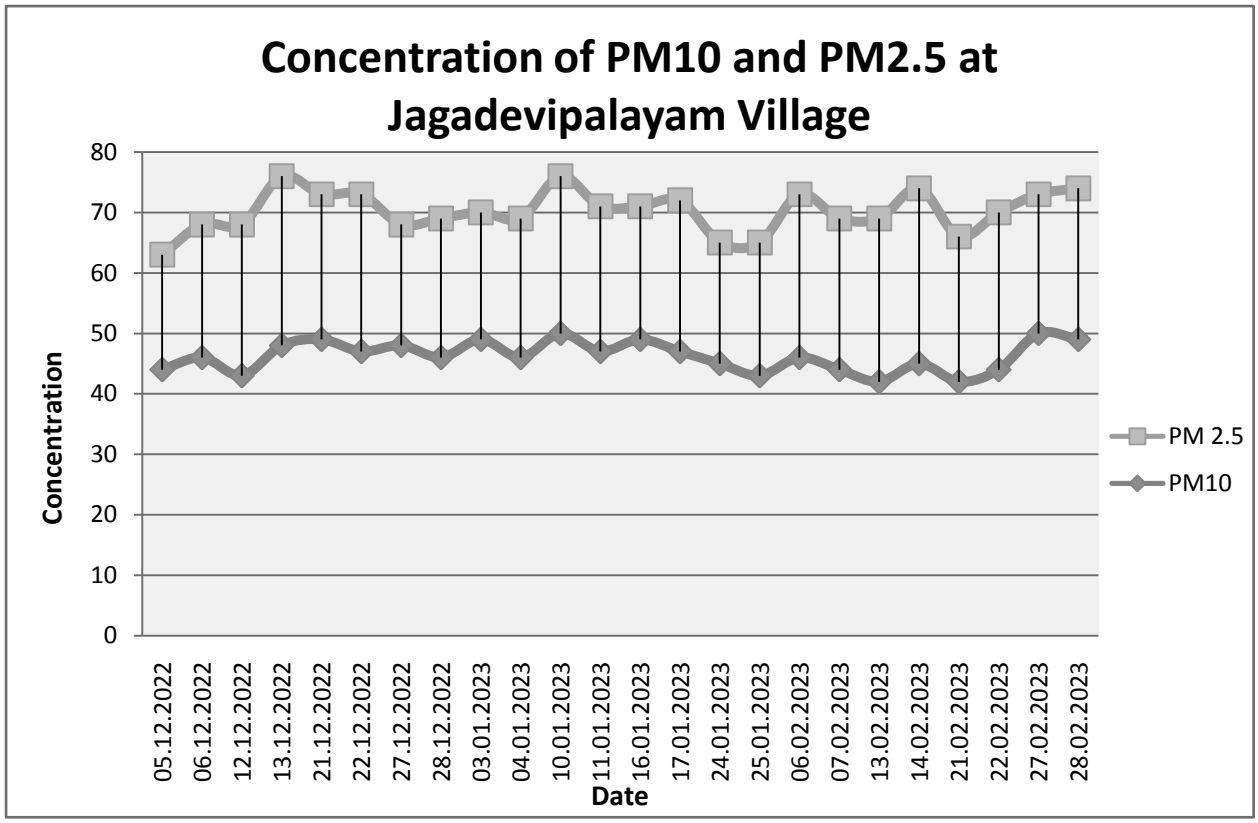
28.02.2023
Date
NO2
SO2


Concentration of PM10 and PM2.5 at Jagadevipalayam Village
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40
30
20
10
0
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12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
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04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
25.01.2023
06.02.2023
07.02.2023
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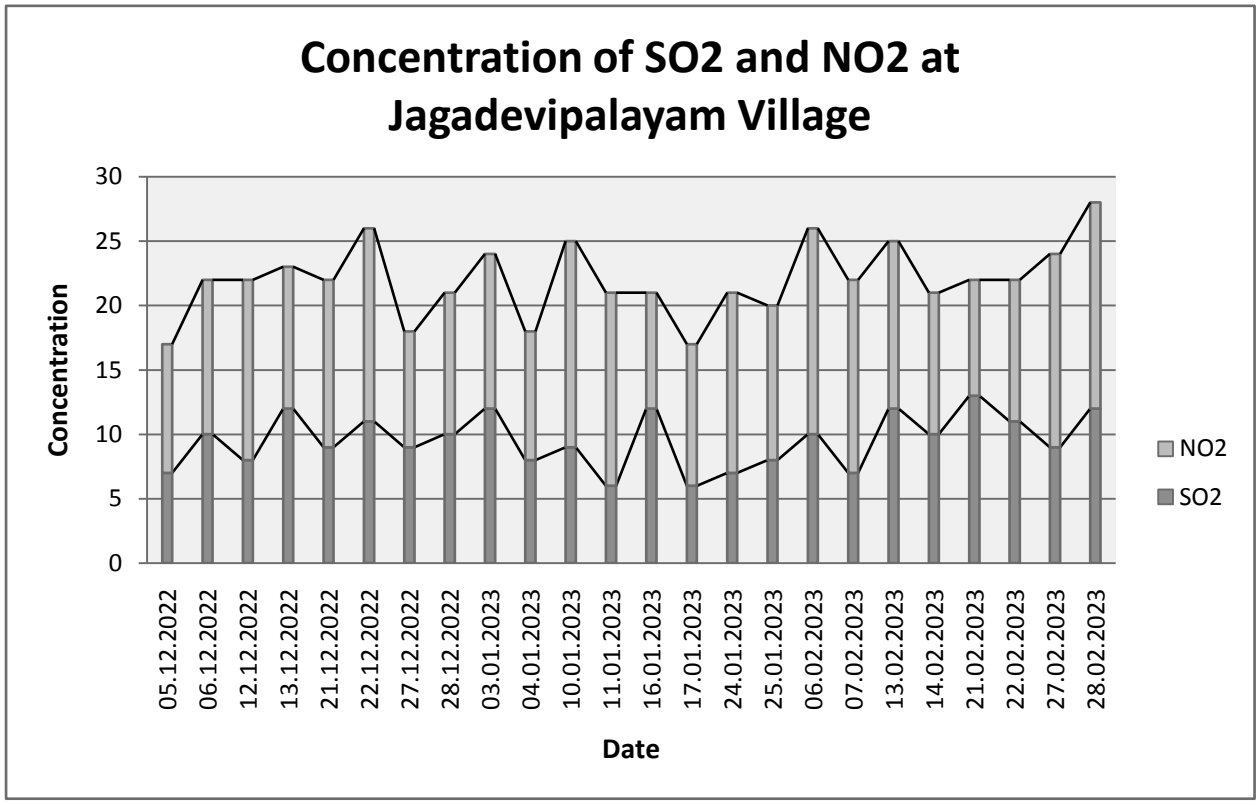
22.02.2023
27.02.2023
28.02.2023
Date
PM 2.5
PM10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Concentration
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20
15
10
5
0
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12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
03.01.2023
04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
25.01.2023
06.02.2023
07.02.2023
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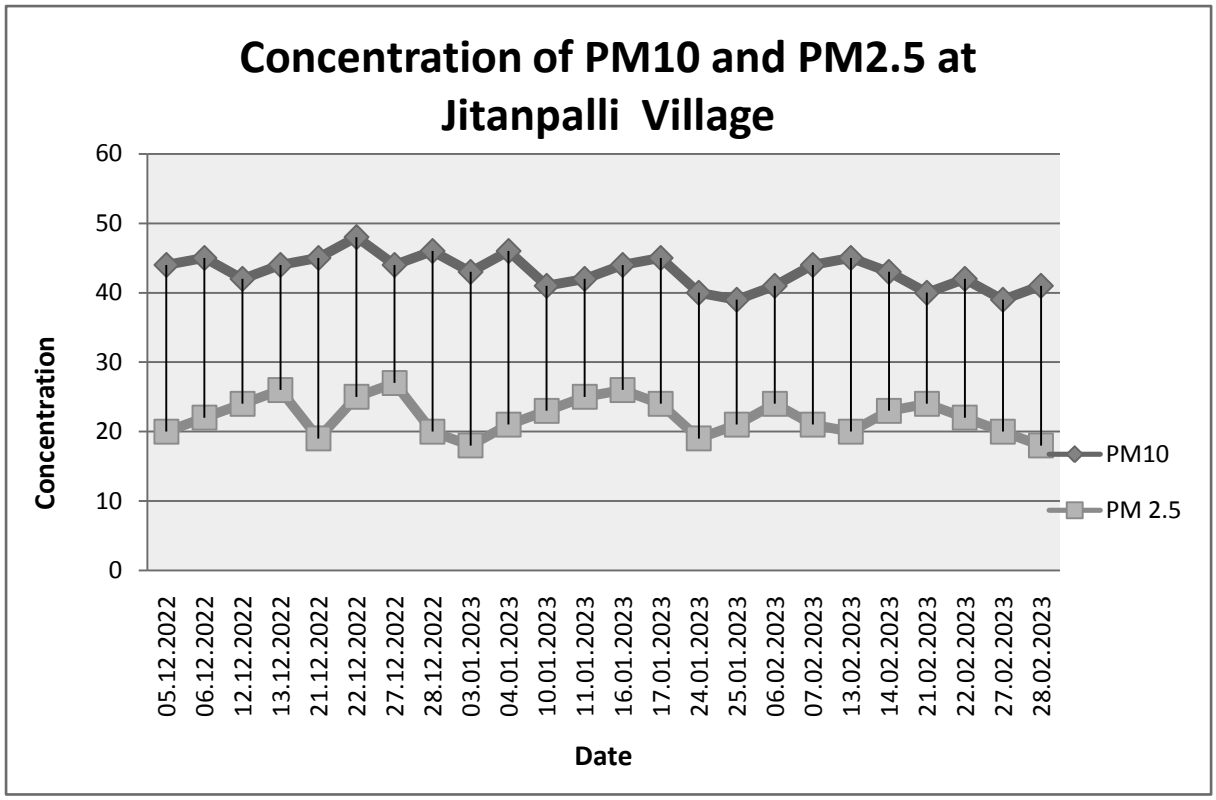
22.02.2023
27.02.2023
28.02.2023
Date
NO2
SO2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20
10
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12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
03.01.2023
04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
25.01.2023
06.02.2023
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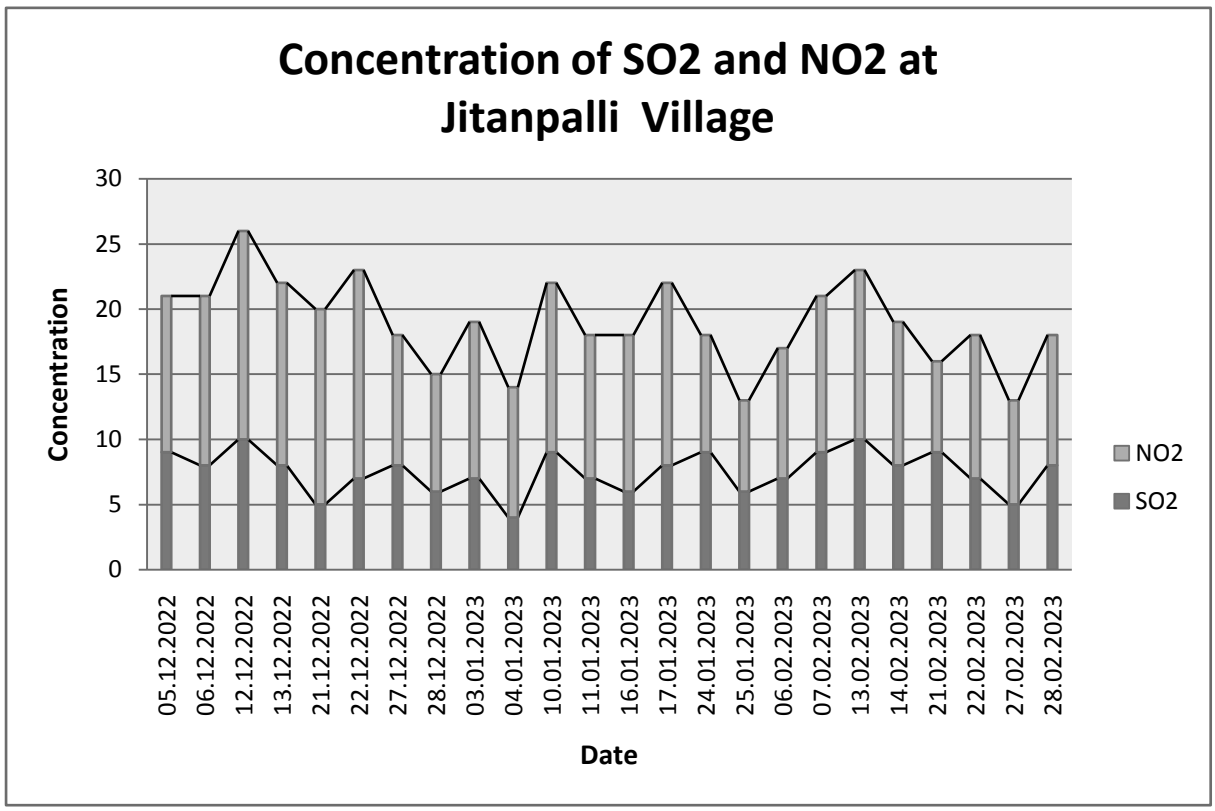
27.02.2023
28.02.2023
Date
PM10
PM 2.5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Concentration
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25
20
15
10
5
0
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06.12.2022
12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
28.12.2022
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04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
25.01.2023
06.02.2023
07.02.2023
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14.02.2023
21.02.2023
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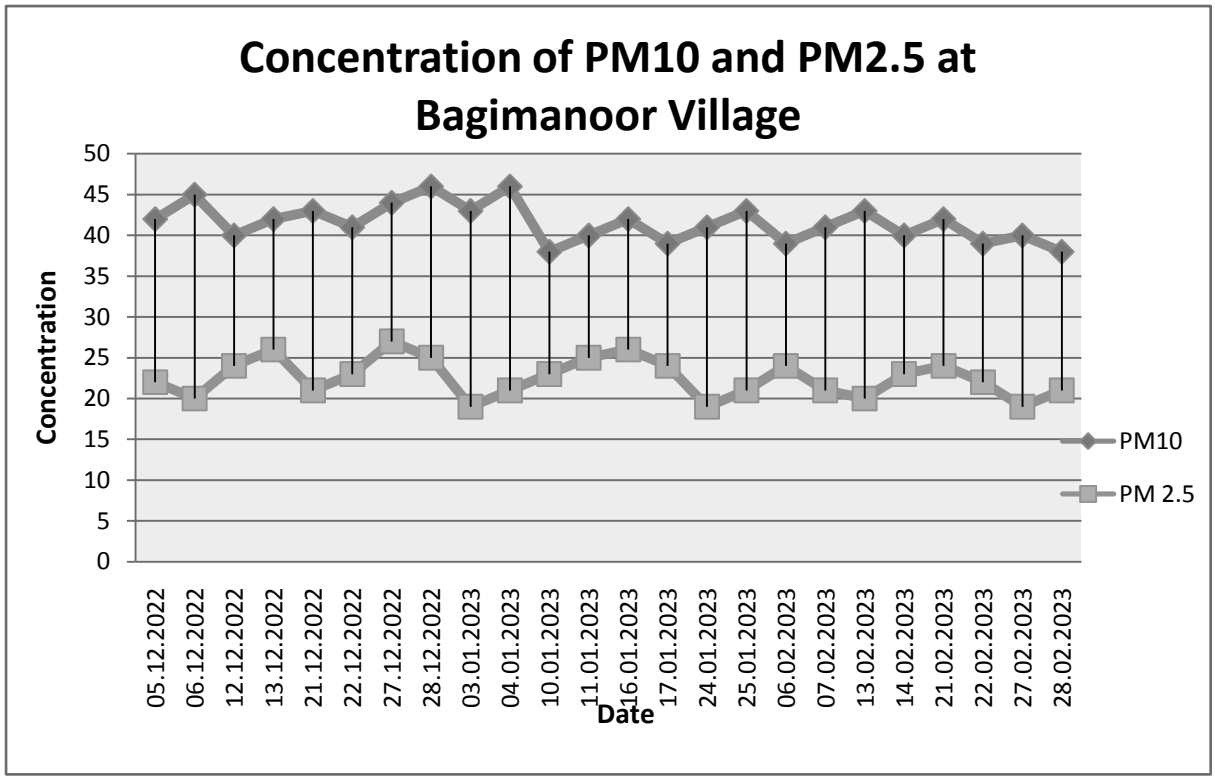
27.02.2023
28.02.2023
Date
NO2
SO2


Concentration of PM10 and PM2.5 at Bagimanoor Village
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20
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13.12.2022
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22.12.2022
27.12.2022
28.12.2022
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04.01.2023
10.01.2023
11.01.2023
16.01.2023
17.01.2023
24.01.2023
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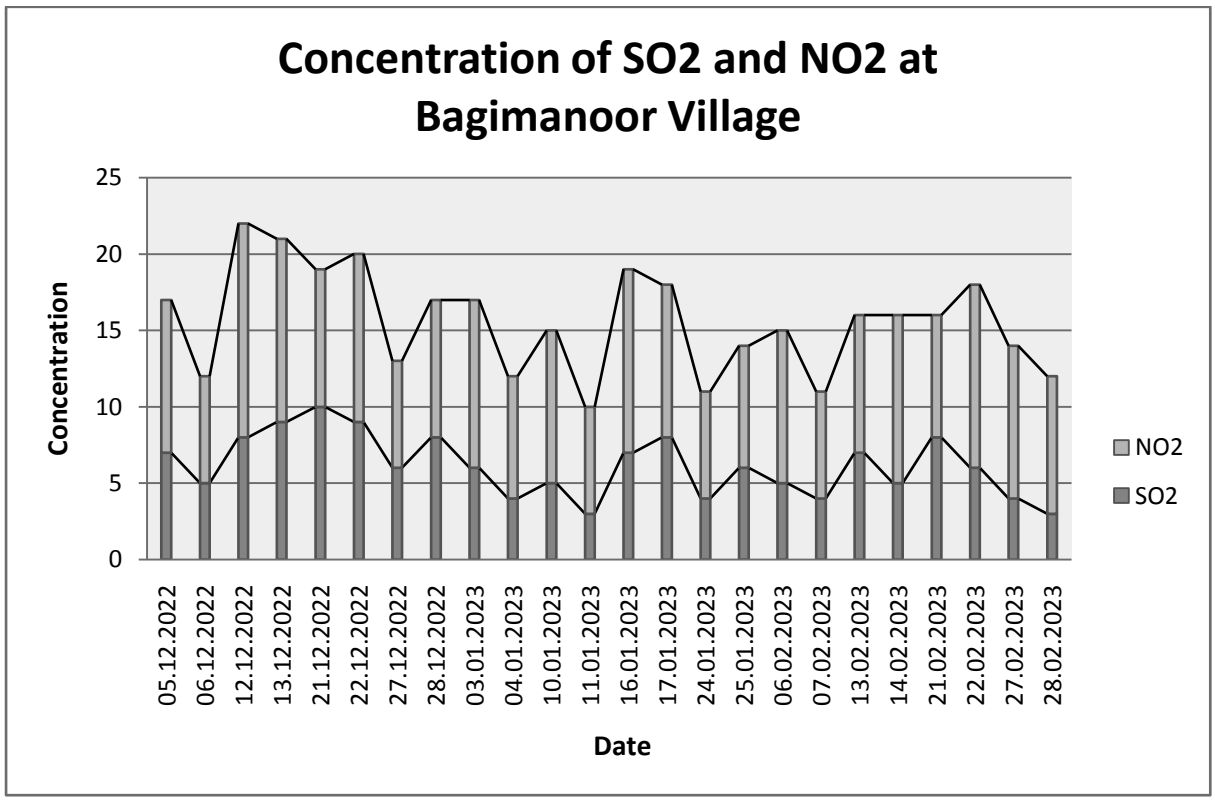
28.02.2023
Date
PM10
PM 2.5


Concentration of SO2 and NO2 at Bagimanoor Village
Concentration
25
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15
10
5
0
05.12.2022
06.12.2022
12.12.2022
13.12.2022
21.12.2022
22.12.2022
27.12.2022
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03.01.2023
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07.02.2023
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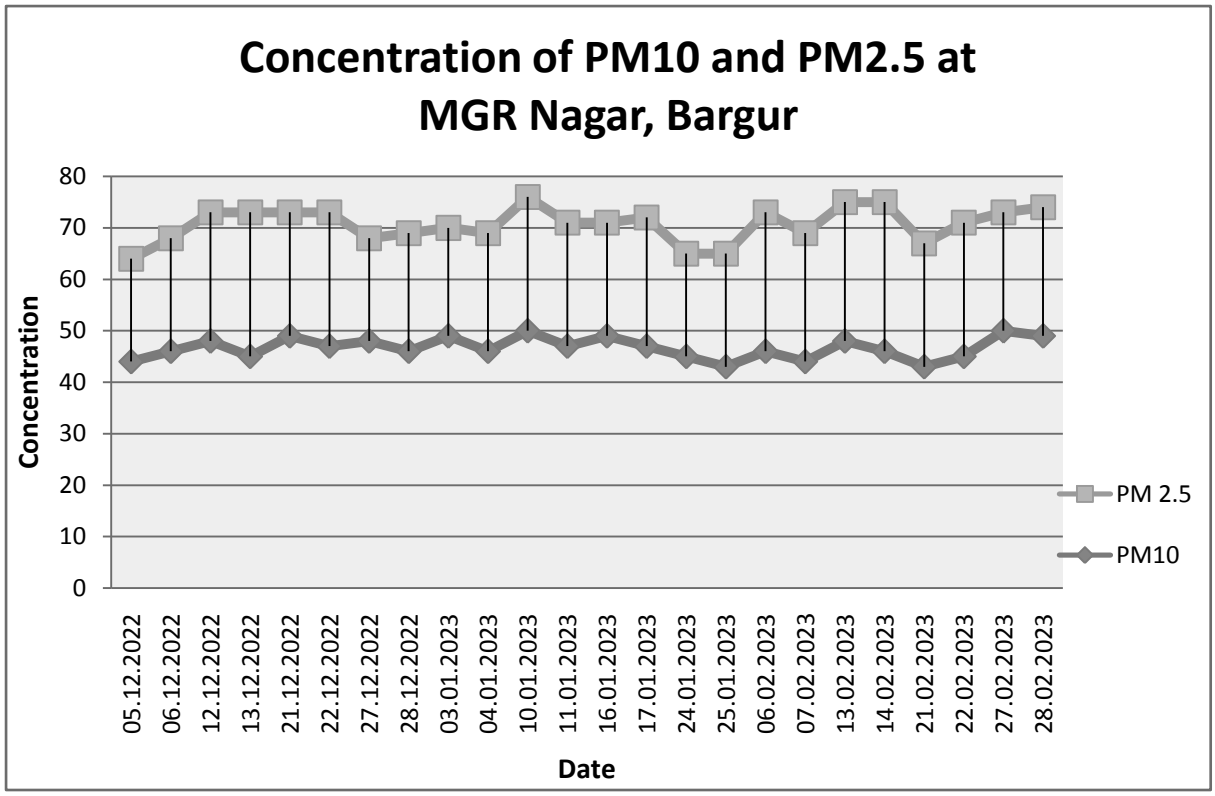
21.02.2023
22.02.2023
27.02.2023
28.02.2023
Date
NO2
SO2



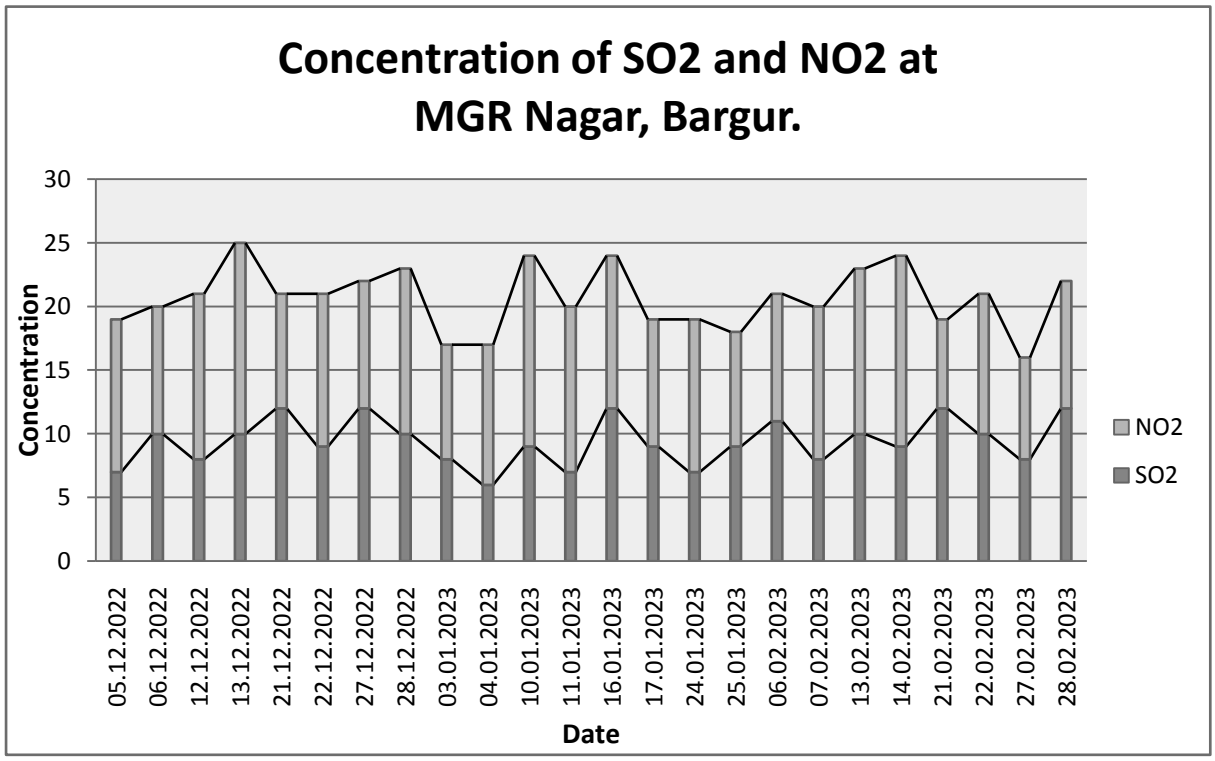


Fig No 3.4 Variation in Concentration of air pollutants

3.4.3 Observations of Primary Data

The area generally has low levels of pollutants in ambient air, which is well within the National Ambient Air Quality Standards for industrial or rural areas. This is due to the absence of any major pollution generating source in the vicinity.

- Ambient Air Quality Monitoring (AAQM) reveals that the minimum concentration of PM_{10} for all the 5 stations was found to be 38µg/m^3 at Bagimanoor village. The maximum concentration was observed in Core area as 52µg/m^3. The average PM_{10} level at all stations varies from 41.5µg/m^3 to 47.3µg/m^3

- The average $PM_{2.5}$ level at all stations varies from 22.3µg/m^3 to 25.0µg/m^3. The minimum concentrations of $PM_{2.5}$ for all the 5 stations were found to be 19µg/m^3 at Jagadevipalayam followed by Jitanpalli and Bagimanoor village as 19µg/m^3. The maximum concentration was found to be 30µg/m^3 at Core Zone.

- The maximum concentrations of SO_2 were found to be 14µg/m^3 at Core. The minimum concentration was found to be 3µg/m^3 at Bagimanoor village. The average SO_2 level at all stations varies from 6.12µg/m^3 to 9.5µg/m^3

- The minimum NOx concentrations were recorded as 7µg/m^3 at Jitanpalli, Bagimanoor village and MGR Nagar, Bargur. The maximum concentration was found to be 11µg/m^3 at Core Zone. The average NOx level at all stations varies from 9.5µg/m^3 to 14.3µg/m^3. The concentration levels of the above pollutants were observed to be well within the limits of AAQS prescribed by CPCB.

3.5 NOISE ENVIRONMENT

A preliminary reconnaissance was undertaken to identify the major noise generating sources in the area. Nine locations (Core Zone & Buffer Zone) were identified based on the activities in the study area, traffic and sensitive areas like hospitals and schools. The noise monitoring locations are shown in Fig No. 3.5 & 3.6. The sampling locations are shown in Table No. 3.3.

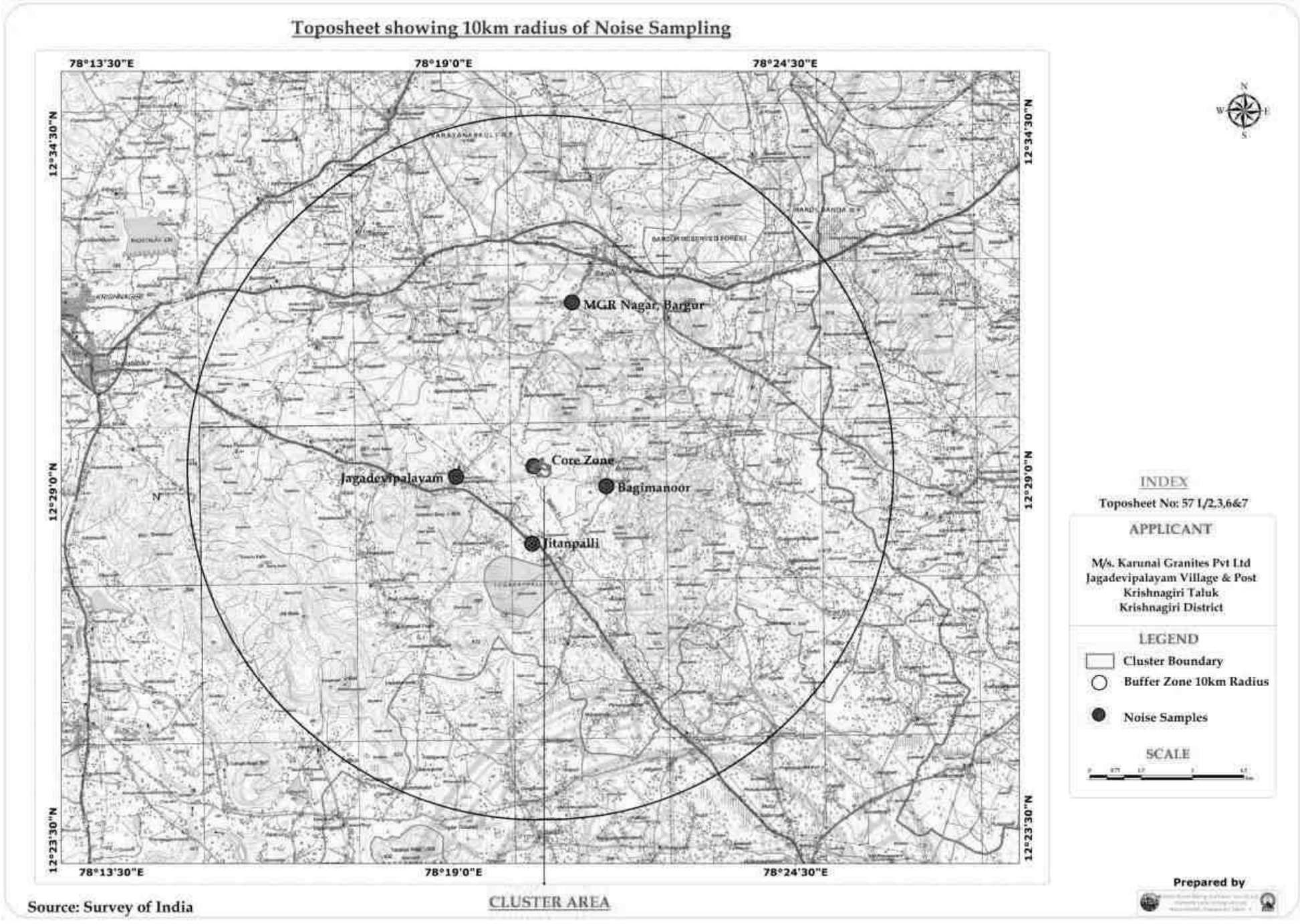


Fig No 3.5 Geo Referenced Toposheet showing Noise sampling stations around 10km radius

Table 3.3 Noise Sampling Locations

Sl. No	Location	Station code	Distance (km)	Direction
1	Core area	NQ1	--	--
	Lease boundary pillar (North)	NQ2	0.1	N
	Lease boundary pillar (South)	NQ3	0.1	S
	Lease boundary pillar (East)	NQ4	0.1	E
	Lease boundary pillar (West)	NQ5	0.1	W
2	Jagadevipalayam	NQ6	2.0	W
3	Jitanpalli	NQ7	2.0	S
4	Bagimanoor	NQ8	1.7	E
5	MGR Nagar, Bargur	NQ9	4.7	N

3.5.1 Method of Monitoring

One reading per hour was taken for 24 hours. The day time noise levels were monitored during 6 am to 10 pm and night time levels during 10 pm to 6 am at all the monitoring locations within the study area (Table 3.4).

Table 3.4 Noise Monitoring Results in Core and Buffer Zone

Sample code	Location	Decibel dB (A)		TNPCB Standards
		Day Time	Night Time	
NQ1	Core area	44.6	41.3	<u>Industrial</u> Day Time- 75 dB(A) Night Time – 70 dB(A) <u>Residential</u> Day Time - 55 dB(A) Night Time - 45 dB (A)
NQ2	Lease boundary pillar (North)	40.3	39.1	
NQ3	Lease boundary pillar (South)	42.5	41.2	
NQ4	Lease boundary pillar (East)	40.9	36.7	
NQ5	Lease boundary pillar (West)	43.8	41.9	
NQ6	Jagadevipalayam (W)	49.8	45.4	
NQ7	Jitanpalli (S)	45.1	43.9	
NQ8	Bagimanoor (E)	44.6	42.5	
NQ9	MGR Nagar, Bargur (N)	48.4	44.7	
Remarks	Day Time	Leq (6.00 AM to 10.00 PM)		
	Night Time	Leq (10.00 PM to 6.00 AM)		

Fig No 3.6 Noise Monitoring at Lease Area and Pillars

Fig No 3.6 (a) Noise Monitoring at Buffer Zone

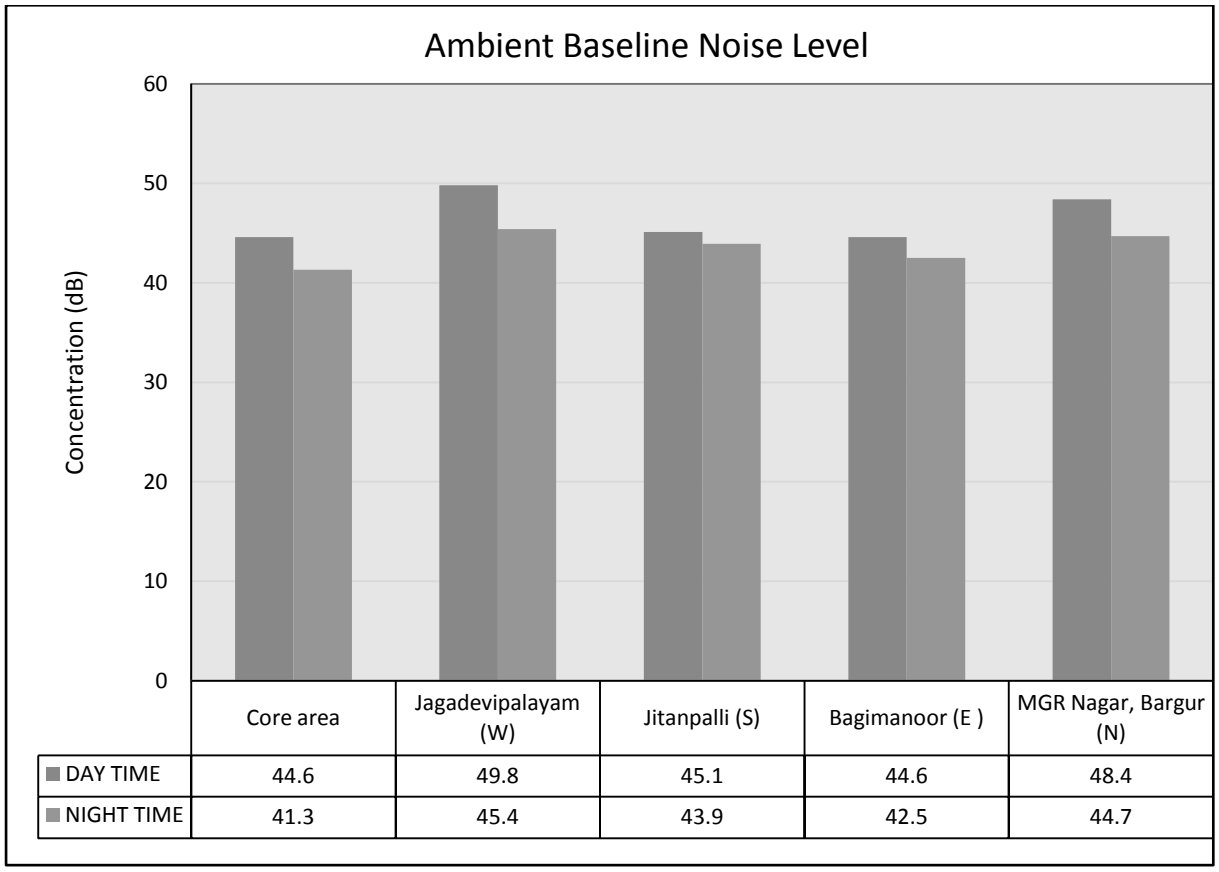
3.5.2 Observations

3.5.2.1 Day Time Noise Levels

Noise Monitoring reveals that the maximum & minimum noise levels at day time were recorded as 49.8 dB (A) at Jagadevipalayam (NQ-6) & 44.6 dB (A) at Bagimanoor (NQ-8) respectively in buffer zone. The minimum and maximum noise level at core is 44.6 dB (A) and 40.3 dB (A). The Noise level measured is found within the permissible limits during day time as specified by CPCB Standard.

3.5.2.2 Night Time Noise Levels

The night time noise levels, the maximum & minimum noise levels at Night time were recorded as 45.4 dB (A) at Jagadevipalayam (NQ-6) & 42.5 dB (A) at Bagimanoor (NQ-8) respectively in buffer zone. The minimum and maximum noise level at core is 36.7 dB (A) and 41.9 dB (A). The Noise level measured is found within the permissible limits during night time as specified by CPCB Standard.



	Core area	Jagadevipalayam (W)	Jitanpalli (S)	Bagimanoor (E)	MGR Nagar, Bargur (N)
DAY TIME	44.6	49.8	45.1	44.6	48.4
NIGHT TIME	41.3	45.4	43.9	42.5	44.7

Fig No 3.7 Noise Level of the Study Area

3.6 Water Environment

Assessment of baseline data on Water environment includes:
a) Identification of surface and ground water sources
b) Collection of water samples
c) Analyzing water samples collected for Physico–chemical and biological parameters

3.6.1 Selection of Sampling Stations

The samplings were taken from the identified monitoring locations within the 10km radius of the study area. Water samples were collected to study the water quality of the study area.

3.6.2 Water Quality

Water samples from various locations in and around the project site within 10 km radius were collected for assessment of the physic-chemical and bacteriological quality to know the baseline status of water quality. Parameters for analysis of water quality were selected based on the utility of the particular source of water as per MoEF & CC guidance. Methodologies adopted for sampling and analysis of water in according to the Bureau of Indian Standards. The parameters thus analyzed were compared with IS10500:2012. Details of water sampling locations are present in Table 3.5. In addition, water quality details are given in the Table 3.6. The following image of Geo referenced Topomap showing locations of water samples are given in the Figure No. 3.8. Locations of Core and Buffer Zone water samples are given in the Figure No. 3.9.

Table 3.5 Water Sampling Locations

Sampling Code	Location	Surface/ Ground water	Latitude	Longitude	Distance (km)	Direction
WQ1	Core Zone	Surface Water	12°29'15.85"N	78°20'28.90"E	_	_
WQ2	Jagadevipalayam	Ground Water	12°28'56.89"N	78°19'4.44"E	2.3	W
WQ3	Jitanpalli	Ground Water	12°28'10.54"N	78°20'24.77"E	1.7	S
WQ4	Bagimanoor	Ground Water	12°29'0.29"N	78°21'27.13"E	1.6	E

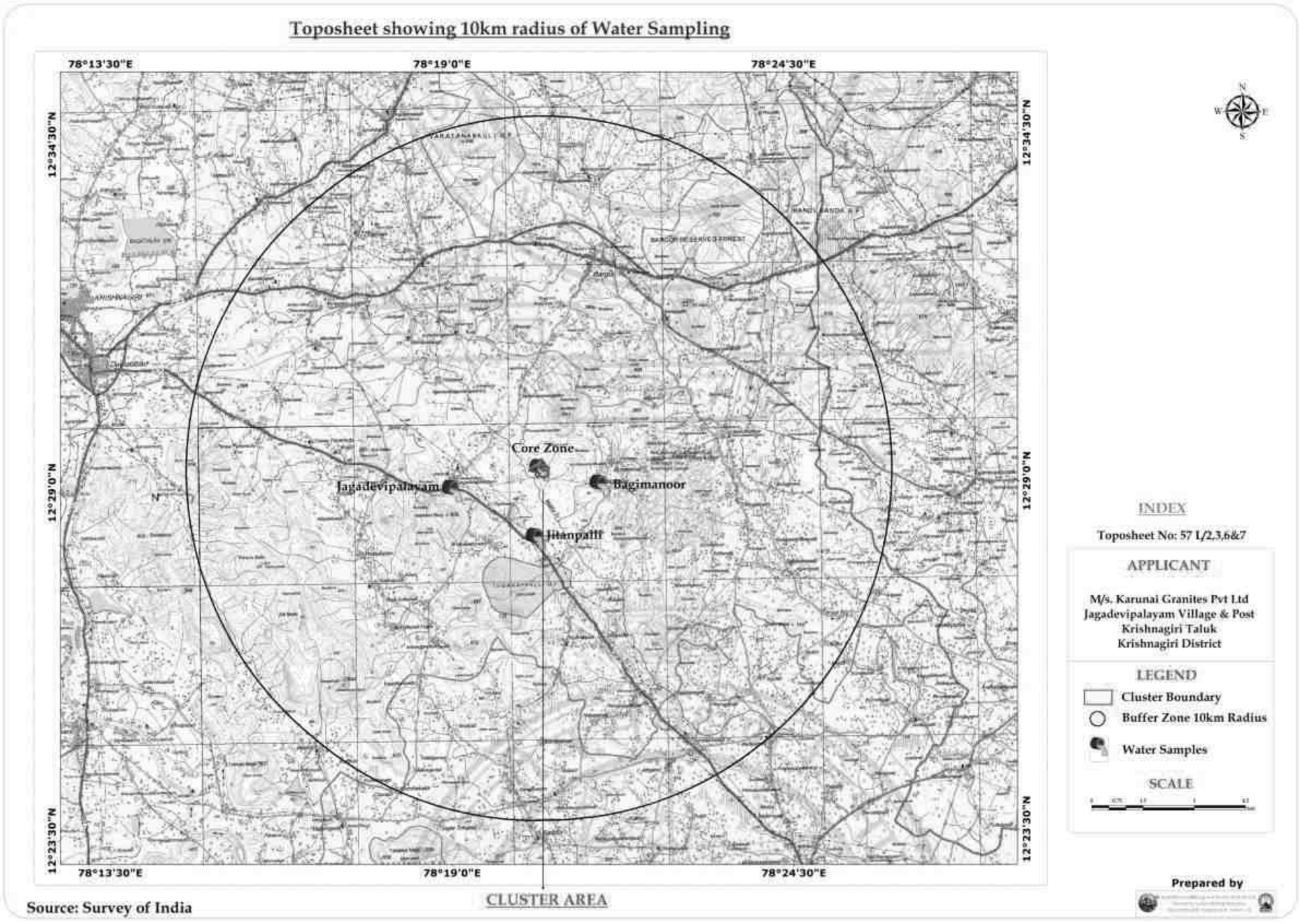


Fig No 3.8 Geo Referenced Toposheet showing water sampling station around 10km radius

Fig No 3.9 Water Sample Collection at Core and Buffer Zone

Table 3.6 Result of Water Quality Analysis

Parameters	Units	As Per IS 10500: 2012		Surface Water (Pit water)	Ground water (Buffer Zone)		
		Requirement (Acceptable limit)	Permissible limit in the absence of alternate source	Core	Jagadevipalayam	Jitanpalli	Bagimanoor
pH value at 25°C	-	6.5 – 8.5	6.5 – 8.5	8.57	8.29	7.90	7.38
Electrical conductivity at 25°C	Micro mhos/ cm	-	-	450	1076	924	643
Turbidity	NTU	1	5	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
Temperature	^{0}C	-	-	25	25	25	25
Total Suspended Solids (TSS)	mg/l	-	-	2	2	2	2
Total Dissolved Solids (TDS)	mg/l	500	2000	254	654	530	370
Total Hardness as $CaCO_3$	mg/l	200	600	133	222	311	240
Calcium as Ca	mg/l	75	200	44	74	89	83
Magnesium as Mg	mg/l	30	100	5	9	22	8
Chlorides as Cl^-	mg/l	250	1000	57	362	153	88

Total Alkalinity as $CaCO_3$	mg/l	200	600	213	191	150	100
Carbonate	mg/l	-	-	39	32	BDL(DL:0.1)	BDL(DL:0.1)
Bicarbonate	mg/l	-	-	174	159	150	100
Sulfates as SO_4	mg/l	200	400	7	16	14	10
Total Iron as Fe	mg/l	0.3	0.3	0.04	0.08	0.06	0.05
Total Coli forms	MPN / 100ml	Shall not be detectable in any 100 ml		240	2	27	30
E.coli	MPN / 100ml	Shall not be detectable in any 100 ml		22	Absent	Absent	Absent

3.6.3 Interpretation of Water Quality Data

Water Quality results were compared with Acceptable limits for Drinking Water as per the Standard IS 10500:2012. All the parameters of Water samples meet the acceptable limits of IS 10500: 2012 and found to be within the limits.

- pH of the water samples ranged from 7.38-8.57. pH in water samples collected from the locations are within the acceptable limit except the core zone which is slightly higher as 8.57 whereas the permissible limit is between 6.5-8.5.
- EC of the water samples ranged from 450 to 1076 Micro mhos/cm in the samples collected.
- Turbidity from the water samples collected from both core and buffer area was observed to be in below detectable limit BDL (DL:0.1).
- Total suspended solids are observed as 2 mg/l in all the water samples collected from both core and buffer area.
- Total Dissolved Solids found in the range of 254-654 mg/l and maximum value recorded at Jagadevipalayam Village.
- Total Hardness of water sample the maximum value is 222 mg/l recorded at Jagadevipalayam village and minimum value is 133 mg/l recorded at core zone. The values observed to be well within the acceptable limits.
- Chlorides in all the water samples were recorded and highest chloride concentration found in Jagadevipalayam Village among the four water samples and was found above the acceptable limit. In other villages the values observed were within the CPCB limits.
- Iron & Sulfates in water samples collected from both core and buffer location were observed to be well within the CPCB limits.
- On Microbiological parameters, the water sample from both the villages has few counts of Total Coliform as the count is observed as 2-240 MPN/100ml. E.coli was found to be present only in Jagadevipalayam Village as 22 MPN/100ml. In other samples it was found absent. In account of the microbial quality the water without disinfection is not advised for drinking purposes.

3.7 Hydro Geology

3.7.1 Geophysical Survey to Locate Ground Water Table

Geo–Physical Resistivity survey has been conducted by Vertical Electrical Sounding (VES) method to probe ground water table, fracture zones and sub-surface conditions of the area, finally what is the direct and indirect effect of mining to the ground water conditions

Fig No 3.10 Image Showing Geophysical Survey conducted near to the lease boundary

3.7.2 Geophysical Investigation Method

A variety of methods are available to assist in the assessment of sub-surface geological conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the centre of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference and taking into account the electrode separations, the ground resistivity can be determined.

During a resistivity sounding, the separation between the electrodes is step-wise increased (in what is known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on a graph sheet, a resistivity graph is formed, which shows the variation of resistivity with depth. This graph can be interpreted with the aid of a computer and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical sounding (VES) were carried out in mining area. The resistivity signal measurements were collected by using DDR3 model resistivity meter using schlumberger Configuration. The obtained field resistivity data were analyzed by using IPI 2WIN software. The Schlumberger array is an array where four electrodes are placed in line around a common midpoint. The two outer electrodes, A and B, are current electrodes, and the two inner electrodes, M and N, are potential electrodes placed close together. With the Schlumberger array, for each measurement the current electrodes A and B are moved outward to a greater separation throughout the survey, while the potential electrodes M and N stay in the same position until the observed voltage becomes too small to measure (source). At this point, the potential electrodes M and N are moved outward to a new spacing. As a rule of the thumb, the reasonable distance between M and N should be equal or less than one-fifth of the distance between A and B at the beginning. This ratio goes about up to one-tenth or one-fifteenth depending on the signal strength. The Schlumberger array is commonly used for vertical electrical sounding (VES) for groundwater and aggregate minerals. Vertical electrical sounding (VES) using the Schlumberger array provides better resolution.

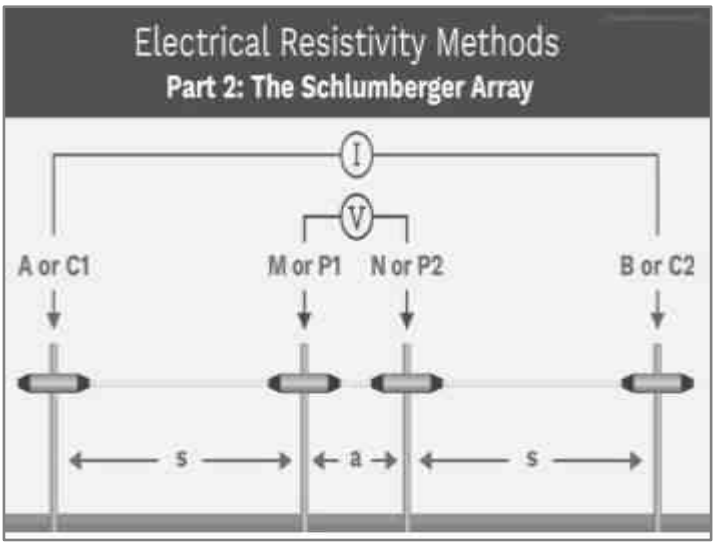


Fig No 3.11 Schlumberger Array

Fig No 3.12 Model DDR-3 Electrical Resistivity Meter

The resistivity surveys were carried by the consultants in the site at selected one point at Tested in the proposed Project site. The vertical electrical sounding (VES) using digital resistivity meter is carried out and the apparent resistivity curves are obtained. Ipi2win software is used and the data are interpreted. The computer output of geo-electric layers are given which gives the apparent resistivity curve, depth wise resistance and interpreted layers with corresponding resistivity

3.8 Soil Environment

The type of soil is an important factor for the growth of plants and crops in any area. The soil system has various criteria to classify the soils of a region such as geology, humidity, rainfall pattern, soil texture, soil salinity etc.

Soil quality study has been carried out at the site and in the study area of 10 km radius around the project site to understand the physical-chemical nature of the soil. Soil sampling was carried out at 3 selected locations.

The frequency and methodology of soil quality sampling process is given in Table No.3.7. Moreover, Georeferenced soil Map of around 10 km radius is given in Fig No.3.13. Table 3.8 presents the soil quality monitoring locations of the study area. The sampling was carried out once in the study period.

Table 3.7 Frequency and Methodology for Soil sampling & monitoring

S.No	Particulars	Details
1	Frequency	One sample from each station— once during the Study Period
2	Methodology	Soil Sample has been collected as per the CPCB standard

3.8.1 Methodology of Soil Environment

Soil samples were collected from different depth below the surface. The samples were filled in polythene bags, labeled in the field with number and site name and sent to laboratory for analysis. The samples were homogenized and the quality was reduced using the coning and quartering method to provide a respective sample for analysis. The samples were analyzed as per Indian Standards IS: 2720 (Revised Parts).

- To determine the baseline soil characteristics of the study area
- To determine the impact of the project on soil characteristics and
- To determine the impact on soils more importantly loss of fertility from agricultural productivity point of view.

Table 3.8 Soil Sampling Locations

CODE	Place	Latitude (N)	Longitude (E)	Distance w.r.t Mine Site	Direction w.r.t Mine Site
SQ1	Core Zone	12°29'13.80"N	78°20'26.45"E	_	_
SQ2	Jagadevipalayam	12°29'9.15"N	78°19'19.13"E	1.8	W
SQ3	Jitanpalli	12°28'10.78"N	78°20'21.35"E	1.8	S
SQ4	Bagimanoor	12°28'57.74"N	78°21'25.02"E	1.5	E

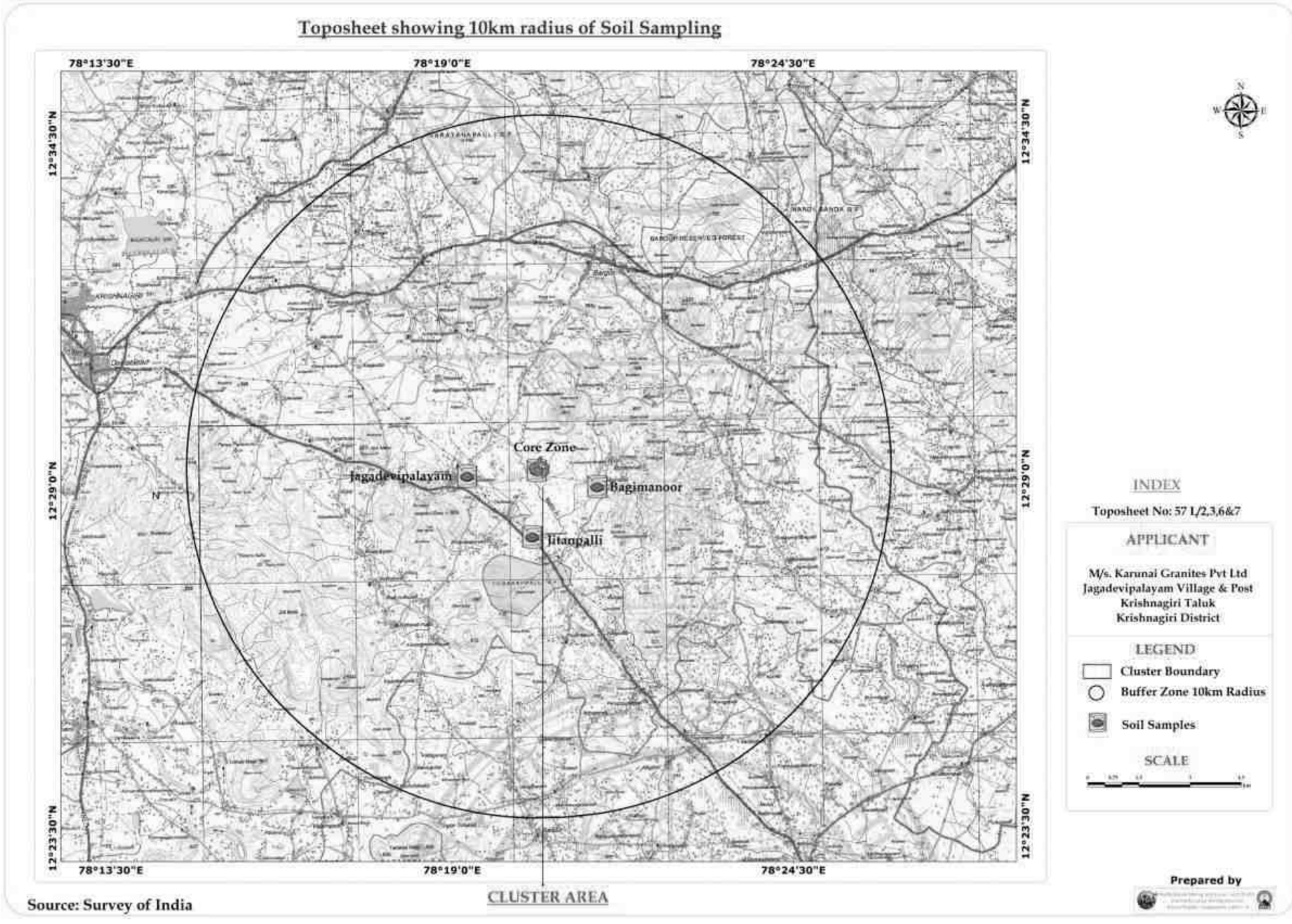


Fig No 3.13 Geo referenced Toposheet showing Soil sampling Locations around 10km radius

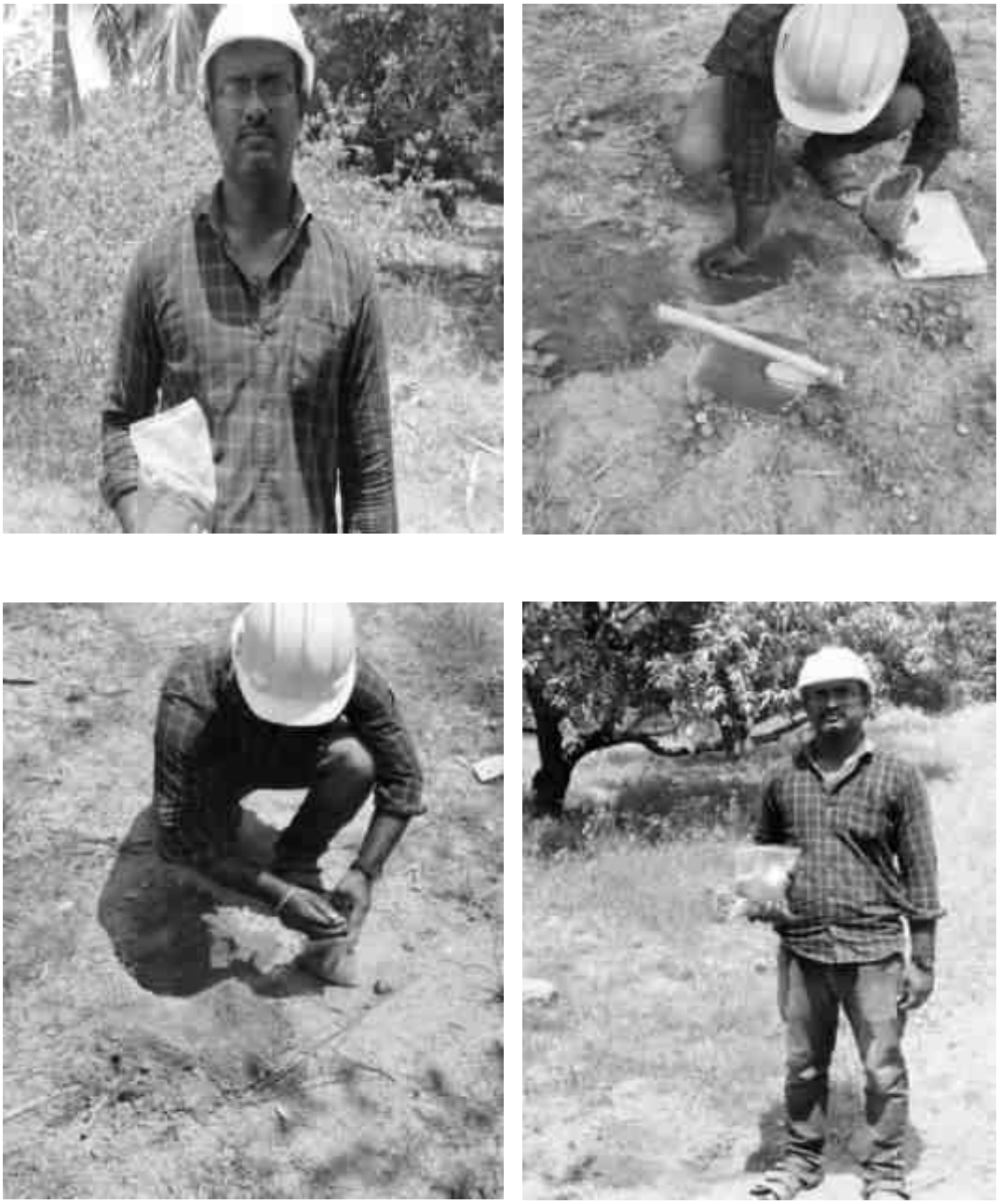


Fig No 3.14 Soil Sampling at Core and Buffer Zone

Table 3.9 Result of Soil Sample Analysis

S. No	Parameters		Core Zone	Jagadevi-palayam	Jitanpalli	Bagimanoor
PHYSICAL PARAMETERS						
1	pH value		8.09	8.15	8.99	7.10
2	EC@ 25°C (Micromhos/cm)		84	57	155	82
3	Moisture %		1.28	0.34	0.39	0.81
4	Bulk density g/cc		1.04	1.14	1.16	1.17
5	Texture %	Sand	60	40	32	48
		Silt	32	52	60	43
		Clay	8	8	8	9
CHEMICAL PARAMETERS						
6	Calcium mg/kg		0.12	0.61	1.63	0.49
7	Organic Matter %		0.98	1.97	0.90	0.55
8	Magnesium mg/kg		BDL(DL:1)	BDL(DL:1)	BDL(DL:1)	BDL(DL:1)
9	Chlorides mg/kg		0.8	1.5	1.8	1.6
10	Water Holding Capacity%		76	68	64	60
BDL = Below Detectable Limit : DL: Detection Limit						

3.8.2 Observations

Soil characteristics were delineated through specific parameters viz. moisture, bulk density, texture, water holding capacity, organic matter and other parameters as depicted in Table 3.9.

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. The pH varies from 7.10 to 8.99 in the soil samples. In Jitanpalli the pH (8.99) value of soil was slightly basic.

Electrical conductivity (EC), a measure of soluble salts in the soil was in the range of 57 µS/cm to 155 µS/cm.

Regular cultivation practices increase the **bulk density** of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil samples are in the range of 1.04g/cc to 1.17g/cc respectively, which indicate favorable physical condition for plant growth.

Water holding capacity was found to be in the range of 60% to 76% in all the soil samples collected from core and buffer villages.

Organic matter present in soil influences its physical and chemical properties and is responsible for stability of soil aggregates. Organic matter was found to be in the range of 0.55- 1.97%. This shows that soil was deficient in organic matter content.

Available Chlorides content range of between 0.8-1.8 mg/kg in core and buffer villages. **Magnesium** level of soil sample in the core zone and buffer zone was found to be BDL (DL:1) in all the soil samples collected.

Calcium content in these soils ranges between 0.12 – 1.63 mg/kg thereby indicating that the soils are with medium levels of available Calcium content.

3.9 ECOLOGY AND BIOLOGICAL ENVIRONMENT

3.9.1 Description of Krishnagiri District Environment

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, Andhra Pradesh in the North, Dharmapuri District in the south. Its area is 5143 Sq. Km. This district is elevated from 300m to 1400m above the mean sea level. It is located between 11° 12'N to 12° 49'N Latitude, 77° 27'E to 78° 38'E Longitude.

Eastern part of the district experiences hot climate and Western part has a contrasting cold climate. The average rainfall is 830 mm per annum. March – June is summer season. July – November is Rainy Season and between December – February winter prevails.

3.9.2 Agriculture activities in Krishnagiri District

Krishnagiri district is one of the potential districts for cultivation of agricultural and horticultural crops. The total normal area cultivated under all crops is 224767 Hectares out of which 73046 Ha is under irrigated and 151720 ha area under rain fed

crops. The important crops of Krishnagiri District are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers.

Krishnagiri District is more suitable for cultivation of Horticulture crops. Other Plantation crops, medicinal plants, Fruits, Vegetables, Spices and flowers are grown well by way of its moderate climate, high altitude and fertility of the soil.

Table 3.10 Details of Important crops in Krishnagiri District

Sl. No	Common name	Scientific name	Family
1.	Groundnut	Arachis hypogaea	Fabaceae
2.	Paddy	Oryza sativa	Poaceae
3.	Cholam	Sorgham bicolor	Poaceae
4.	Cumbu	Pennisetum glaucum	Poaceae
5.	Ragi	Eleusine coracana	Poaceae
6.	Sugarcane	Saccharum officinarum	Poaceae
7.	Black gram	Vigna mungo	Fabaceae
8.	Cotton	Gossypium herbaceum	Malvaceae
9.	Groundnut	Arachis hypogaea	Fabaceae
10.	Vargu	Paspalums crobiculatum	Poaceae
11.	Gingelly	Sesamum indicum	Pedaliaceae
12.	Maize	Zea mays	Poaceae
13.	Coconut	Cocus nucifera	Arecaceae
14.	Onion	Allium cepa	Amaryllidaceae
15.	Cotton	Gossypium herbaceum	Malvaceae
16.	Green gram	Vigna radiata	Fabaceae

3.9.3 Forest resources

Krishnagiri is one among the districts of Tamil Nadu, which with natural resources having 2,024 Sq. Kms of forest cover is its unique feature. The hill ranges of this district are called by the name 'Melagiri'. The major type of forest seen here are Tropical, Deciduous forests, thorny shrubs and bamboo forest. Dense forest cover Denkanikottai region. The other region contains shrubs, hills and hillocks with bushes.

The major wild animals that are found in this district are mainly Elephants, Sambar, Spotted Deer, Gaur, Wild boar and Panther etc. The forest area of Denkanikottai Taluk forms the prime elephant habitat with lot of bamboos. This area also constitutes the Cauvery elephant reserve. This elephant reserve is constituted over and area of about 450 Sq. Kms. The bird population is also attractive at this place with beautiful bird like Paradise flycatcher. Big lakes in Anchetti and Hosur areas also attract large number of migratory birds like Painted storks, Teals etc. Apart from these birds and mammals, there are variety of butterflies, giant spiders etc. Some of these are going to be endangered list and also can be extinct in near future. Migratory butterflies also come to this place. Kodakkarai shoal forest in Denkanikottai Taluk is known for large scale migratory butterflies during a particular season then one can observe thousands of migratory butterflies passing through this forest.

The flora includes variety of timber trees like Rose wood, Teak, Sandal etc. There are hundreds of medicinal herbs, minor forest plants like nelli, kadukkai, cheekai, pungam etc. are also very much present. Another important tree namely pungam trees are found in abundance in this forest.

3.9.4 Water resources

The main rivers that flow across the district are Kaveri and South Pennar Kaveri. This enters the district from South West in Denkanikottai taluk and exists in South West direction. It forms a waterfall at Hogenakkal and joins Mettur Dam. South Pennar originates in Nandidurg of Karnataka and flows through Hosur, Krishnagiri and Uthangari Taluks as well. Vanniyar and Markanda rivers join this South Pennar.

Wells and canals are also the major sources of irrigation contributing to 81.19 and 10.71 per cent of the total area irrigated of the district respectively. Tanks accounted for less than five per cent.

Reservoirs

Krishnagiri Reservoir Project, Shoolagiri-Chinnar Reservoir, Thangarai Reservoir, Pambar Reservoir, Kelevarapalli Reservoir Project and Baarur Tank are the sources of irrigation for our district. By all these water reservoirs 18,965 Ha of land is irrigated.

3.9.5 Study Area Ecology

A survey was conducted to study the flora around 10 km radius. Some of the information was gathered from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region.

Survey of the mild plants as well as cultivated crop plants was made and all the available information was recorded. The primary data collected was compared with the Secondary data collected from Forest Department. There are no ecologically sensitive areas such as Biosphere reserves, Wildlife Sanctuaries, national Parks and other protected areas in or around the project site in a radius of 10 km. Generate Baseline Data from field observations.

3.9.6 Methodology of Sampling

A methodology of Sampling Flora and fauna studies were carried out during the winter season to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 km radius from the project site. No damage is created to flora and fauna during the sampling. None of the specimens were collected as voucher specimens and for the herbarium. It is basically done through field observations only. The study of flora is conducted as per the guidelines of the Ministry of Environment Forest and Climate Change (MoEFCC) and Botanical Survey of India (BSI).

The study involved in the collection of primary data by conducting a survey in the field, examination of flora and fauna records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used

3.9.7 Flora

The present study on the floral assessment for the existing project activity is based on extensive field survey of the area. The plant species were identified with the help of plant taxonomy manual, literatures and Botanical Survey of India website (efloraindia.nic.in). In addition besides the collection of plant species, information was also collected with vernacular names of plant species made by local inhabitants.

3.9.7.1. Flora in Core Zone

Taxonomically a total of 30 species distributed in 21families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were tree 18 (60%) followed by shrubs 6 (20%) herbs 5(17%) and 1 (3%) is a creeper. Details of flora with the scientific name were mentioned in Table No. 3.11 and Fig No: 3.15. No ecologically sensitive plant species has been reported from this area.

3.9.7.2. Flora in Buffer Zone

Taxonomically a total of 59 species distributed among 30 families have been recorded from the buffer area. Based on habitat classification of the enumerated plants the majority of species were tree 31 (53%) followed by shrubs 15 (25%), herbs 11 (19%) and rest 2 (3%) is a climber. Details of flora with the scientific name were mentioned in Table No. 3.11 and Fig No: 3.15.

Table 3.11 Floral Diversity in Core and Buffer area (Karunai Granites Pvt Ltd, Grey Granite Quarry, Krishnagiri District)

Sl. No.	Common Name	Local Name	Family	Scientific Name	Core	Buffer
TREES						
1.	Neem Tree	Vempu Maram	Meliaceae	*Azadirachta india*	+	+
2.	Cashew nut Tree	Munthiri Maram	Anacardiaceae	*Anacardium occidentale*	+	+
3.	Palmyra palm Tree	Panai Maram	Arecaceae	*Borassus flabellifer*	+	+
4.	Pungamin Tree	Pungai Maram	Fabaceae	*Pongamia pinnata*	+	+
5.	Thorn mimosa Tree	Karuvelam Maram	Mimosaceae	*Acacia nilotica*	+	+
6.	Coconut Tree	Tenga Maram	Arecaceae	*Coccus nucifera*	+	+
7.	Lemon-Scented Gum Tree	Karupura Maram	Myrtaceae	*Eucalyptus citriodora*	+	+
8.	Mango Tree	Manga Maram	Anacardiaceae	*Mangifera indica*	+	+
9.	Teak Tree	Tekku Maram	Lamiaceae	*Tectona grandis*	+	+
10.	Sandal wood Tree	Anukkam Maram	Santalaceae	*Santalum album*	-	+
11.	Black plum Tree	Jambolan Maram	Myrtaceae	*Syzygiumcumini Sps.*	+	+
12.	Banana Tree	Vaazha Maram	Musaceae	*Musa paradisica*	+	+
13.	Guava Tree	Amritaphala Maram	Myrtaceae	*Psidium guajava*	-	+
14.	Blackboard Tree	Paalai Maram	Apocynaceae	Alstonia scholaris	-	+
15.	Banyan Tree	Alamaram Maram	Moraceae	Ficus benghalensis	-	+
16.	Elanthai Tree	Elanthai Maram	Rhamnaceae	Ziziphus jujuba	+	+
17.	Dasara Tree	Karuvelam Maram	Fabaceae	Prosopis spicigera	-	+
18.	Indian date Tree	Elandhai Maram	Rhamnaceae	*Ziziphus jujuba*	+	+
19.	Sweet acacia Tree	KadivelMaram	Fabaceae	*Vachellia farnesiana*	-	+

20.	Custard apple Tree	SeethaMaram	Annonaceae	*Annona squamosa*	+	+
21.	Arappu Tree	ArappuMaram	Fabaceae	*Albizia amara*	+	+
22.	Cannonball Tree	Nagamaram	Lecythidaceae	*Couroupita guianensis*	-	+
23.	Tanner's cassia Tree	Avarai	Fabaceae	*Senna auriculata*	-	+
24.	Tamarind Tree	Puliyamaram	Fabaceae	Tamarindus indica	+	+
25.	Iron wood Tree	Savukku	Casuarinaceae	*Casuarina equisetifolia*	+	+
26.	Ceylon olive Tree	Olan karai	Elaeocarpaceae	*Elaeocarpus serratus*	+	-
SHRUBS						
27.	Pinwheel flower	Nanthiyavattai	Apocynaceae	*Tabernaemontana divaricata*	-	+
28.	Nut grass	Koraikilangu	Cyperaceae	*Cyperus rotundus*	+	+
29.	Peacock flower	Mayirkonrai	Fabaceae	*Caesalpinia pulcherrima*	-	+
30.	Large calotrops	Yanainerunjil	Pedaliaceae	*Pedalium murex*	+	+
31.	Indian red wing	Indumul	Fabaceae	*Pterolabium hexapetalum*	-	+
32.	Coat buttons	Kinatruppasan	Asteraceae	*Tridax porcumbens*	-	+
33.	Marigold	Camanti	Asteraceae	*Tagetes erecta*	-	+
34.	Crown flower	Erukku	Apocynaceae	*Calotropis gigantean*	+	-
35.	Key lime	Arivukalam	Rutaceae	*Citrus aurantifolia*	-	+
36.	Castor bean	Aamanakku	Euphorbiaceae	*Ricinus communis*	-	+
37.	Jimson weed	Ummattangani	Solanaceae	*Datura stramonium*	+	+
38.	Mesquite	Mullumaram	Fabaceae	*Prospis juliflora*	-	+
39.	Firecracker flower	Kanakambaram	Acanthaceae	*Crossandra infundibuliformis*	-	+
40.	Hibiscus	Cembarutti	Malvaceae	*Hibiscus rosanaceae*	-	+
41.	Milkweed	Erukkam tree	Apocynaceae	*Calotropis gigantea*	+	+
42.	Blue agave	Agave	Asparagaceae	*Agave tequilana*	-	+
43.	Jasmine	AdukkuMalli	Oleaceae	*Jasminum sambac*	+	-
44.	Rose	Rosa	Rosaceae	*Rosa rubiginosa*	-	+

HERBS						
45.	Villosa	Kavali	Fabaceae	*Tephrosia villosa*	-	+
46.	Sickle senna	Thagarai	Fabaceae	*Sennatora*	+	+
47.	Indian doab	Arugampul	Poaceae	*Cynodondactylon*	+	+
48.	Carrot grass	Mookkuthi poo	Asteraceae	*Parthenium hysterophorus*	+	+
49.	European black nightshade	Manathakkali	Solanaceae	*Solanum nigrum*	+	+
50.	Coriander	KothuMalli	Apiaceae	*Coriandrum sativum*	-	+
51.	Devil bean	Kilukiluppai	Fabaceae	*Crotalaria retusa*	+	+
52.	Sunflower	Suryagandhi	Asteraceae	*Helianthus annus*	-	+
53.	Drumstick tree	Murungai	Moringaceae	*Moringa oleifera*	-	+
54.	Indian comet grass	Narival	Poaceae	*Perotis indica*	-	+
55.	Peanut	Kadhalai	Fabaceae	*Arachis hypogaea*	-	+
CREEPERS/CLIMBERS						
56.	Bitter apple	Pikkumutti	Cucurbitaceae	*Citrullus colocynthis*	+	-
57.	Bitter guard	Pavakkai	Cucurbitaceae	*Momordica charantia*	-	+

Fig a. Anacardium occidentale

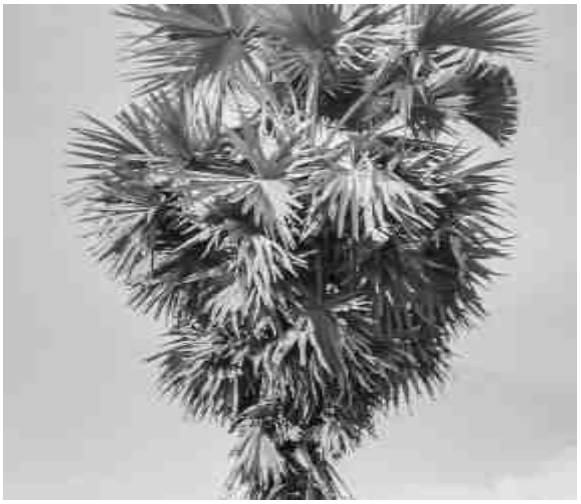


Fig b. Borassus flabellifer

Fig c. Mangifera indica

Fig d. Coccus nucifera

Fig E. Caesalpinia pulcherrima

Fig F. Tabernaemontana divaricata

Fig No 3.15 Photos of Flora in Core and Buffer Area

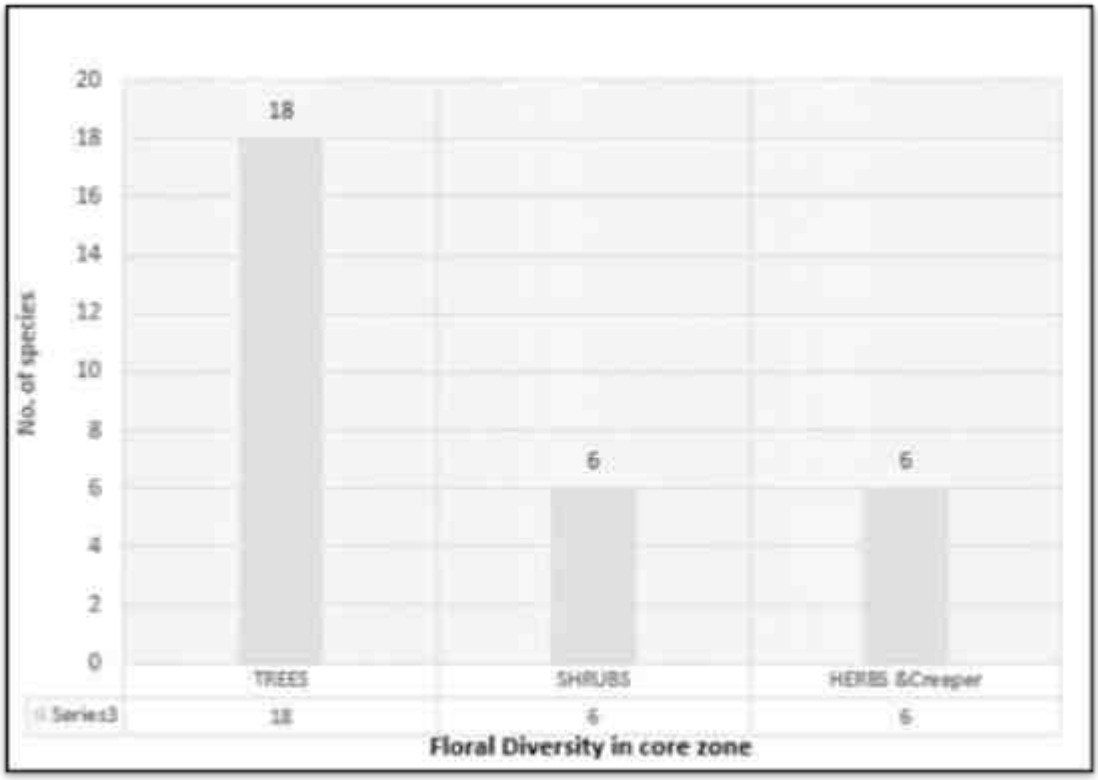


Fig No 3.16 Floral diversity in Core Zone

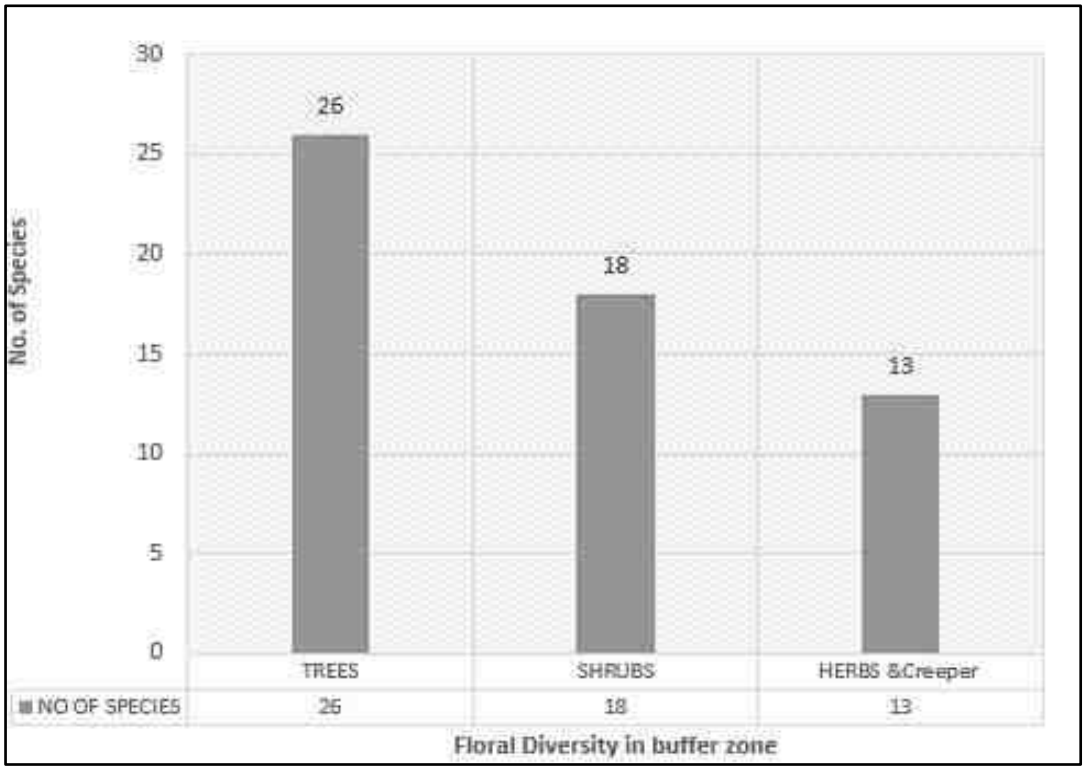


Fig No 3.17 Floral diversity in Buffer Zone

3.9.8. Fauna

The fauna survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972.

The study of fauna takes a substantial amount of time to understand the specific fauna characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition officials, local peoples were another source of information for studying the fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis database (wiienvis.nic.in/Database/Schedule Species Database) and Zoological Survey of India (ZSI).

Table 3.12 Methodology applied during survey of fauna

S. No	Taxa	Method of Sampling	References
1	Insects	Random walk, Opportunistic observations	Pollard (1977); Kunte (2000)
2	Reptiles	Visual encounter survey (Direct Search)	Daniel J.C (2002)
3	Amphibians	Visual encounter survey (Direct Search)	
4	Mammals	Tracks and Signs	Menon V (2014)
5	Avian	Random walk, Opportunistic observations	Ali S (1941); Grimmett R (2011); Collins 2015

3.9.8.1. Fauna in Core Zone

Varieties of species were observed in the core zone (0-2km radius) of the Quarry. Number of species decreases towards the mining area this might be due the lack of vegetation and forest cover in mining lease area. None of these species are threatened or endemic. Taxonomically a total of 21 species belonging to 17 families have been recorded from the core mining lease area. Based on habitat classification the majority of species were birds 10 (45%) followed by insects 7 (32%), reptiles 2 (14%) and mammals 2 (9%). Dominant species were mostly birds and insects no amphibians were observed during the extensive field visit. Details of fauna with the scientific name were mentioned in Table 3.13 and Fig No 3.18.

There are no critically endangered, endangered, vulnerable and endemic species were observed.

3.9.8.2. Fauna in Buffer Zone

Taxonomically a total of 30 species belonging to 21 families have been recorded from the buffer mining lease area. Based on habitat classification the majority of species were birds 12(42%) followed by insects 11 (39%), reptiles 3(13.79%) and mammals 5(6%). There were no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna with the scientific name were mentioned in Table 3.13 and Fig No 3.19.

There were no critically endangered, endangered, vulnerable and endemic species were observed.

Table 3.13 Faunal in Diversity in Core and Buffer area (Karunai Granites Pvt Ltd, Grey Granite Quarry, Krishnagiri District)

Sl. No	Common Name	Family Name	Scientific Name	Core Area	Buffer Area	Schedule list wildlife protection act 1972	IUCN Red list data
REPTILES							
1.	Common house gecko	Gekkonidae	*Hemidactylus frenatus*	-	+	NL	NL
2.	Garden lizard	Agamidae	*Calotes versicolor*	+	+	NL	NL
3.	Fan-Throated Lizard	Agamidae	*Sitana ponticeriana*	+	+	NL	LC
MAMMALS							
4.	Palm squirrel	Sciuridae	*Funambulus pennantii*	-	+	NL	NL
5.	Rat	Muridae	*Rattus rattus*	+	+	NL	NL
6.	Common mangoose	Herpestidae	*Herestes edwardsii*	-	+	NL	NL
7.	Bat	Pteropodidae	*Pteropus medius*	+	+	NL	NL
8.	Rabbits	Leporidae	*Oryctolagus cuniculus*	-	+	NL	NL
INSECTS							
9.	Banded hairstreak	Lycaenidae	*Satyrium calanus*	-	+	Schedule IV	NE
10.	Baronet	Nymphalidae	*Euthalia nais*	+	+	Schedule IV	NE
	Milkweed butterfly	Nymphalidae	*Danaus plexippus*	+	+	NL	LC
11	Blue basher	Libellulidae	*Pachydiplax longipennis*	+	+	NL	LC
12	Red-veined darter	Libellulidae	*Sympetrum fonscolombii*	+	+	NL	LC
13	Common Tiger	Nymphalidae	*Dananus genutia*	+	+	NL	NE
14	Plain Tiger	Nymphalidae	*Dananus chrysippus*	+	+	NL	NE
15	Slaty skimmer	Libellulidae	*Libellula incesta*	-	+	NL	LC

16	White butterfly	Pieridae	*Pieris rapae*	-	+	Schedule IV	LC
17	Common grass	Pieridae	*Euremaha cabes sps.*	-	+	Schedule IV	LC
18	Common grass yellow	Pieridae	*Eurema brigitta*	+	+	Schedule IV	LC
BIRDS							
19	White throated king fisher	Alcedinidae	*Halcyon smyrnensis*	+	+	Schedule IV	LC
20	Cattle egret	Ardeidae	*Bubulcus ibis*	-	+	NL	LC
21	Japanese quail	Phasianidae	*Coturnix japonica*	-	+	NL	LC
22	House crow	Corvidae	*Corvussplendens*	+	+	NL	LC
23	White-breasted waterhen	Rallidae	*Amaurornis phoenicurus*	+	+	NL	LC
24	Common cuckoo	Cucalidae	*Cuculus canorus*	+	+	NL	LC
25	Common myna	Sturnidae	*Acridotheres tristis*	+	+	NL	LC
26	Black drongo	Dicruridae	*Dicrurus macrocercus*	+	+	NL	LC
27	Crow Pheasant	Cucalidae	*Centropus sinensis*	+	+	Schedule IV	LC
	Koel	Cucalidae	*Eudynamys scolopaceus*	+	+	Schedule IV	LC
	House sparrow	Passeridae	*Passer domesticus*	+	+	Schedule IV	LC
	Rose-ringed parkeet	Psittacidae	*Psittacula krameri*	+	+	NL	LC

((+) Symbol indicate presence of Species, (-) Symbol indicate absence of Species, *NL- Not listed, NE- Not evaluated, LC- Least concern)

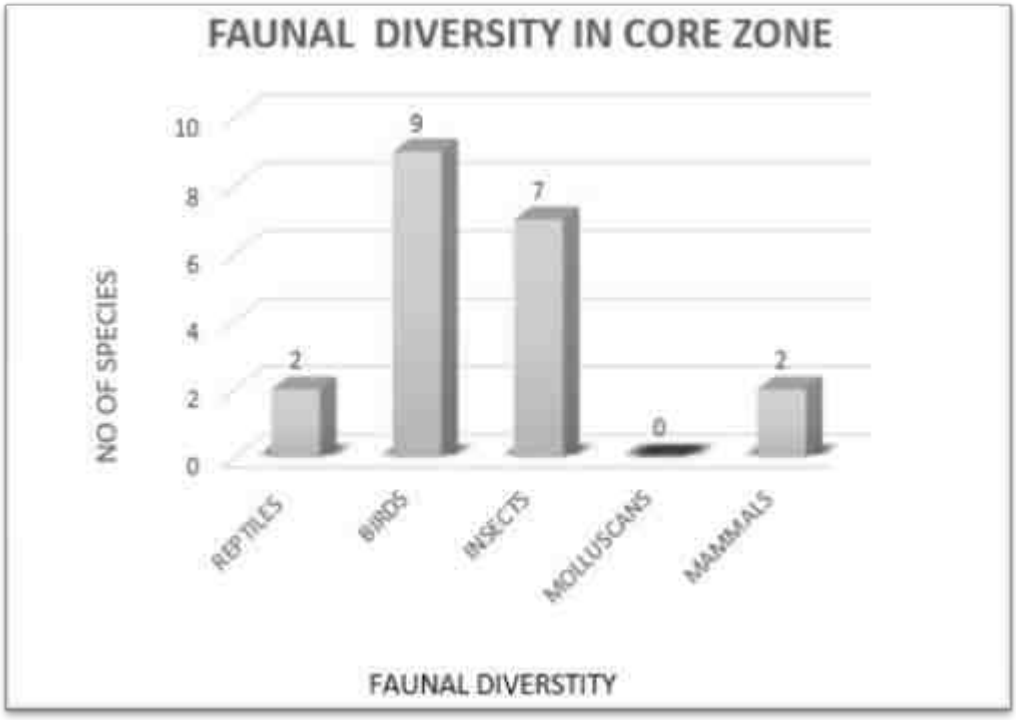


Fig No 3.18 Faunal diversity in Core Zone

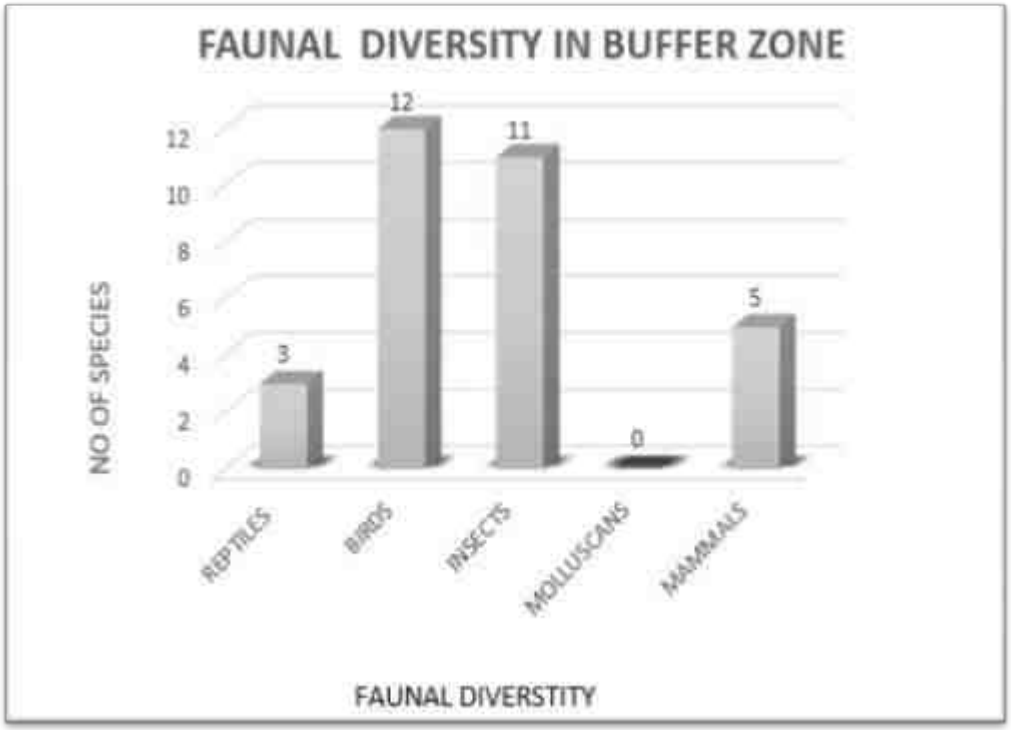


Fig No 3.19 Faunal diversity in Buffer Zone

3.10 SOCIO-ECONOMIC ENVIRONMENT

3.10.1 Introduction

Socio-economic study is an essential part of environmental study. 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.

It is expected that the Socio- Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.10.2 Objectives of the Study

The report deals with the Socio-Economic Impact Assessment of the multi-colour granite quarry promoted by: m/s. Karunai Granites Private Limited residing at Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District and has applied for grant of multi-color granite quarrying over an extent of S.F.No: 299/2(P)& 369/2A (P)& S.F.No. 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A at Jagadevipalayam Village, Bargur Taluk &District, Tamil Nadu.

The objectives of the socio-economic study are as follows:

- To study the socio-economic status of the people living in the study area of the proposed mining project.
- To assess the impact of the projection Quality of life of the people in the study area.
- To recommend Community Development measures needs to be taken up in the study Area.

3.10.3 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measure

3.10.4 Study Area – Jagadevipalayam village

Gram Panchayat name of the Jagadevipalayam village is Jagadevipalayam. Jagadevipalayam village is located in Bargur taluk of Krishnagiri district in Tamil Nadu, India. It is situated 8km away from sub-district headquarter Bargur (tahsildar office) and 15km away from district headquarter Krishnagiri. As per 2009 stats, Jagadevipalayam village is also a gram panchayat. Pincode of Jagadeviplayam village is 635203

Table 3.14 Jagadevipalayam village Census 2011 Data

S.No	Description	Census 2011 Data
1	Village Name	Jegadevipalayam
2	Tehsil Name	Bargur
3	District Name	Krishnagiri
4	State Name	TamilNadu
5	Total Population	5009
6	Total Area	666.16 (Hectares)

3.10.5 Population Characteristics – Jagadevipalayam Village, Bargur Taluk, Krishnagiri District (2001-2011)

Jagadevipalayam village had a total household 1348 in 2001, which is increased to 1607 in according to census 2011. Village had a total person of 6747 in 2011 census previous census 6257 persons in 2001. There were about 3398 men (50.5%) according to 2011 census and 3158 men (55%) in 2001 census marking decrease of about 240 men over the previous census. During 2001 there were about 3099 women (49.5%), which is an increase to 3349 (49.6%) in 2011 census.

In Jagadevipalayam village had a literate accounted for 3618 persons (57.8%) in 2001 and increased to 4474 persons (66.3%) in 2011. There were about 33.1 percent males in 2001 and 36.5 percent in 2011. There were about 24.7 percent females increased to 29 percent classes as literates in 2011.

Sex composition is the most important demographic characteristics that affect the incidence of birth and death. The average sex ratio in Bargur taluk, Jagadevipalayam village was 981during 2001 and increased to 986 the year of 2011. The highest sex ratio may be either due to the migrants for educational purpose and employment opportunities and due to infant birth of female is very high. The population

characteristics of Jagadevipalayam Village (2001-2011) are shown in Table 3.15 and Fig no. 3.20.

Table 3.15 Jagadevipalayam Village Population Facts

S. no	Characteristics	2001	%	2011	%
1	Total Household	1348	21.5	1607	23.8
2	Rural population	6257		6747	
3	Male Population	3158	50.5	3398	50.4
4	Female Population	3099	49.5	3349	49.6
5	Rural Literacy	3618	57.8	4474	66.3
6	Male Literacy	2070	33.1	2464	36.5
7	Female Literacy	1548	24.7	2010	29.8
8	Sex Ratio		981		986

Source: https://www.census2011.co.in/data/ village/635204- Jagadevipalayam -tamil-nadu.html

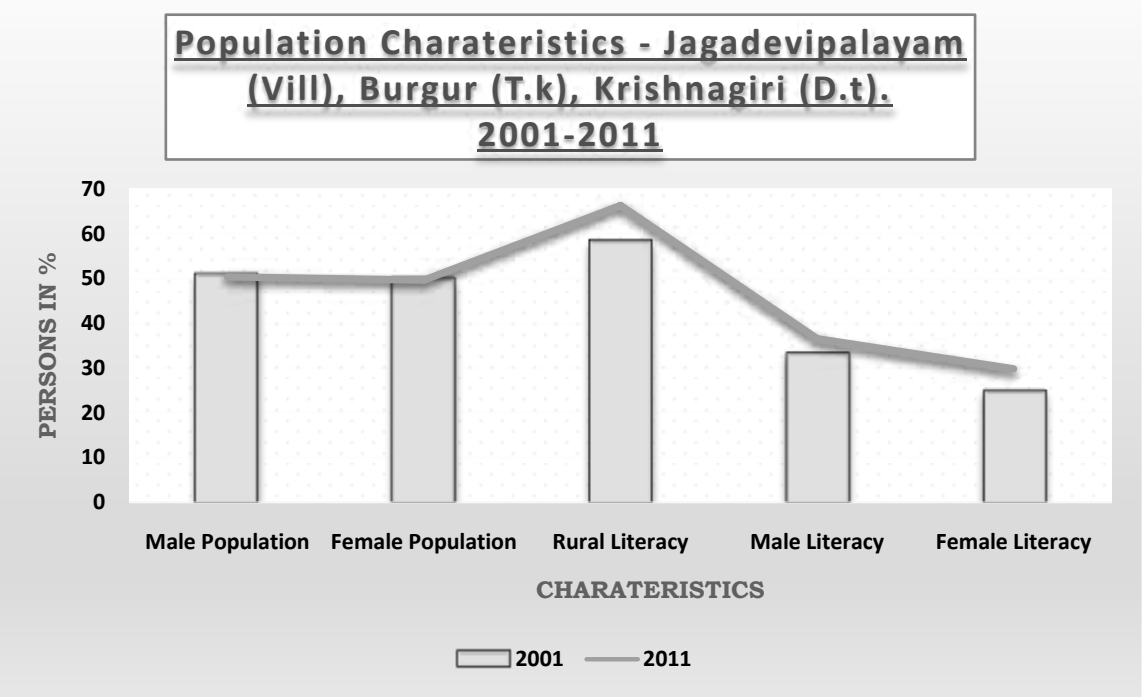


Fig No 3.20 Population Characteristics of Jagadevipalayam village Krishnagiri (2001-2011)

3.10.6 Occupational profile of Jagadevipalayam Village

The term workers denote the population engaged in primary, secondary and tertiary activities classified in the census reports of Indian government. During the year 2001 **Jagadevipalayam Village, Burgur Taluk, Krishnagiri District, Tamil Nadu.**

The Occupational structure in terms of analyzing the geographical, economic and technological development of various factors among these in this Jagadevipalayam village denote the workers population are classified in the census reports in Indian government. Based on the social economic survey primary and secondary data collected from the EIA team likely impacts on the socio-economic scenario from the mining site in 10 km buffer zone implemented in this surrounding villages where its monitoring and analyzing the social consequences in this mine site area.

In Jagadevipalayam village had a total main workers accounted of 2167 (34.6%) persons during 2001 census which is an decrease to 2093 (31%) persons during 2011. There were about 746 (11.9%) women in 2001 and 527(7.81) women according to the census 2011 marking a decreases 219 women over the previous census.

The study area has experienced a change in the occupational structure in the form of a decline in the proportion of cultivators, agricultural laborers and an increase in the proportion of Non workers. In Jagadevipalayam village had non workers population accounted of 4027 (59.7% according to census 2011. Which decreased from census 2001 had population 3247 (51.9%). Compare to 2011 census has and increased previous census is 740 persons. Because of more number of people are educated most of people living the village had mining and household industries like tobacco, coolie etc., earn our daily life

There are three phases of occupational distributions and economic development and growth rate of populations in census of Indian government. In First phase the agriculture proportions of people are working in this site, the second phase where the populations are continuing in this agro-based industries and as well as migrating one place to another place for manufacturing or employ engaged, the third phase the distributions of the occupational characteristics growth rate of working population becomes greater than or differentiates in the secondary census data wise.

As per the occupational pattern differentiated in 2001 and 2011 census the workers are classified main workers, marginal workers, non-workers, cultivators and agricultural workers, marginal house hold workers. More opportunities' nearby villages for giving employing the local people for getting income and not for searching coolie job far away. It will increase their household income. From the data

it was observed that occupational population decreased where the government and private entrepreneurs' should give an opportunity to develop an occupational pattern is restructure itself.

Table 3.16 Jagadevipalayam Working Population-Census 2011

S.No	Census Parameters	2001	%	2011	%
1	Total Population	6257		6747	
2	Total Workers	3010	48.1	2720	40.3
3	Male Workers	1873	29.9	1911	28.3
4	Female Workers	1137	18.2	809	12
5	Total Main workers	2167	34.6	2093	31
6	Male Main workers	1421	22.7	1566	23.2
7	Female Main Workers	746	11.9	527	7.81
8	Total Cultivators	755	12.1	253	3.75
9	Male Cultivators	478	7.64	203	3.01
10	Female Cultivators	277	4.43	50	0.74
11	Total Main Agricultural Labourers	783	12.5	755	11.2
12	Male Agri.Labourers	405	6.47	445	6.6
13	Female Agri.Labourers	378	6.04	310	4.59
14	Total Main HHI	25	0.4	52	0.77
15	Male HHI	15	0.24	37	0.55
16	Female HHI	10	0.16	15	0.22
17	Total Main Other Tertiary workers	604	9.65	1033	15.3
18	Male OT	523	8.36	881	13.1
19	Female OT	81	1.29	152	2.25
20	Total Non workers	3247	51.9	4027	59.7
21	Male Non workers	1285	20.5	1487	22
22	Female Non workers	1962	31.4	2540	37.6

Source: https://www.census2011.co.in/data/ village-Jagadevipalayam tamil-nadu.html

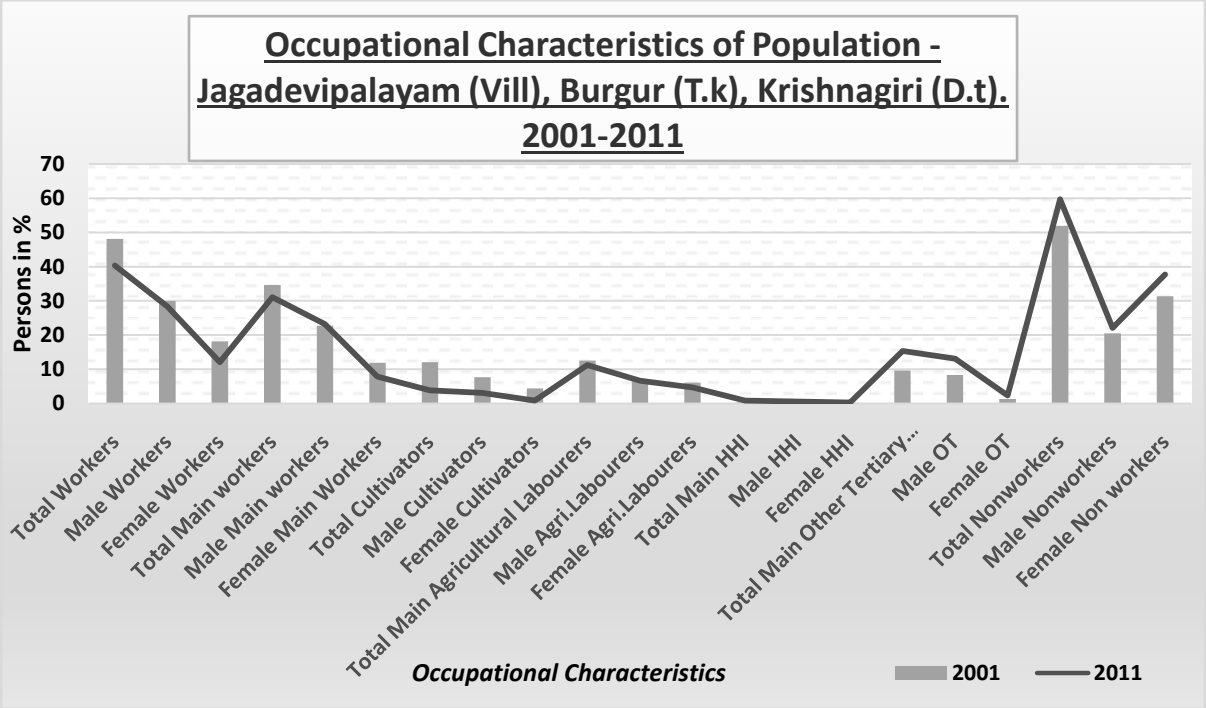


Fig No 3.21 Occupational Characteristics – Jagadevipalayam Village, Krishnagiri District (2001-2011)

3.10.7 Socio economic studies in buffer area

It is mining project covering an extent of 1.57.5Ha and comes under B2 category. The impact of proposed project will be up to the distance of 10km surrounding the project site. The socio - economic benefits of proposed project is given below.

1. The proposed project will generate employment within 10km radius
2. As the workers and tippers from various villages move to and fro projects site, shops such as mechanic, welding, tea and hotels will be developed around the project site. It will generate indirect employment to the village people.
3. The surrounding village people will get benefits under CER and CSR Scheme. CER is 2.0% of project cost whereas CSR is 2.5% of the project profit.
4. When people get employment, it will upgrade the living standard of the people.
5. As the people getting employment in their native places, migration towards developed cities in search of employment may be prevented. Thereby, agricultural activities will not be affected.

The list of revenue villages and its details within 10km radius are given as follows

Table 3.17 List and Details of Revenue villages within 10km radius

S.No	Village	Population
1.	Chendrapalli	6467
2.	Puligunta	8365
3.	Sigaralapalli	1723
4.	Madepalli	7341
5.	Bargur (TP)	16366
6.	Jagadevipalayam	6747
7.	Kondappanayanapalli	794
8.	Ikondamkothapalli.	3964
9.	Batlapalli	5036
10.	Balinayanapalli	4761
11.	Achamangalam	4179
	Total	**65743**

Source: www.census india.gov.in-Tamilnadu Census of India –2011

Table 3.18 Population Data of Study Area

Village Name	No. of House Holds	Total Population	Male	Female	Total Literate Population	Male Litereate	Female Litereate	Total Illiterate Population	Male Illiterate	Female Illiterate
Chendrapalli	1507	6467	3266	3201	3817	2188	1629	2650	1078	1572
Puligunta	2033	8365	4212	4153	5342	2978	2364	3023	1234	1789
Sigaralapalli	373	1723	914	809	763	472	291	960	442	518
Madepalli	1790	7341	3683	3658	5399	2906	2493	1942	777	1165
Bargur (TP)	3760	16366	8316	8050	11598	6335	5263	4768	1981	2787
Jagadevipalayam	1607	6747	3398	3349	4474	2464	2010	2273	934	1339
Kondappanayanapalli	188	794	409	385	410	240	170	384	169	215
Ikondamkothapalli.	977	3964	1982	1982	2484	1376	1108	1480	606	874
Batlapalli	1199	5036	2625	2411	3156	1797	1359	1880	828	1052
Balinayanapalli	1132	4761	2470	2291	3121	1767	1354	1640	703	937
Achamangalam	974	4179	2150	2029	2821	1634	1187	1358	516	842

Table 3.19 Communication & Transport Facilities in the Study Area

S.No	Village Name	PO	SPO	PTO	T	PCF	BS	PBS	RS	SH	MDR	BTR	GR	FP
1.	Chendrapalli	1	0	0	0	0	1	1	0	0	1	1	1	1
2.	Puligunta	1	0	0	0	0	1	1	0	0	1	1	1	1
3.	Sigaralapalli	0	0	0	0	0	1	1	0	0	1	1	1	1
4.	Madepalli	1	0	0	0	0	1	1	0	0	1	1	1	1
5.	Bargur (TP)	1	1	1	0	6	1	1	0	2	2	1	1	1
6.	Jagadevipalayam	1	0	0	0	1	1	1	0	1	1	1	1	1
7.	Kondappanayanapalli	0	0	0	0	0	1	1	0	0	1	1	1	1
8.	Ikondamkothapalli.	0	0	0	0	0	1	1	0	0	1	1	2	1
9.	Batlapalli	0	0	0	0	0	1	1	0	0	1	1	1	1
10.	Balinayanapalli	1	0	0	0	1	1	1	0	0	1	1	1	1
11.	Achamangalam	0	0	0	0	1	1	1	0	0	1	1	1	1

Abbreviations: PO - Post Office; RS - Railway Station; GR - Gravel Roads; SPO - Sub Post Office; PTO - Post & Telegraph office; PCF - Private Courier Facility; SH - State Highways; FP - Foot path; T- Telephone (Landline); BS -Public Bus Service; MDR - Major District Road; PBS - Private Bus Service; BTR - Black Topped (Pucca Road).

Note: 1 - Available within the village; 2 -Not available

Table 3.20 Water & Drainage Facilities in the Study Area

S.No	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1.	Chendrapalli	1	1	1	1	1	2	2	1	1	1	2
2.	Puligunta	1	2	1	1	1	2	2	2	1	1	2
3.	Sigaralapalli	1	2	1	1	1	2	2	2	1	1	2
4.	Madepalli	1	1	1	2	1	1	2	2	1	1	2
5.	Bargur (TP)	1	1	1	2	2	2	2	2	1	1	2
6.	Jagadevipalayam	1	1	1	1	1	1	2	1	1	1	2
7.	Kondappanayanapalli	1	1	1	1	1	2	2	2	1	1	1
8.	Ikondamkothapalli.	1	1	1	2	1	1	2	2	1	1	2
9.	Batlapalli	1	1	1	1	1	2	2	2	1	1	2
10.	Balinayanapalli	1	1	1	1	1	2	2	2	1	1	2
11.	Achamangalam	1	1	1	2	1	2	2	2	1	1	2

Abbreviations: TP-Tap Water; R/C-River/Canal; CW-Covered Well; T/P/L-Tank/Pond/Lake; UCW-Uncovered Well; CD-Covered Drainage; HP-Hand Pump; OD-Open Drainage; TW/BH-Tube/Bore Well; CT-Community Toilet Complex for General public; S– Spring

Note– 1-Available within the village;
2-Not available

Table 3.21 Other Facilities in the Study Area

S.No	Village Name	ATM	CB	COB	ACS	SHG	PDS	AMS	NC	NC-AC	CC	SF	PL	NPS	APS	BDRO	PS
1.	Chendrapalli	2	1	1	2	2	1	2	2	1	2	2	1	1	2	1	1
2.	Puligunta	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1
3.	Sigaralapalli	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1
4.	Madepalli	2	2	2	2	2	1	2	2	1	2	2	1	1	1	1	1
5.	Bargur (TP)	9	8	2	2	2	1	2	2	1	2	2	2	1	1	1	1
6.	Jagadevipalayam	2	1	1	2	2	1	2	2	1	2	2	2	1	1	1	1
7.	Kondappanayanapalli	2	1	2	2	2	1	2	2	1	1	1	1	1	1	1	1
8.	Ikondamkothapalli.	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1
9.	Batlapalli	2	2	2	2	2	1	2	2	1	1	1	2	1	1	1	1
10.	Balinayanapalli	2	2	1	2	2	1	2	1	1	1	1	2	1	1	1	1
11.	Achamangalam	2	1	2	2	2	1	2	1	1	1	1	1	1	1	1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commercial Bank; COB - Co-operative Bank; AMS - Agricultural Market

Society: ACS –Agricultural Credit Societies; NC- Nutritional Centre; SHG-Self Help Group; NC-AC-Nutritional Centre – Anganwadi Centre; BDRO-Birth & Death Registration Office; PS-Power Supply; CC- Community Centre (without TV); SF – Sports field; PL- Public library, NPS – News paper supply; APS – Assembly polling station.

Note: 1-Available within the village; 2- Not available

Table 3.22 Educational Facilities in the Study Area

		PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
S.No	**Village Name**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**	**G**	**P**
1.	Chendrapalli	1	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.	Puligunta	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.	Sigaralapalli	1	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4.	Madepalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.	Bargur (TP)	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6.	Jagadevipalayam	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7.	Kondappanayanapalli	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8.	Ikondamkothapalli.	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9.	Batlapalli	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10.	Balinayanapalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11.	Achamangalam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations: PPS-Pre Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government ; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School for Disabled; SS-Secondary School; MI-Management College/Institute;
Note –1-Available within the village; 2-Not available

Table 3.23 Medical Facilities in the Study Area

Sl.No	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1.	Chendrapalli	2	1	1	2	2	2	2	2	1	2	2	a
2.	Puligunta	2	1	1	2	2	2	2	2	1	2	2	b
3.	Sigaralapalli	2	2	1	2	2	2	2	2	2	2	2	b
4.	Madepalli	2	2	1	2	2	2	2	2	1	2	2	b
5.	Bargur (TP)	2	2	1	2	2	2	2	2	1	2	2	b
6.	Jagadevipalayam	2	1	1	2	2	2	2	2	2	2	2	c
7.	Kondappanayanapalli	2	1	1	2	2	2	2	2	1	2	2	b
8.	Ikondamkothapalli.	2	2	1	2	2	2	2	2	2	2	2	a
9.	Batlapalli	2	2	1	2	2	1	2	2	1	2	2	b
10.	Balinayanapalli	2	1	2	2	2	2	2	2	2	2	2	b
11.	Achamangalam	2	1	1	2	2	2	2	2	1	2	2	b

Abbreviations: CHC-Community Health Centre; TBC- TB Clinic; VH- Veterinary Hospital; PHC-Primary Health Centre; HA-Allopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MHC-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non Government Medical Facilities In & Out Patient

Note–1-Available within the village; 2 –Not available; a- Facility available at<5kms; b- Facility available at>10kms

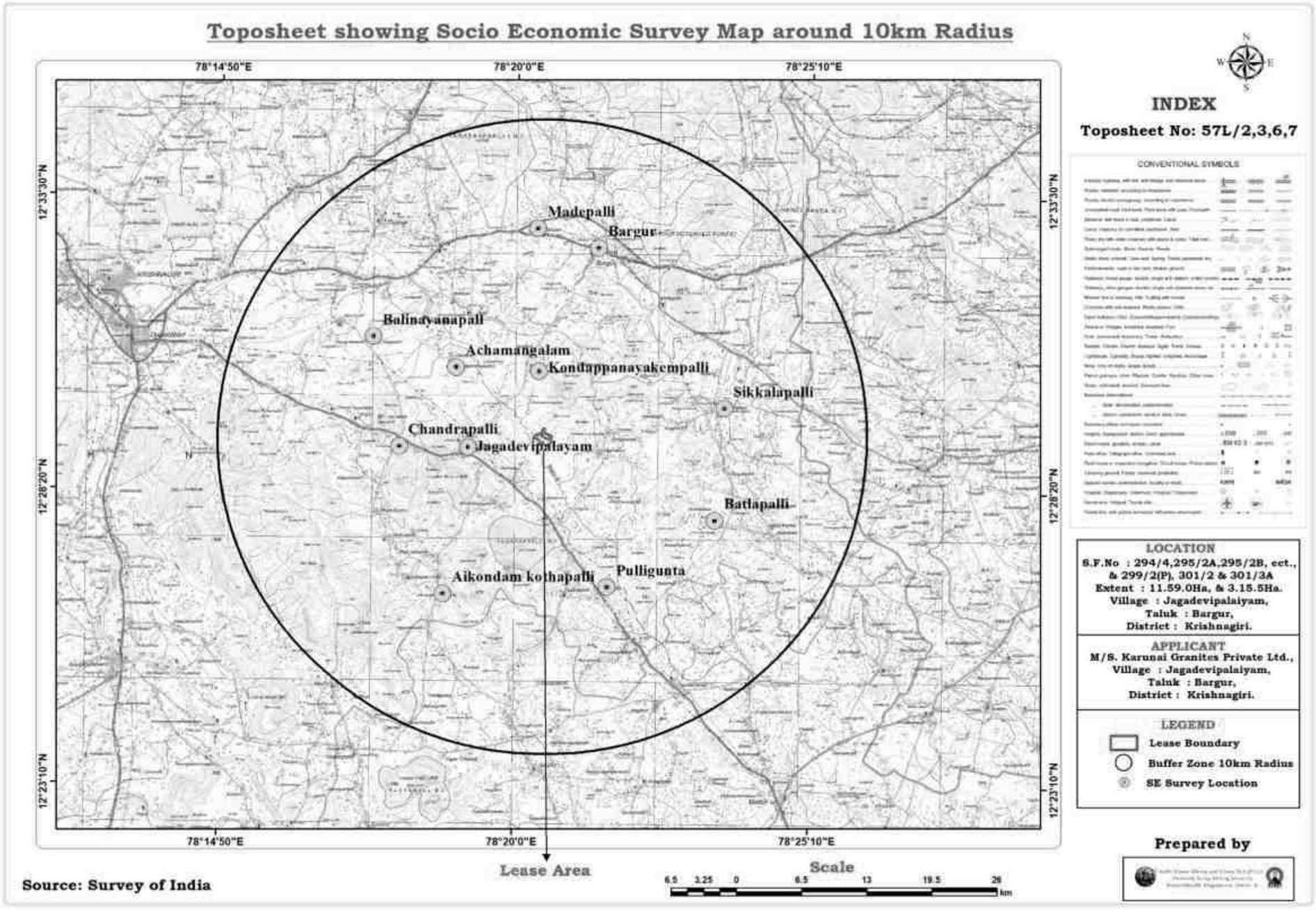


Fig No 3.22 Socioeconomic Survey Location

3.10.8 Primary survey conducted by FAE- SE

Primary survey conducted 10 villages total population is **65743**. Jagadevipalayam village has approximately 1 percent of total population of the village area. This calculation is total sample size has 250 around 10km radius core and buffer zone from mine lease boundary.

3.10.8.1 Primary survey methodology

The study was carried out with a participatory approach by involving the stakeholders, particularly the project beneficiaries and probable affected persons through a series of consultative process. The population groups that were consulted include beneficiary group of people in the project influence area, particularly the shopkeepers, farmers, Gram Panchayat members, village elders etc. Proportionate and purposive sampling methods were used for selecting respondents for household survey. Male and female respondents, both were selected for household survey. Structured questioners were used for survey.

3.10.8.2 Data structures

The data collected with the help of questionnaire survey for list of villages of Bargur Taluk were suitably converted into uni-variate, bi-variate and multivariate tables. The selection of these blocks were meaningfully done in order to get complete details of the surveyed population, their living environment, socio economic and socio-cultural and healthcare practices so as to conceptualize the findings with the help of interrelationships between Occupation and income status. the surveyed population were examined and interpreted with reference to socioeconomic living area, family structure and Educational, Sanitation etc.,

The Survey was conducted by SE expert Mrs. S.Santhi (FAE) along with her team.

Fig No 3.23 PRIMARY SURVEY PHOTOGRAPHS OF VILLAGE WISE, KRISHNAGIRI DISTRICT

3.10.9 Summary and Conclusion

From the primary survey, it is found that the basic facilities such as water road, PHSC, schools are available within the surveyed villages. The people stated that they did not get benefits under CER and CSR activities. Also they suggested that to operate the truck at minimum speed while crossing villages, schools, hospitals. The strongly asked to provide the employment opportunities only to the village people and registered their complaint on employment opportunities to other state people.

The proponent assured that he will improve facilities in government schools and hospitals under CER and CSR Schemes.

The socio-economic wellbeing of the area and its people is represented by the infrastructure and the social assets available in the area. The study area constituted of various infrastructures related to education, health care, communication, transportation, drinking waters etc.

3.11 LAND ENVIRONMENT

3.11.1 Land use of Study Area

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Landsat8 having 30 m spatial resolution and date of pass 22nd Sep 2022 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering approx. 12°29'8.97"N to 12°29'26.41"N latitude and 78°20'18.72"E to 78°20'38.29"E longitude and elevation 450 meter are used as per the project site confined within that area. Land use pattern of the study area as well as the catchment area was carried out by standard methods of analysis of remotely sensed data and followed by ground truth collection and interpretation of satellite data. The outcome of land use study is presented below in subsequent tables and figures.

Table 3.24 Data Specification Used For Present Study

Satellite Image	Sensor	Spatial Resolution	Date of Acquisition
Landsat8	*OLI & TIRS	30m	22nd Sep 2022

* Operational Land Imager (OLI) and the Thermal Infrared Sensor (TIRS)

	Bands	**Wavelength (Micrometers)**	**Resolution**
Landsat8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS) Launched February 11, 2013	Band 1 - Coastal aerosol	0.43 - 0.45	30
	Band 2 - Blue	0.45 - 0.51	30
	Band 3 - Green	0.53 - 0.59	30
	Band 4 - Red	0.64 - 0.67	30
	Band 5 - Near Infrared(NIR)	0.85 - 0.88	30
	Band 6 - SWIR1	1.57 - 1.65	30
	Band 7 - SWIR2	2.11 - 2.29	30
	Band 8 - Panchromatic	0.50 - 0.68	15
	Band 9 - Cirrus	1.36 - 1.38	30
	Band 10 - Thermal Infrared (TIRS)1	10.60 – 11.19	100
	Band 11 - Thermal Infrared (TIRS)2	11.50 – 12.51	100

3.11.2. Objective

The objectives of Land use studies are:

- To determine the present land use pattern as per EIA/EMP norms by MoEF.
- To determine the drainage pattern present in the study area.

3.11.3 Data Used

A. Remote sensing data

- Landsat8-30m Resolution, OLI &TIRS (Sensor)

B. Collateral Data

Survey of India Toposheet bearing Toposheet No. 57 P/12 (1:50,000 Scale) and the Toposheet map representing the project site is given in Chapter 1.

3.11.4 Methodology

The land use pattern of the study area was studied by analyzing the available secondary data published in the District Primary Census abstract of the year 2001 & 2011. Salient features of the adopted methodology are given below:

- Acquisition of satellite data
- Preparation of base map from Survey of India Toposheet.
- Data analysis using visual interpretation techniques
- Ground truth studies or field checks using GPS & Digitization using head up vectorization method
- Topology construction in GIS Topography and location of surface water bodies like ponds, canals and rivers;
- Location of villages/towns/sensitive areas;
- Identified pollution pockets, if any within the study area;
- Accessibility, power availability and security of monitoring equipment;
- Areas which represent baseline conditions; and
- Collection, collation and analysis of baseline data for various environmental attributes.
- Area calculation for statistics generation.

The spatial resolution and the spectral bands in which the sensor collects the remotely sensed data are two important parameters for any land use survey. Landsat8 data offers spatial resolution of 30 m and 185 kilometer (115 mile) wide

swath of the Earth in 15-30 meter resolution covering wide areas the data is collected in 11 visible bands namely **Band Number µm Resolution**

1	0.433–0.453	30 m
2	0.450–0.515	30 m
3	0.525–0.600	30 m
4	0.630–0.680	30 m
5	0.845–0.885	30 m
6	1.560–1.660	30 m
7	2.100–2.300	30 m
8	0.500–0.680	15 m
9	1.360–1.390	30 m
10	10.6-11.2	100 m
11	11.5-12.5	100 m

3.11.5 Topography

Data covering approximately northern latitude of 12°29'8.97"N to 12°29'26.41"N latitude and 78°20'18.72"E to 78°20'38.29"E longitude and elevation 450 m are used as per the project site confined within that area.

3.11.6 Land Use/Land Cover Classification

3.11.6.1 Land use/Land cover within the lease area:

The base maps of the study area were prepared, with the help of Survey of India Toposheet on 1:50,000 scale (Fig No.3.24). Preliminary interpreted land use and the land cover features boundaries from Landsat8 sensor OLI & TIRS having 30m spatial resolution, False Colour Composite were modified in light of field information and the final thematic details were transferred onto the base maps. The final interpreted and classified thematic map was cartograph.

The cartographic map was categorically differentiate with standard colour coding and described features with standard symbols. All the classes were identified and marked by the standard legend on the map. The following Land Cover classes were derived and classified as under (Fig No.3.25):

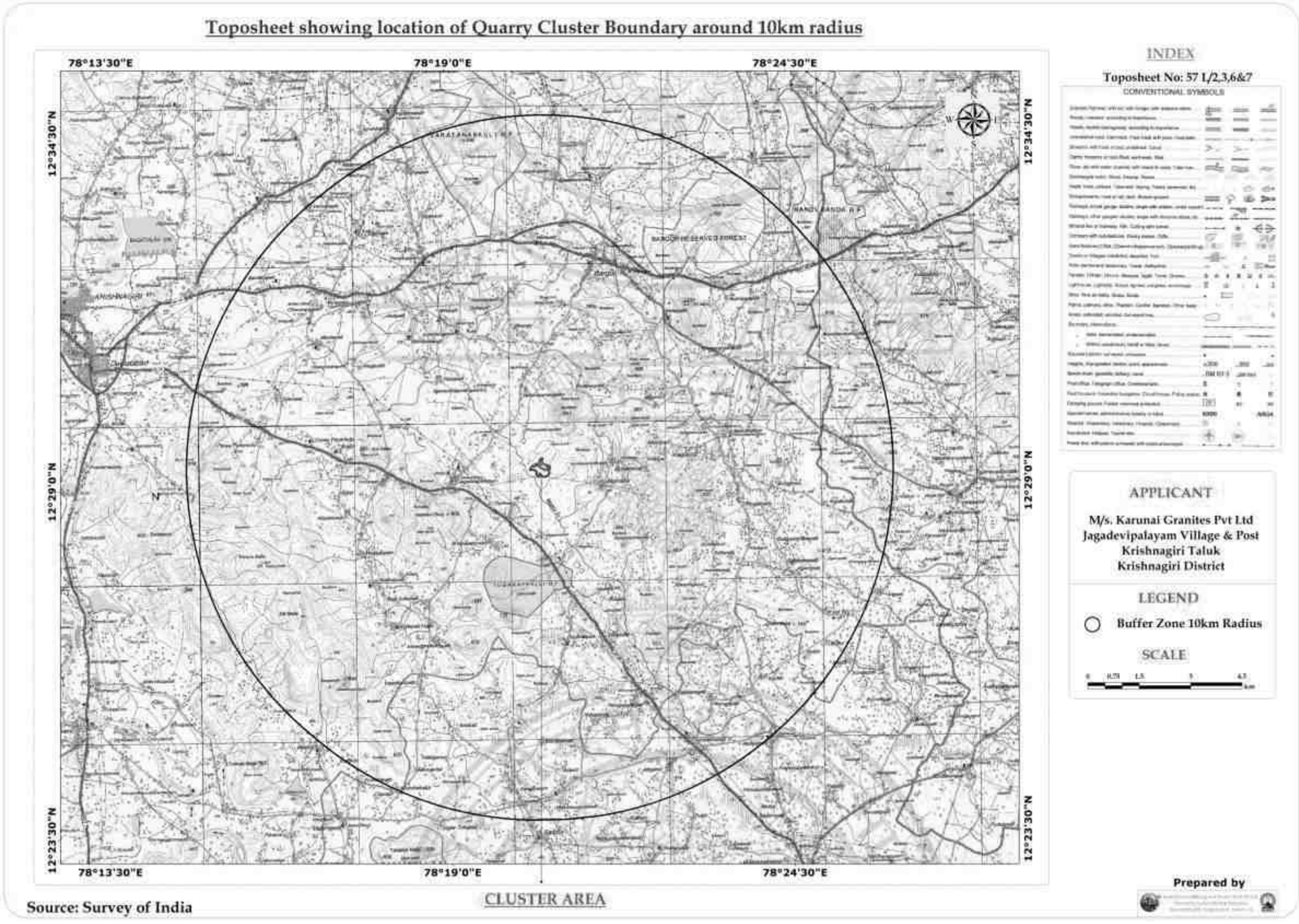


Fig No: 3.24 Toposheet Showing Location Lease Boundary around 10km radius

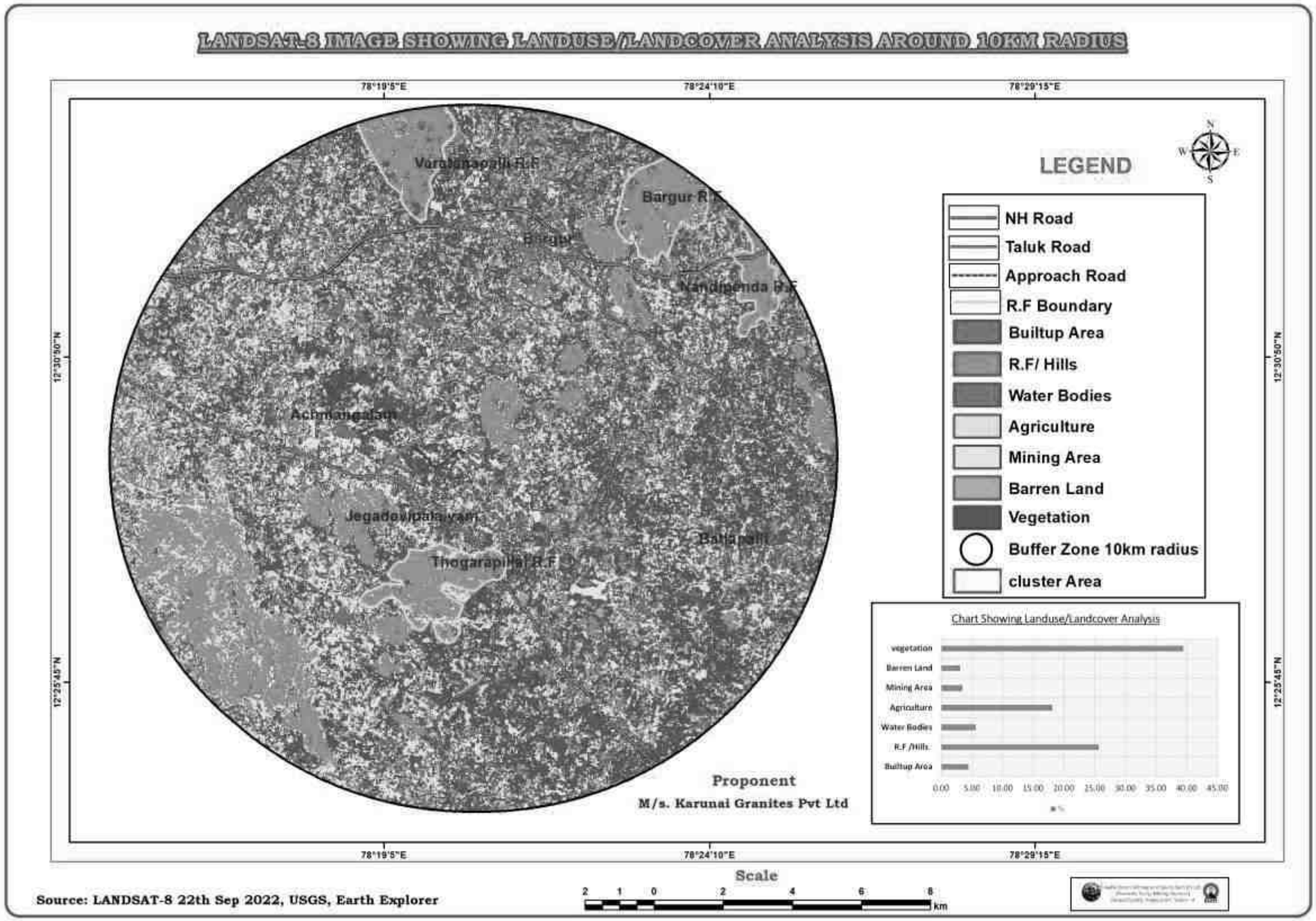


Fig No: 3.25 LANDSAT Image showing Location of Lease area around 10km radius

Table 3.25 Computation of existing and proposed land use pattern

S.No	Names	Area(Ha)	%
1	Built-up Area	1474.01	4.46
3	R.F /Hills	4159.29	25.69
4	Water Bodies	878.23	5.66
5	Agriculture	5987.79	18.13
6	Mining Area	2140.01	3.48
7	Barren Land	1020.17	3.09
8	vegetation	13046.60	39.49
	Total	33035.13	100.00

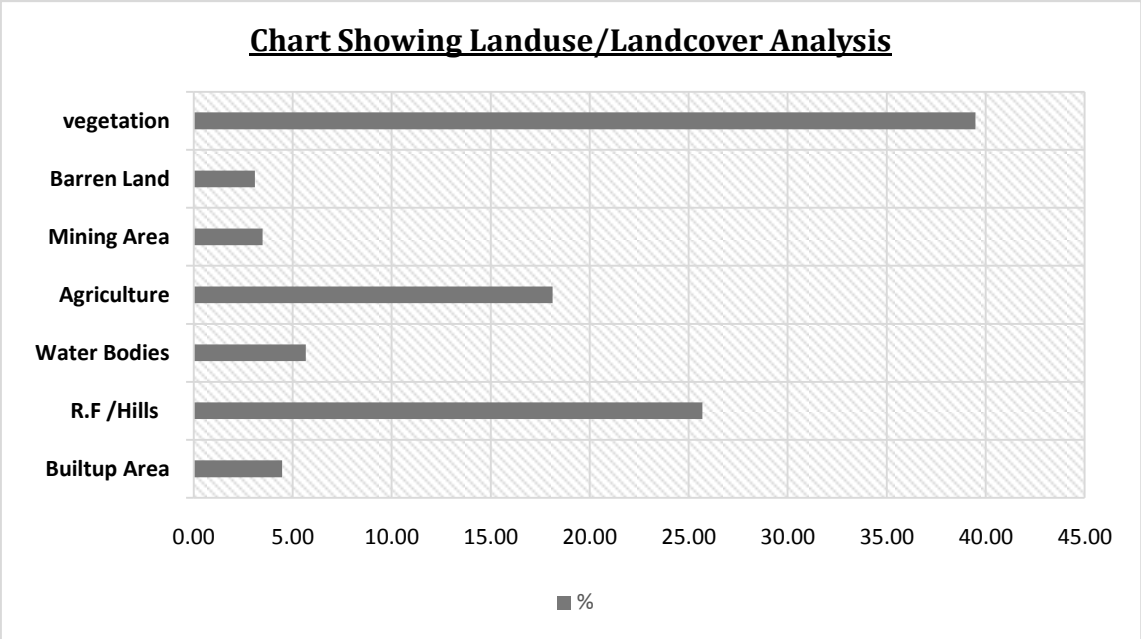


Fig No: 3.26 Land use/Land Cover around 10 km radius

3.11.7 Drainage Pattern of the Area

Drainage pattern of the area is dendritic with high stream density due to rugged topography. Drainage is mostly westerly and south westerly. Dendritic patterns, which are by far the most common, develop in areas where the rock (or unconsolidated material) beneath the stream has no particular fabric or structure and can be eroded equally easily in all directions. The project site itself is the River body. The drainage pattern of the area is dendritic – sub dendritic. The drainage pattern of the study area is mentioned in Fig No.3.29.

3.11.8 Contour

Contour lines are the greatest distinguishing feature of a topographic map. Contour lines are lines drawn on a map connecting points of equal elevation, meaning if you physically followed a contour line, elevation would remain constant. Contour lines show elevation and the shape of the terrain in the study area. The slope map was derived from a SRTM data of the study area. Contour interval at 20m, minimum 400m has very hilly with plain landforms and general terrain is quite elevated at maximum 900m above. To make topographic maps easier to read, because it's impractical to mark the elevation of every contour line on the map, the index contour lines are the only ones labeled (Fig No.3.27).

3.11.9 Slope

The slope map was derived from a SRTM data of the study area. The slope of the study area was classified into five classes, such as less than 10 Percent/degree flat to almost flat no meaningful denudation process. Especially landslides that is flat. Slope zone 10-20º gentler, the same as above, but with a higher magnitude of the area, 20-30º, slightly steep, a lot of ground movement and erosion, especially landslides that area flat. 30-40º and above 40º very steep, rocks generally begin to unfold a very intensive denudation process have begun to produce rework material (Fig No.3.28).

3.11.10 Soils

The 10km study area is covered with Alfisols, Entisols, Inceptisols and Hill type soil. The type of soil found in the lease area is Hill soil (Fig No.3.29).

3.11.11 Geology

Charnockite, Pink migmatite, Dharmapuri anorthosite, epidote- hornblende Gneiss is found largely found in Krishnagiri area. Sedimentary rocks namely Charnockite, Granitoid gneiss, feldspar gneiss, calcareous gritty (sand stone mixed clay), and quartz vein. Granitoid gneiss is a composition of primary lateritic capping, basement crystalline complex, and conglomerate, which are found along the middle part of the river valley. The younger alluvium formations are seen predominantly in the northern part of the area and are considered as highly permeable. The storage capacity of the rock formations depends on the porosity of the rock. In the rock formation the water moves from areas of recharge to areas of discharge under the influence of hydraulic gradients depending on the hydraulic conductivity or permeability. The study area contains Gneisses, Granites, Charnockite, and Granitoid gneiss as major geological

structure. The entire firka is underlain by the crystalline metamorphic gneiss complex consisting gneisses and granites. Ground water is occurring in pheratic conditions in weathered and fractured gneiss rock formation (Fig No 3.30).

3.11.12 Geomorphology

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the area, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction (Fig No 3.30).

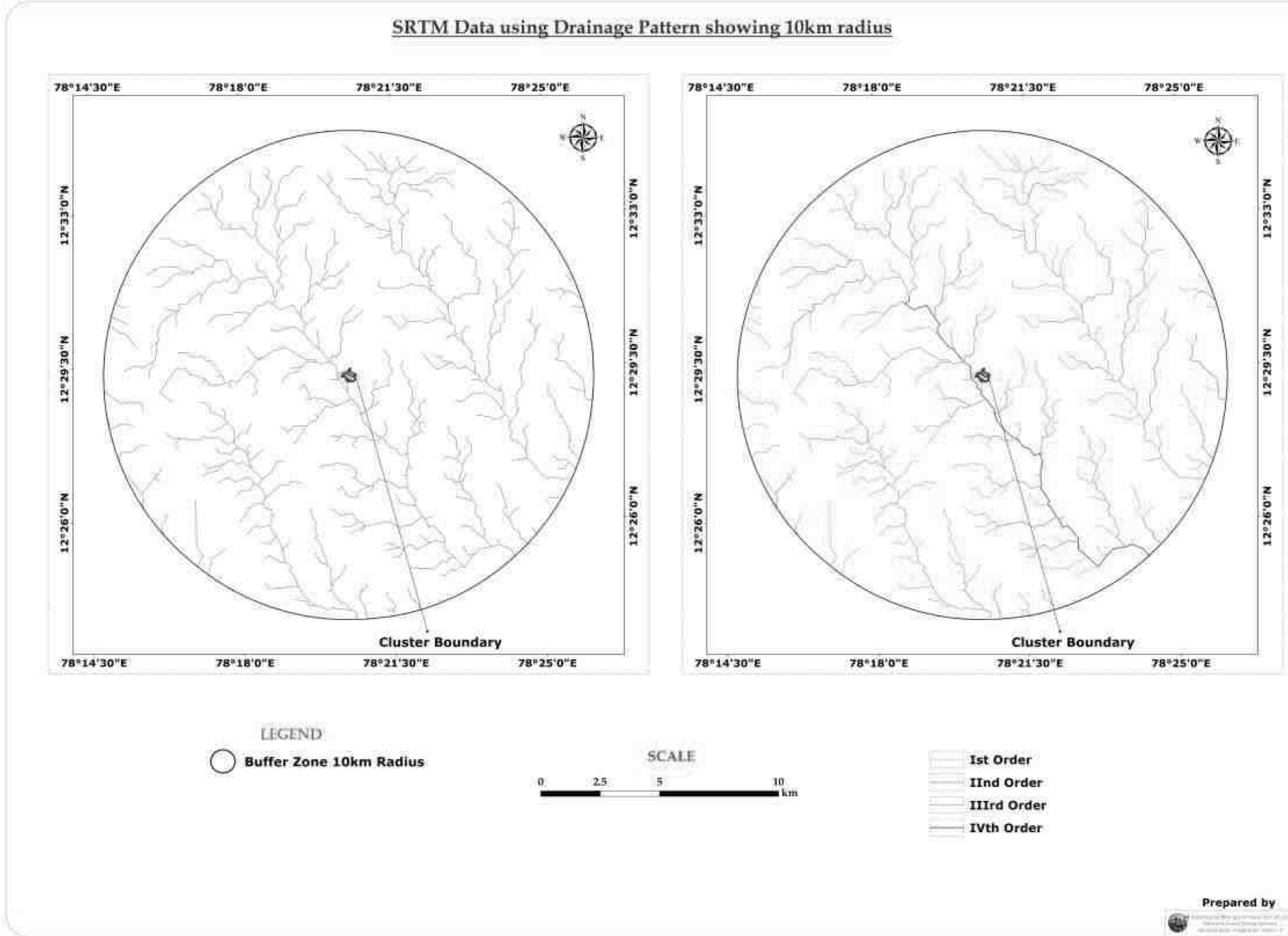


Fig No 3.27 Image Representing the River/Streams (Drainage) of the study area within 10km radius from the project site

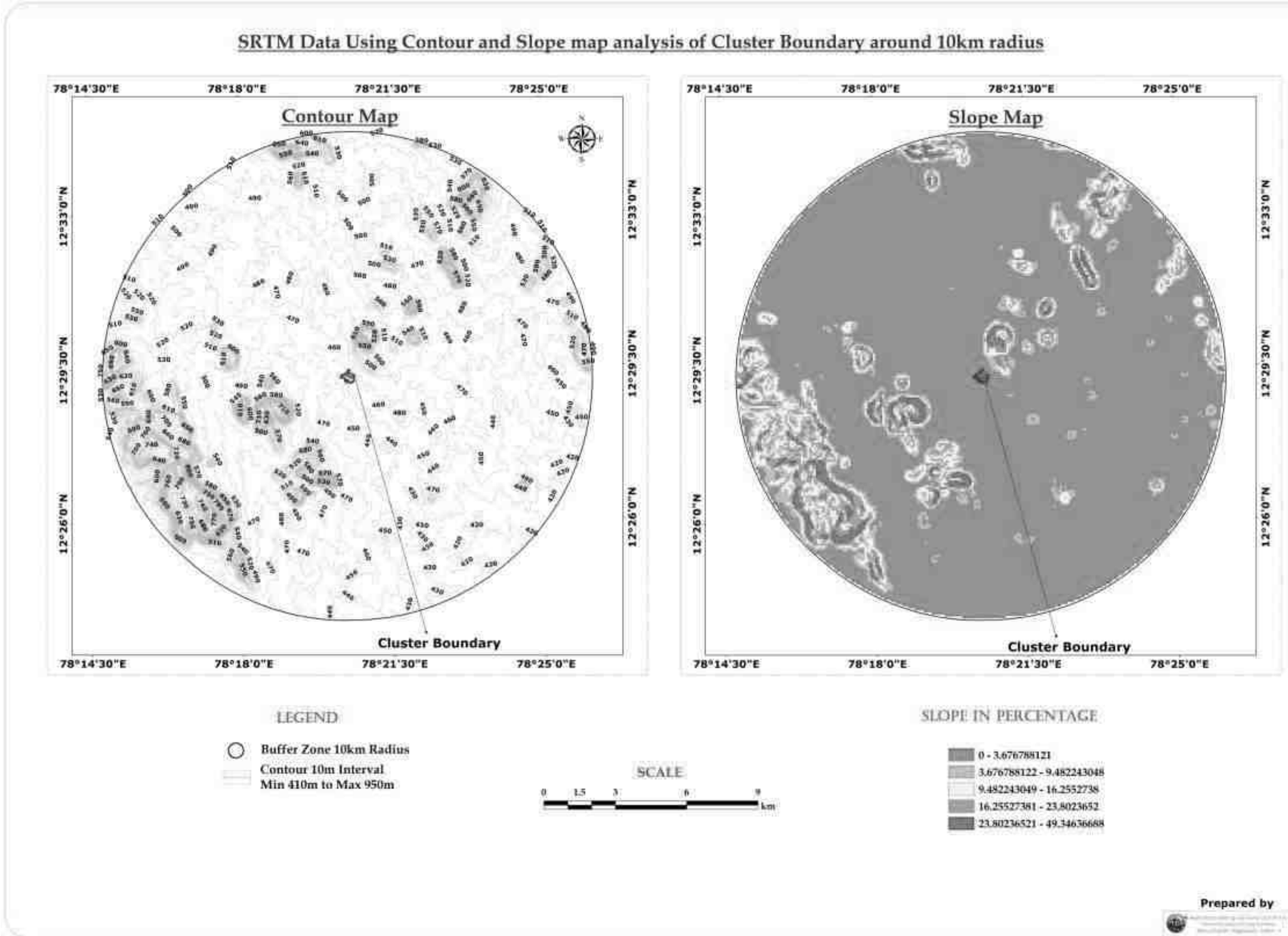


Fig No 3.28 Image Representing Contour and Slope analysis around 10km radius

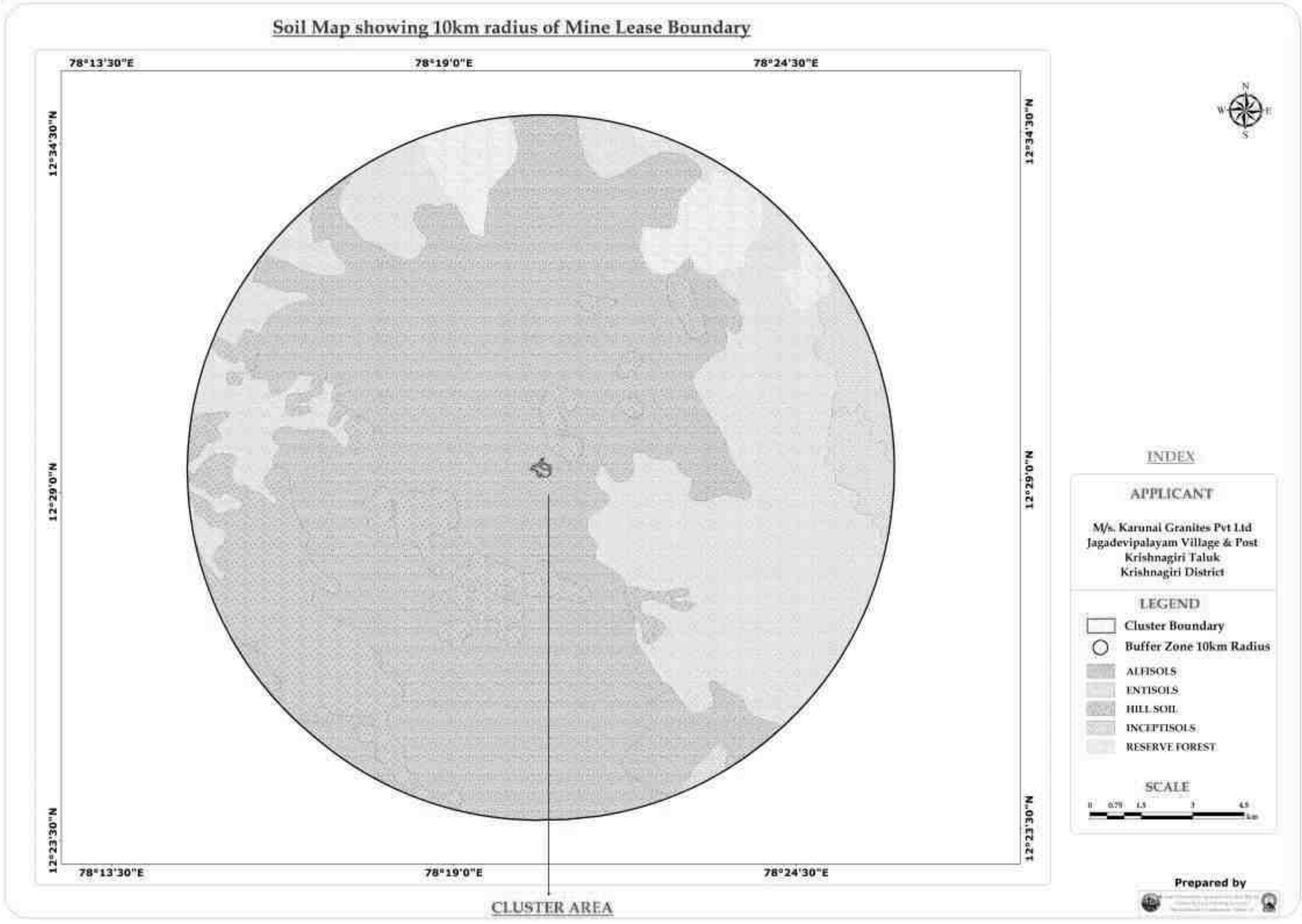


Fig No 3.29 Image Representing the Soil Characteristics around 10km of the Lease area

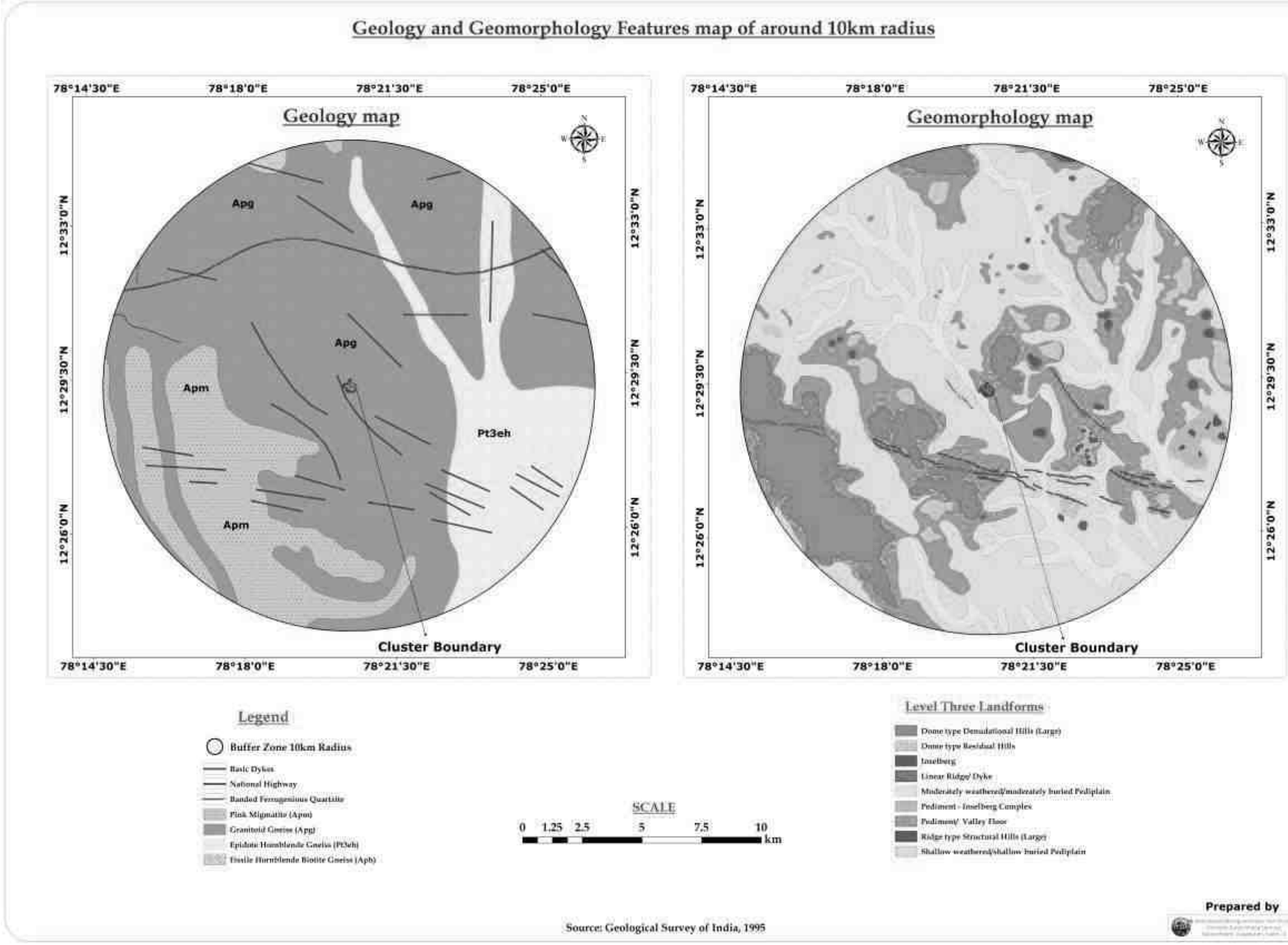


Fig No 3.30 Image Showing Geology and Geomorphology of the lease area

3.11.13 Seismic Sensitivity

The proposed project site falls in the seismic Zone III, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.

3.11.14 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project area. No Protected and Reserved Forest area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e., 10 km radius is given below.

Table 3.26 Environmental Sensitiveness

Interstate Boundary	Tamil Nadu –Andhra Pradesh –16km (NE)
Coastal Zone	Bay of Bengal – 174km – East
Reserve Forest	Thogarapalli R.F. -2.41km – S Bargur R.F – 6.41km – NE Varatanapalli – 6.6km – NW Nandibanda R.F – 8.6km – NE Neralakotta R.F – 9.7km - NE The proposed projects site does not attract Forest Conservation Act, 1980.
Wildlife sanctuary	Nil within 10km radius. Cauvery Wildlife Sanctuary – 40km – W The Proposed projects site does not the Wildlife (Protection) Act, 1972.
Water bodies	Water bodies within 5km radius from the project site are given below 1. Mattur Stream – 80m – S 2. A lake – 941m – S 3. A lake near Gettur village – 3.0km – W 4. A lake near Blinayanapalli village – 4.2km – NW 5. A lake near Simanur Village– 3.6km - NW 6. Bargur River – 4.5km - NE
Defense Installations	Nil within 10km radius
Critically Polluted area	Nil within 10km radius

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Open cast semi mechanized mining of bench height of 6m and a width not less than the height will be carried out by using excavators and dumpers combination. Scientific mining with proper benches with width and slope will be adopted as per MMR, 1961. Jack hammers with compressors will be deployed for drilling. Manual labors will be engaged for jack hammer drilling, sorting of waste and Cranes will be used for loading the Grey granite into trucks. During future development of quarrying, removal of rock mass will be done by mild blasting with explosives in holes drilled by Jack hammer of 32dia especially. No deep hole blasting is proposed. Sizing of materials shall be done by Wire saw cutting.

All these operations can disturb the environment in various ways, such as removal of mass, change of landscape, flora and fauna of the area, surface drainage, and change in air, water and soil quality. Therefore, it is essential to assess the impacts of mining on different environmental parameters before starting the mining operations, so that abatement measures could be planned in advance for eco-friendly mining in the area. The likely impacts on various environmental aspects and mitigation measures are discussed below.

4.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by jack hammer drilling, blasting, excavation, loading and transportation.

4.1.1. Anticipated Impact

The air borne particulate matter generated by handling, operations and transportation of Grey Granite are the main air pollutant. The emissions of Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out by considering generation of rejects and overburden per annum of two grey granite quarries of 3.15.5 Ha and 11.59.0 Ha.

4.1.2 Emissions Details

Drilling, Blasting, Loading, unloading and transportation of Grey Granite and wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities that releasing Particulate Matter (PM10 &

PM2.5) affecting Ambient Air of the area. Emission during Blasting, Loading and unloading was calculated as the area sources. Transportation of the granite by 2 nos. of trucks operated on the haul road was calculated as the line sources. Details of emission during loading/unloading and transportation on the haul road, wind erosion of the exposed area and road maintenance were discussed and combined impact was predicted in the worst case scenario under worst meteorological condition given as follows:

4.1.2.1 Drilling

Drilling is the process of making holes in grey granite to carry out smooth blasting. The drilling is most representative for point source. The rate of emission from the drilling process will be very high when compared to loading, unloading, transporting and blasting. So wet drilling will be proposed for the Black granite quarry which completely suppresses the dust emitted during drilling process.

4.1.2.2. Loading of Rejects (3.15.5 Ha and 11.59.0 Ha)

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during loading of Mineral.

$$E = [\{(100 - m)\ (m)^{-1}\}^{0.1}\ \{(s)\ (100 - S)^{-1}\}^{0.3}\ h^{0.2}\ \{(u)\ (0.2 + 1.05)^{-1}\}\{(xl)\ (15.4 + 0.87xl)^{-1}\}]$$

Table 4.1: Source Parameters (Loading of grey granite rejects)

S.No	Description	Symbol	Quantity
1	moisture content (%)	m	0.1(approx)
2	silt content (%)	s	1(approx)
3	wind speed (m s^{-1})	u	2.5
4	drop height (m)	h	1m above the tipper body
5	size of loader (m^3)	l	1.20
6	frequency of loading(no.h^{-1})	x	17 times
7	Area of Source (m^2)	a	5,000
8	Uncontrolled emission rate (g s^{-1})	UE	0.069
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s^{-1})	CE	0.0069

Totally 6 tippers and 2 hydraulic excavators will be proposed for two existing granite quarry. The maximum rates of rejects per hour for two quarries are estimated as $20m^3$. The loading capacity of excavator is $1.2m^3$.

x = frequency of loading (no. h^{-1}) = 20/1.2 = 17 times

4.1.2.3 Unloading of Rejects (3.15.5 Ha and 11.59.0 Ha)

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during unloading of rejects.

$$E = 0.023 [\{100-m\} sh \{m (100-s)^{-1}\}]^{2} (u^{3}cy)^{0.1}$$

Table 4.2 Source Parameters (unloading of Rejects)

S.No	Description	Symbol	Quantity
1	moisture content (%)	m	0.1 (approx)
2	silt content (%)	s	1 (approx)
3	wind speed (m s^{-1})	u	2.5
4	drop height (m)	h	1.5 from ground surface
5	capacity of tipper (t)	c	10
6	frequency of unloading (no.h^{-1})	y	5 times (maximum)
7	Area of Source (m^2)	a	5,000
8	Uncontrolled emission rate (g s^{-1})	UE	0.087
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s^{-1})	CE	0.0087

Rejects per hour for two grey granite quarries = 20 x 2.5 = 50MT;
Capacity of tipper (t) = 10MT
y = frequency of unloading (no.h^{-1}) = 50/10 = 5 times/hr

4.1.2.4 Loading of Overburden (Top Soil) (3.15.5 Ha)

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during loading of Top soil.

$$E = [0.018\{(100-m) (m)^{-1}\}^{1.4}\{s (100-s)^{-1}\}^{1.4}(uhxl)^{0.1}]$$

Table 4.3: Source Parameters (Loading of Top soil)

S.No	Description	Symbol	Quantity
1	moisture content (%)	m	1.28 (Lab report)
2	silt content (%)	s	32
3	wind speed (m s^{-1})	u	2.5
4	drop height (m)	h	1m above the tipper body
5	size of loader (m^3)	l	1.20
6	frequency of loading(no.h^{-1})	x	7 times (maximum)
7	Area of Source (m^2)	a	5,000
8	Uncontrolled emission rate (g s^{-1})	UE	0.73
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s^{-1})	CE	0.073

The maximum rate of generation of top soil per hour is estimated as 8 m^3. The loading capacity of excavator is 1.20 m^3.

x = frequency of loading (no. h^{-1}) = 8/1.20 = 7 times

4.1.2.5 Unloading of Overburden (Top Soil) (3.15.5 Ha)

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during unloading of overburden.

$$E = 1.76h^{1/2}\{(100\text{-}m)\ (m)^{-1}\}^{0.2}\{(s)\ (100\text{-}s)^{-1}\}^{2}u^{0.8}\ (cy)^{0.1}$$

Table 4.4 Source Parameters (Unloading of overburden or top soil)

S.No	Description	Symbol	Quantity
1	moisture content (%)	m	1.28 (Lab report)
2	silt content (%)	s	32
3	wind speed (m s^{-1})	u	2.5
4	drop height (m)	h	1.5 from the ground surface
5	capacity of dumpers (t)	c	10
6	frequency of unloading(no.h^{-1})	y	2
7	Area of Source (m^2)	a	5,000
8	Uncontrolled emission rate (g s^{-1})	UE	0.91
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s^{-1})	CE	0.091

Top soil generation per hour = 8 x 1.5 = 12MT; Capacity of tipper (t) = 10MT
y = frequency of unloading (no.h^{-1}) = 12/10 =2 times/hr

Emission of PM_{10} during Granite rejects loading and unloading was calculated and found to be 0.0069 g/s and 0.0087g/s respectively based on moisture content 0.1% and average wind speed was 2.5 m/s as observed with site data. Emission value during overburden loading and unloading was 0.073g/s and 0.091g/s respectively based on silt content 32% in overburden and average wind speed was 2.5 m/s as observed with site data.

4.1.2.6 Haul Road (3.15.5 Ha and 11.59.0 Ha)

Chaulya (2006) was used to calculate emission of particulate matter released into the atmosphere during transportation of granite by truck operated per hour on haul road.

$$E = [\{(100-m)\ (m)^{-1}\}^{0.35}\ \{(us)\ (100-s)^{-1}\}]^{0.7}\{0.5 + 0.1(f + 0.42v)\}\ 10^{-3}$$

Table 4.5: Source Parameters (During Vehicle Movement on Haul Road)

S.No	Description	Symbol	Quantity
1	moisture content (%)	m	1.28 (Lab report)
2	silt content (%)	s	32
3	wind speed (ms^{-1})	u	2.5
4	frequency of transporting (no. h^{-1})	f	10 times (maximum)
5	average vehicle speed(ms^{-1})	v	4.1
6	Area of Source (m^2)	a	2000
7	Uncontrolled emission rate (g s^{-1})	UE	0.58
8	Control efficiency (%)	c	85
9	Controlled emission rate (g s^{-1})	CE	0.087

Frequency of unloading for rejects (no.h^{-1}) = 5 times/hr

Frequency of unloading for top soil (no.h^{-1}) = 2 times/hr

Frequency of transporting (no. h^{-1}), f =14 times (up and down)

Emission of PM10 due to transportation of granite on haul road was 0.087 g/s based on assumption that silt content spread on road surface was 32% and average wind speed of 2.5 m/s as observed with site data. Based on the above consideration there was low emission of PM_{10} during transportation of granite.

4.1.2.7 Blasting (3.15.5 Ha)

In another scenario when controlled blasting is carried out at the mine site and all the other activities are brought to halt. Significant amount of PM_{10} is released during blasting at mining site for very short-term.

$$E = E_f x\ Q$$

Table 4.6: Source Parameters (During Blasting)

S.No	Description	Symbol	Quantity
1	Uncontrolled Particulate matter emissions rate in pounds per year	UE	72
2	Emission factor in unit of pounds of particulate per ton shifted by blasting	E_f	TSP E_f = 0.0001 pounds/ton $PM_{10}E_f$= 0.0008 pounds/ton $PM_{2.5}E_f$ = 0.0008 pounds/ton
3	Amount of material of all types shifted by blasting during the year in tons	Q	90225
4	Control efficiency (%)	c	30
5	Controlled Particulate matter emissions rate in pounds per year	CE	50

(Reference: Mojave Desert Air Quality Management District, 1403 Park Avenue, Victoria, CA 92392 -2310).

Loading and unloading of granite rejects, overburden, movement of trucks on haul roads were considered as combined action. So the emission during loading, unloading and transportation were taken combined and US EPA based Dispersion AERMOD model was used for prediction of impact with 1-h meteorological data of the study period for the assessment of incremental GLC. Then blasting was considered as separate action and US EPA based Dispersion AERMOD model was used for prediction of impact separately.

4.1.2.8 Summary of calculated Emission Rates

Table 4.7: Emissions Rates of PM_{10}

Source type	Controlled Emission Rate ($g/s/m^2$)
Granite reject loading	1.4×10^{-6}
Reject unloading	1.7×10^{-6}
Over burden loading	1.5×10^{-5}
Over burden unloading	1.8×10^{-5}
Haul road	4.3×10^{-5}
Blasting	5.2×10^{-7}

Table 4.8: Emissions Rates of SO_2

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.012 g/mile	3.2×10^{-8} $g/s/m^2$
Excavators	0.012 g/mile	1.3×10^{-7} $g/s/m^2$
Total Emission Rate		1.62×10^{-7} $g/s/m^2$

Table 4.9: Emissions Rates of NO_2

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.725 g/mile	2.8×10^{-7} $g/s/m^2$
Excavators	0.725 g/mile	1.2×10^{-6} $g/s/m^2$
Total Emission Rate		1.48×10^{-6} $g/s/m^2$

4.1.3 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the mining activities have been estimated to know the incremental rise in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modeling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by mining activities.

4.1.3.1 Model Input data

The air pollution modeling carried out represents the normal operating scenarios. As the proposed activity is mining the major source of pollution is particulate matter and gaseous emission. The following data has required as input data for dispersion pattern.

1) Baseline data of PM_{10}, SO_X and NO_2 is needed along with meteorological data. Meteorological data preprocessor (AERMET) needs meteorological data which calculates atmospheric turbulence characteristics, mixing heights, surface heat flux for finding the atmospheric dispersion. Site specific data recorded during post monsoon season (1st Dec 2022 to 28th Feb 2023) at project site for executing modeling studies.
2) The emission rates of PM_{10}, SO_x and NO_2 from the various sources was taken.
3) Location of the project.

4.1.3.2 Model Results

The Air Quality Impact Prediction has been done by using AERMOD of USEPA". The main sources of air pollution with regard to the proposed project for the purpose of estimation of increase in PM_{10}, SO_X and NO_2 are identified due to –

1. Scenario 1 – PM_{10}

(i) Loading/unloading of granite rejects and overburden

(ii) Transportation of granite rejects, overburden by trucks on the Haul roads from mining benches.

2. Scenario 2 - PM_{10}

(i) Due to blasting

3. Scenario 3 – SO_x and NO_2

i. From Operation of Excavator and movement of transporting vehicle

Scenario1:

Table 4.10: Total predicted GLC of PM_{10} in core and buffer zone due to combined action of loading, unloading and Transportation of Granite by trucks on the haul road, open pit source of the mining lease area.

Location	Location Code	Background value in µg/m³	Incremental GLC in µg/m³	Total Predicted GLC in µg/m³
Mine site	AQ1 - Centre	46	11.96	57.96
Receptor 01	AQ2 - 350m- SE	46	6.89	52.89
Receptor 02	AQ3 - 580m-	46	2.09	48.09
National Ambient Air Quality Standards (NAAQS)				**100**

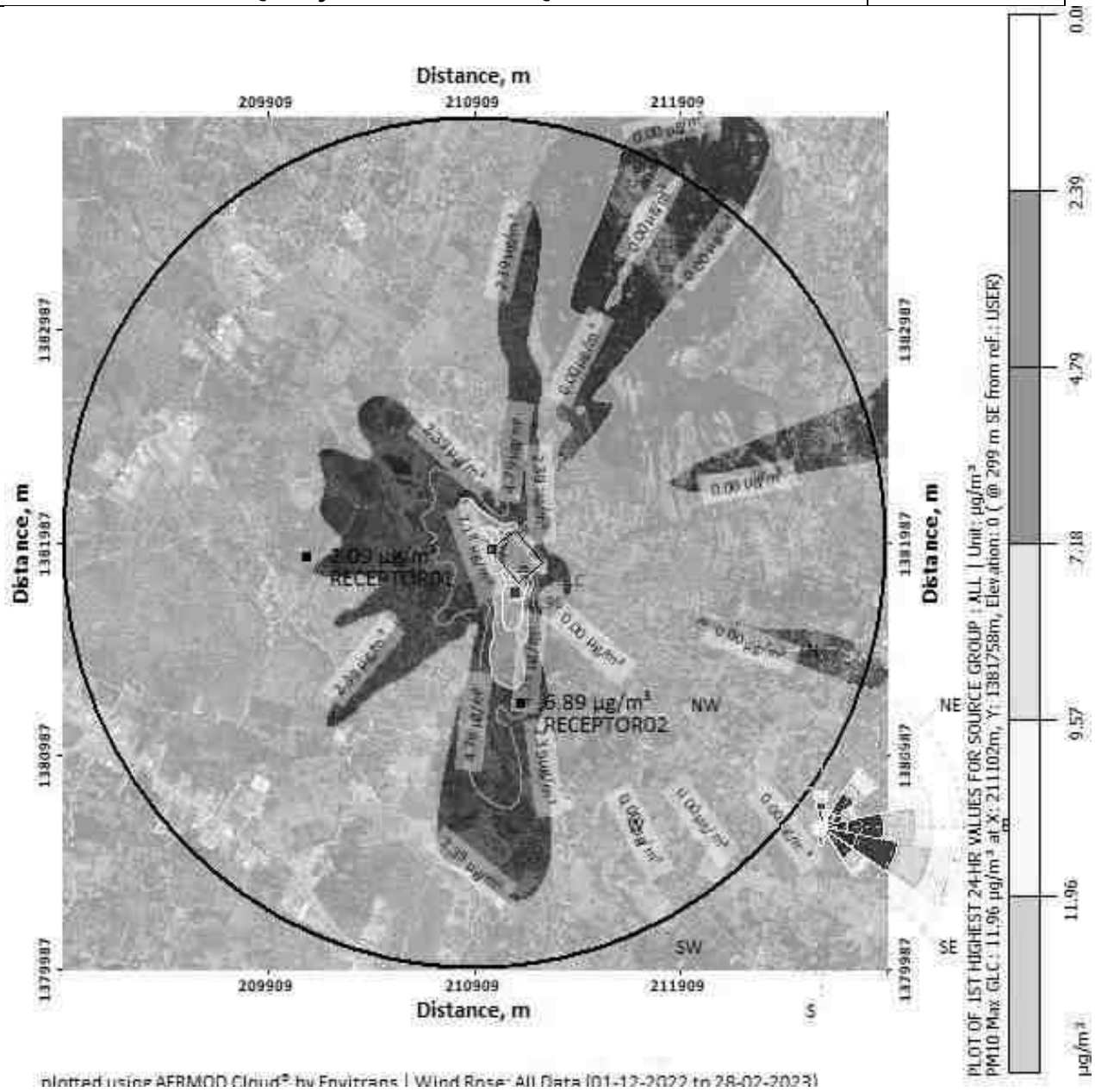


Fig No.4.1 Chart indicating Incremental value of PM10 due to combined action of loading, unloading, transportation of granite on haul road and open pit.

Scenario 2:

Table 4.11: Total predicted GLC of PM_{10} in core and buffer zone due to blasting activity in the mining lease area.

Location	Location Code	Background value in µg/m³	Incremental GLC in µg/m³	Total Predicted GLC in µg/m³
Mine site	AQ1 - Centre	46	3.94	49.94
Receptor 01	AQ2 - 350m- SE	46	2.38	48.38
Receptor 02	AQ3 - 580m-	46	0.73	46.73
National Ambient Air Quality Standards (NAAQS)				**100**

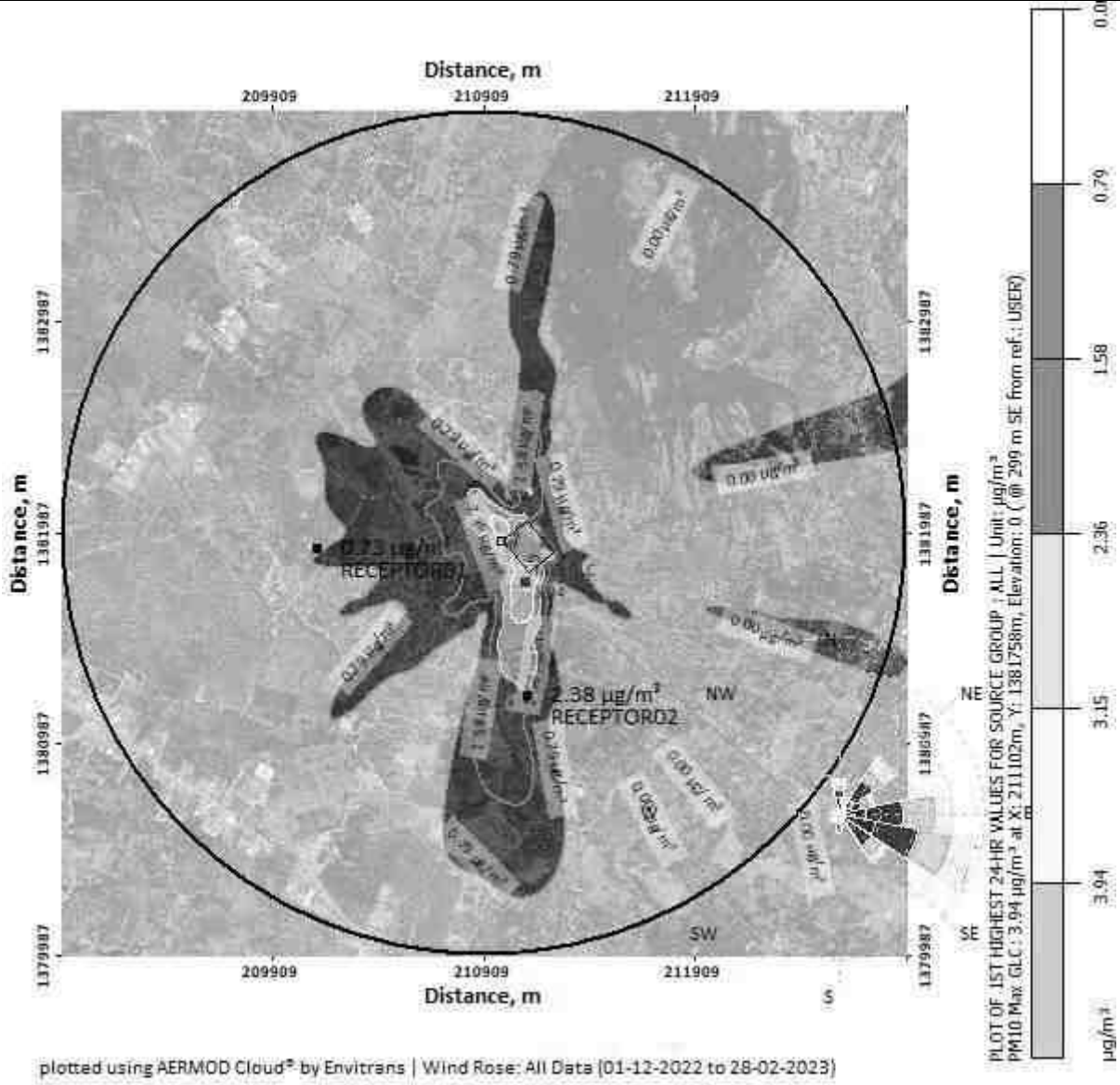


Fig No 4.2 Chart indicating Incremental value of PM10 due to blasting action.

Scenario 3:

Table 4.12: Impact of SOx due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in µg/m³	Incremental GLC in µg/m³	Total Predicted GLC in µg/m³
Mine site	AQ1 - Centre	9	BDL	9
National Ambient Air Quality Standards (NAAQS)				**80**

Table 4.13: Impact of NOx due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in µg/m³	Incremental GLC in µg/m³	Total Predicted GLC in µg/m³
Mine site	AQ1 - Centre	14	BDL	14
National Ambient Air Quality Standards (NAAQS)				**80**

AERMOD was used for prediction of impact of PM_{10} during conditions i) Loading/unloading and transportation of granite and weathered rock by trucks on Haul. Total predicted 24-h maximum GLC of PM_{10} at project site for scenario 1 i.e loading-unloading and transportation was 57.96µg/m^3 occurred at the project site after superposition of base-line value 46 µg/m^3 over the incremental value of 11.96µg/m^3 to combined impact of loading and unloading and transportation over the haul road. Meteorological data under worst case scenario providing 24-h maximum average GLC was discussed above.

4.1.4. Air Quality Index

An air quality index is defined as an overall scheme that transforms the weighed values of individual air pollution related parameters (for example, pollutant concentrations) into a single number or set of numbers (Ott, 1978). Air quality standards are the basic foundation that provides a legal framework for air pollution control. The basis of development of standards is to provide a rational for protecting public health from adverse effects of air pollutants, to eliminate or reduce exposure to hazardous air pollutants, and to guide national/ local authorities for pollution control decisions.

The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. To present status of the air quality and its effects on human health, the following description categories have been adopted for IND-AQI.

AQI breakpoints for eight pollutant parameters considered for AQI and these are summarized below in Table with color scheme to represent the AQI bands.

Table 4.14: AQI and its associated Health Impacts

AQI	Associated Health Impacts
Good	Minimal Impact
Satisfactory	May cause minor breathing discomfort to sensitive people
Moderate	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor	May cause breathing discomfort to the people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe	May cause respiratory effects even on healthy people and seious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

Table 4.15: Proposed Breakpoints for AQI Scale 0-500
(Units: µg/m^3 unless mentioned otherwise)

AQI Category (Range)	PM_{10} 24-hr	$PM_{2.5}$ 24-hr	NO_2 24-hr	O_3 8-hr	CO 8-hr (mg/m^3)	SO_2 24-hr	NH_3 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5 –1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1- 10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430 +	250+	400+	748+*	34+	1600+	1800+	3.5+

**One hourly monitoring (for mathematical calculation only)*

4.1.4.1. Interpretation of Air quality using IND-AQI:

Table 4.16: Computation of AQI with Baseline data

Air pollutants	Total Predicted GLC due to proposed quarry µg/m^3	AQI	Associated Health Impacts
PM_{10}	57.96	Satisfactory (51-100)	May cause minor breathing discomfort to sensitive people
SOx	9	Good (0-50)	Minimal Impact
NO_2	14	Good (0-50)	Minimal Impact

The above table shows the AQI quality due to total predicted GLC of quarry in core area. PM_{10} value is between 51-100 of AQI which is satisfactory and may cause minor breathing discomfort to sensitive people. SO_2 and NO_2 are between 0-40 of AQI which is good and may cause Minimal Impact. When all the quarries in the cluster area are working together the incremental GLC will be high and it may cross the prescribed limits by NAAQS. To overcome such situation, cluster committee should be formed and adopt the environmental management plan effectively as per EIA report.

4.1.5. Mitigation Measures

The pollutants from nearby ongoing mining activities, residential and commercial activities are the primary sources of air pollution. However, in the study area adequate control measures will be implemented in future at the time of mining operation. Mitigate measures suggested for air pollution controls are based on the baseline ambient air quality of the area. From the point of view of maintenance of an acceptable ambient air quality in the region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by regulatory authorities. However, to further minimize the pollutant concentration especially PM_{10}, the following control measure should be adopted by the project proponent.

- Regular water sprinkling on haul roads, blasted heaps, service roads and overburden dumps at regular intervals will help in reducing considerable dust pollution
- 4.0 KLD of water will be used for dust suppression of four quarries.
- Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator.
- Conventional low explosives are being used.
- The scale of blasting is however very less considering the rate of production.
- Covering of material when transport through trucks/dumper

- The drilling and blasting are being carried out as per the proposals laid down in the approved plan.
- Proposed to follow up muffle blasting so as to prevent fly rock fragments
- Avoiding blasting during high windy periods and temperature inversion periods
- Delay blasting under unfavorable wind and atmospheric conditions
- Use of appropriate explosives for blasting and avoiding overcharging of blast holes
- The vehicles and machinery will be kept in well maintained condition so that emissions will minimize
- Provision of green belt all along the periphery of the lease area for control of dust
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the residential areas
- Cabins for shovel and dumpers and dust masks to workmen will be provided
- The dust respirators should be provided to all workers working in dusty environment
- Regular health check–up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act
- Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

As discussed above under each activity, there will be increase in terms of dust load and gaseous emissions. However, it can be stated that these incremental contributions will remain within the prescribed limits/norms. Further, the mitigation measures will further bring down these concentrations making the mining activities more eco-friendly.

4.2 Carbon emission and carbon sinks due to proposed mining activity

4.2.1 Carbon emissions

There are both natural and human sources of carbon dioxide emissions. Natural sources include decomposition, ocean release and respiration. Human sources come from industrial activities such as cement production, deforestation as well as the burning of fossil fuels like coal, oil and natural gas.

4.2.1.1 Carbon emission due to natural activity in project site and carbon sinks

a) Carbon from decomposition

As the proposed mining activity is carried out in existing mining pit, there will be no need of cutting of any trees or plants. So the process of decomposition will not take place which emits carbon dioxide into the atmosphere.

b) Carbon from respiration

The carbon dioxide we exhale does not contribute to global warming for the simple reason. Since all the carbon dioxide we exhale originated in carbon dioxide captured by plants during photosynthesis, we are not disturbing the carbon dioxide content of the atmosphere by breathing.

4.2.1.2 Carbon emission due to human activity in project site and carbon sinks

a) Carbon from Vehicles

The proposed method of mining is semi mechanized which involves activity of excavator and tippers. The burning of fossil fuels used for the tippers and excavators releases carbon monoxide, carbon dioxide and nitrogen oxide into the atmosphere. When those gases are emitted into the atmosphere it affects the amount of greenhouse gases, which are linked to climate change and global warming. In average based on the production per day, 6 tippers can travel 6.2 miles within the lease area for transporting the rejects and overburden. Plants not only absorb carbon dioxide but also absorb other gases and remove the impurities from it.

Table 4.17: Emission of carbon monoxide carbon dioxide from vehicle

Source type	Average Emission rate of CO for HDDV as per EPA	Emission rate of CO
Tippers	2.311 g/mile	0.1 kg/day
Excavators	2.311 g/mile	0.3kg day
Total Emission Rate		0.4 kg/day

Remediation

The project proponent proposed to plant nearly 500 numbers of one year taller tree sapling along the safety zone of mining lease area to overcome the emission of carbon gases and other gases by vehicles in the quarry. Moreover, they will plant trees along the village road and government schools under CER and CSR schemes. BS –VI model of tippers are proposed to use in the quarry for the controlled emission of gases.

4.3 Soil Carbon stock

Soil carbon sequestration is a process in which CO_2 is removed from the atmosphere and stored in the soil carbon pool. This process is primarily mediated by plants through photosynthesis, with carbon stored in the form of SOC. Carbon is the main component of soil organic matter and helps give soil its water-retention capacity, its structure, and its fertility. The dense carbon stocks below and above the soil are mostly seen in dense forest where more process of photosynthesis takes place and tons of leaves, branches gets decomposed. The agricultural activity in field can degrade and deplete the SOC levels during the process of tillage in paddy, sugarcane turmeric crop field.

The reserve forest within 10km radius of the project site is given below

Thogarapalli R.F. -2.41km – S
Bargur R.F – 6.41km – NE
Varatanapalli – 6.6km – NW
Nandibanda R.F – 8.6km – NE
Neralakotta R.F – 9.7km – NE

As it is mining project which is carried out within lease area it will not affect any soil carbon stock in the nearest reserve forest.

4.4 Noise Environment

Noise survey has been conducted in the study area to assess the background noise levels in different zones. The anticipated noise level due to proposed mining activity has been assessed considering baseline noise level, distance involving mining site to nearest village and noise generated due to proposed mining activity. Following are the sources of noise in the proposed open cast granite quarry project.

- Drilling;
- Blasting;
- Vehicular Movement.

The drilling operation is being carried out by Jack hammer operated by compressor mounted with tractor. The noise levels in the working environment are being and will be maintained within the standards prescribed by Occupational Safety and Health Administration (OSHA). These standards were established with the emphasis on reducing the hearing loss. The permissible limits, as laid down by CPCB, are presented in below Table 4.18.

Noise generated from blasting is always instantaneous. The noise produced by blasting is for extremely short duration of around 0.5 seconds, though with a high intensity. Blasting time is generally fixed at lunch interval or after the working shift taking. Noise of blast is site specific and depends on type, quantity of explosives, dimensions of drill holes, degree of compaction of explosive in the hole and rock. Blasting, in addition to easing the hard strata, generates ground vibrations and instantaneous noise. The noise levels in many situations will be above Threshold Limit Value. Exposure to noise levels, above Threshold Limit Value may have detrimental effect on the workers' health. The adverse effects of high noise levels on exposed workers may result in Annoyance, Fatigue, Temporary shift of threshold limit of hearing, Permanent loss of hearing and Hypertension and high blood cholesterol, etc.

Noise pollution poses a major health risk to the mine workers. When noise in the form of waves impinges the eardrum, it begins to vibrate, stimulating other delicate tissues and organs in the ear. If the magnitude of noise exceeds the tolerance limits, it is manifested in the form of discomfort leading to annoyance and in extreme cases to loss of hearing. Detrimental effects of noise pollution are not only related to sound pressure level and frequency, but also on the total duration of exposure and the age of the person.

Table 4.18: Permissible Exposures in Cases of Continuous Noise (CPCB)

Sound Level (dB A)	Continuous Duration (Hours)
85	8
88	4
91	2
94	1
97	0.5
100	0.25

Table 4.19: Noise Exposure Levels & Its Effects

Noise Levels dB(A)	Exposure Time	Effects
85	Continuous	Safe
85-90	Continuous	Annoyance and Irritation
90-100	Short term	Temporary shift in hearing threshold, generally with complete recovery
Above 100	Continuous	Permanent loss of hearing
100-110	Several years	Permanent deafness
110-120	Few months	Permanent deafness

120	Short term	Extreme discomfort
140	Short term	Discomfort with actual pain
150 and above	Single exposure	Mechanical damage to the ear

Source: Hand Book of EIA, Rao & Wooten

4.4.1 Anticipated Impacts due to Noise in Core Zone

During the operation phase of mining, movement of HEMM also add some noise level whose impact is being minimized by continuous maintenance of vehicle. The likely generations of noise levels due to operation of HEMM are given in Table 4.20.

Table 4.20: Expected Noise Levels

Equipment's	Expected Noise Levels dB(A)
Mining	
Drilling	90-100
Shovel	75-80
Tipper	75-80
Dozers	85-90
Crusher	85-95

The mine site where heavy earth moving machinery will operate, noise level will be within the stipulated 90 dB (A) norm of DGMS. The protection measures for the operators of this equipment will reduce the impact/exposure.

Predicted noise levels due to mining operations using Mathematical Equations

$L_2 = L_1 - 20 \log_{10} (R_2/R_1)$ Where L_1dB (A) = Noise level at a distance R_1 (m)
L_2dB (A) = Noise level at a distance R_2 (m) &
$L = 10 \log_{10} (10^{L_1/10} + 10^{L_2/10} + \text{----------} + 10^{Ln/10})$
Where L_1, L_2 and Ln are noise level dB (A)

Table 4.21: Predicted Noise levels in Core Zone and buffer zone

Location Code	Distance km	Source Noise Level, dB(A)	L(Day) dB(A)	L(Night) dB(A)	Noise level at Receptor from Mining sources, dB(A)	Resultant noise level, dB(A) day time	Resultant noise level, dB(A) Night time
Core Zone	--	100	44.6	41.3	100	100	41.3
Lease boundary Pillar (North)	0.1	100	40.3	39.7	70	70	39.7
Lease boundary Pillar (West)	0.1	100	42.5	41.2	70	70	41.2
Lease boundary Pillar (East)	0.1	100	40.9	38.7	70	70	38.7
Lease boundary Pillar (South)	0.1	100	43.8	41.9	70	70	41.9
Jagadevipalayam (W)	2.0	100	49.8	45.4	43.9	50.8	45.4
Jitanpalli (S)	2.0	100	45.1	43.9	43.9	47.5	43.9
Bagimanoor (E)	1.7	100	44.6	42.5	45.4	48.0	42.5
MGR Nagar Bargur (N)	4.7	100	48.4	44.7	36.5	48.6	44.7

Green colour- Baseline Value, Red Colour – Noise level due to mining,
Blue colour- Baseline + Noise level due to mining

Although the noise level due to the operation of various mining machineries is 100dB(A), the noise level at different receptors is lower due to the distance involved and other topographical features adding to the noise attenuation. The calculated values at the receptors and resultant noise level are based on the mathematical formula as mentioned above.

The anticipated noise level in buffer villages due to mining activity is calculated by considering operation of one quarry only. ***When all the quarries in the cluster work together in same time, the resultant noise level may increase up to 5 decibel.***

To overcome the noise pollution due to operation of quarries in the cluster area the following mitigation measure should be followed.

4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise.

- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipments.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.
- Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles.
- Carrying out blasting only during day time and not on cloudy days.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the mine to attenuate noise.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.

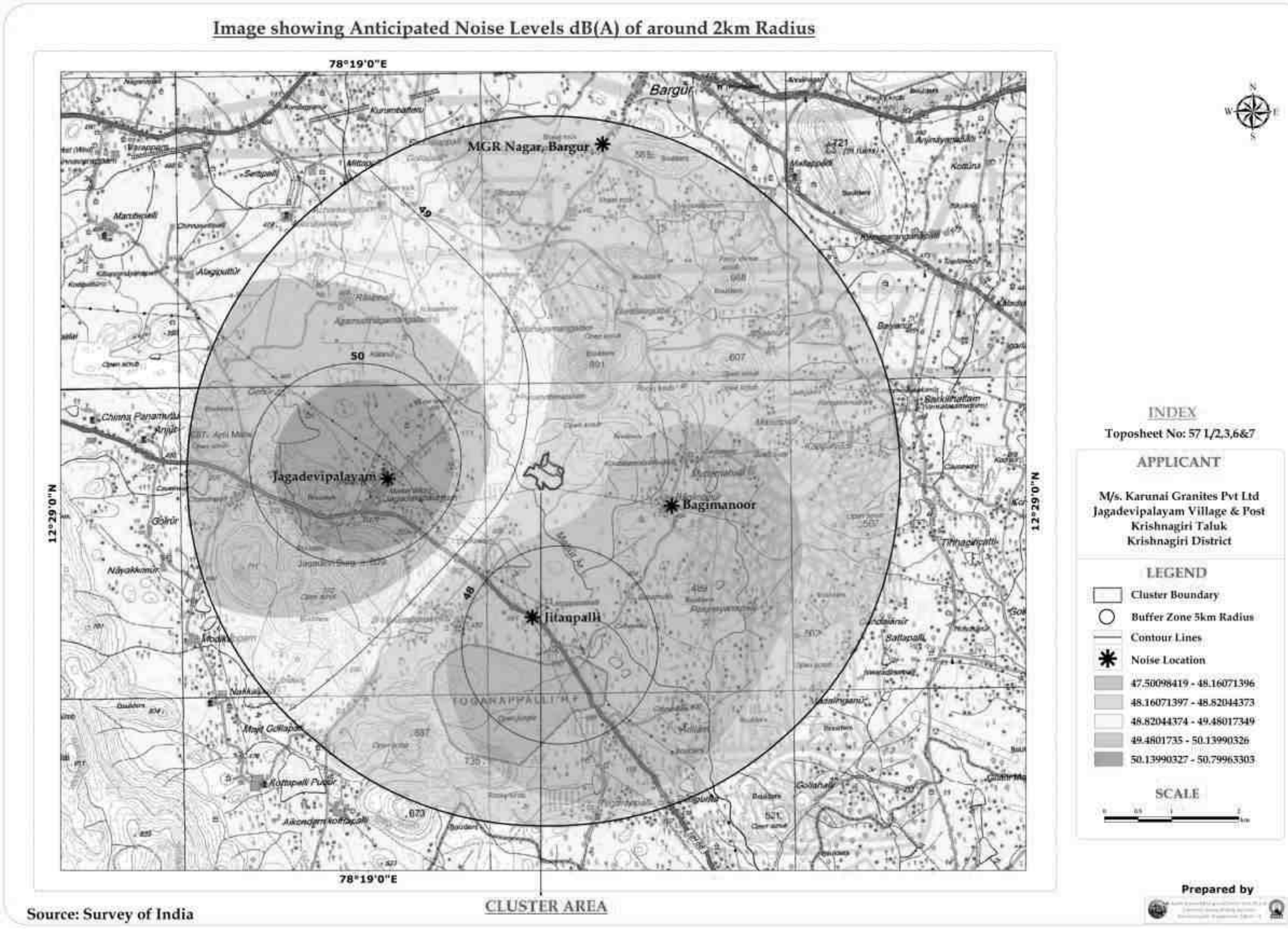


Fig 4.3: Noise dispersion in Buffer zone due to proposed mining activity

4.5 Ground Vibrations

Ground vibration due to mining activities in the area are anticipated due to operation of mining machines like excavators, wheel loaders, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from this mine is blasting. Another impact due to blasting activities is fly rocks. These may fall on the houses or agriculture fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest major habitation from the mine lease area is located in Southeast Side. The study area does not involve any mining activity so anticipated impact has been assessed using the empirical equation. The empirical equation used for assessment of peak particle velocity (PPV) is:

$$V= 417.8 \{D/ (Q^{0.5})\}^{-1.265}$$

Where
V= Peak particle velocity in mm/s
D= Distance between location of blast and gauge point in m
Q=Quantity of explosive per blasting in kg.

The standards for safe limit of PPV are established by Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Permissible standards of Ground vibration due to blasting as per guidelines of Director General of Mines Safety (DGMS), Dhanbad are given in Table 4.24.

Table 4.22: Estimated Peak Particle velocities for different Explosive Charges (M/s. Karunai Granites Private Limited 3.15.5 Ha)

Nearest Habitation	Quantity of Explosive/Blast, Kg	PPV, mm/s
350m -SE	43	2.7
350m -SE	60	3.4
350m -SE	80	4.0
350m -SE	100	4.6
350m -SE	110	4.9
350m -SE	120	5.2

ROM for five years = 180450 m^3
ROM for a year = 180450/5 = 36090 m^3
= 36090x 2.5 = 90225 MT.
Per day ROM = 300 MT
Explosives requirement= 300/7 = 43 kg/day

Table 4.23: Estimated Peak Particle velocities for different Explosive Charges (M/s. Karunai Granites Private Limited 11.59.0 Ha)

Nearest Habitation	Quantity of Explosive/Blast, Kg	PPV, mm/s
350m -SE	31	2.2
350m -SE	60	3.4
350m -SE	80	4.0
350m -SE	100	4.6
350m -SE	110	4.9
350m -SE	120	5.2

ROM for five years = 1,32,460 m^3
ROM for a year = 1,32,460/5 = 26,492m^3
= 26492 x 2.5 = 66230MT.
Per day ROM = 220MT
Explosives requirement = 220/7 =31 kg/day

Note: The empirical formula does not take into account the delay factor in blasting due to use of Delay Detonators.

Table 4.24: Permissible Peak Particle Velocities (mm/s)

S. No	Type of Structure	Dominant excitation Frequency		
		< 8 Hz	8 – 25 Hz	> 25 Hz
A)	**Buildings/structures not belonging to the owner**			
1	Domestic houses/structures (Kuchcha brick and cement)	5	10	15
2	Industrial Buildings (RCC and framed structures)	10	20	25
3	Objects of historical importance and sensitive structure	2	5	10
B)	**Buildings belonging to the owner with limited life span**			
1	Domestic houses/structures (Kuchcha brick and cement)	10	15	25
2	Industrial buildings (RCC & framed structures)	15	25	50

Source: DGMS Circular No. 7 dated 29/08/1997

From the above results (Table 4.22, 4.23), it can be seen that the charge per blast of 120kg is well below the Peak Particle Velocity of 5mm/s. But the proponent proposes to use only 43kg of explosives per day for the lease area 3.15.5 Ha and 31kg of explosives per day for the lease area 11.59.0 Ha. However, as per statutory requirement additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.5.1 Mitigation measures for Control of Vibration

Blasting is the major source of vibration and fly rocks. The following mitigation measures are proposed for control of vibration and fly rocks.

- Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios.
- Milli second detonators shall be used preferably 25–50ms per delay to control vibrations.
- Inclined holes shall minimize back brake and intensive shocks.
- In case of development work if any, cushion blasting and Deck loading system shall be adopted to minimize throw of fragments and ground vibration.
- Air blast due to usage of Detonating Cord with 10gm/m shall be reduced to 5gms/m to minimize air reverberation.
- If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone.
- No deep hole blasting shall be practiced.
- Heavy machineries with high ground pressure shall not be used in the mines.
- Proper warning signals should be used.
- In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring.

Though all mitigation measures are pointed out, as such no adverse effects on human life, wild life and other biotic system.

4.6 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water.

Whereas Impacts on surface water include the build–up of sediments or other toxic products, short and long–term reductions in pH levels (particularly for lakes and reservoirs), destruction or degradation of aquatic habitat, and contamination of drinking water supplies and other human health issues. The water balance for the four proposed project is presented in Fig 4.4

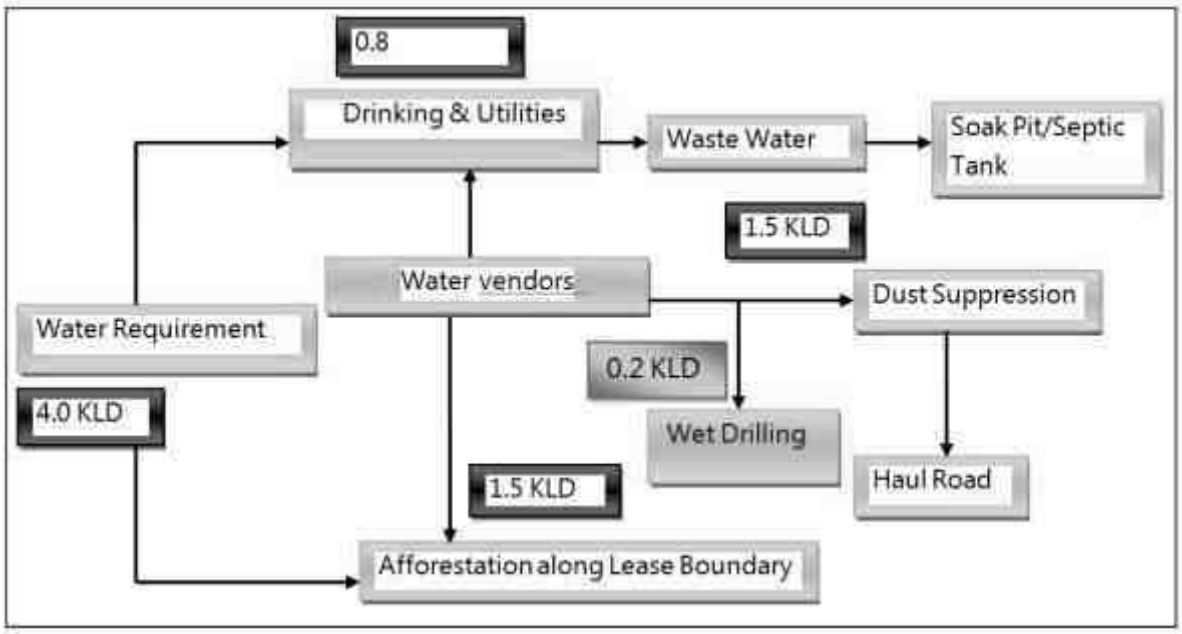


Fig. 4.4 Water Balance chart for each quarry M/s. Karunai Granites Private Limited

There are no probable sources of liquid effluents in this project. The domestic effluent/ wastewater generated from office will be discharged into soak pit via septic tank.

4.6.1. Anticipated Impact on Surface Water body due to proposed projects

There is one stream and one lake located within 1 km radius of mining lease area. The details of river body are given below.

1. Mattur Stream – 80m – S
2. A lake – 941m – S

From the Drainage Pattern Map, it is found that the 1st order stream connect the lease area with Mattur Stream in located in south side. So the probability of silitation in that stream due to dumping of rejects within the lease area is high. So the following mitigation shall be followed to overcome the pollution of surface water bodies due to mining activity.

4.6.1.1 Mitigation Measures:

i. The garland drainage will be provided around the dump(Top Soil) to prevent the escape of runoff from the dump.
ii. The repair works of the machineries are strictly prohibited within the lease area to prevent the spillage of grease, oil etc.

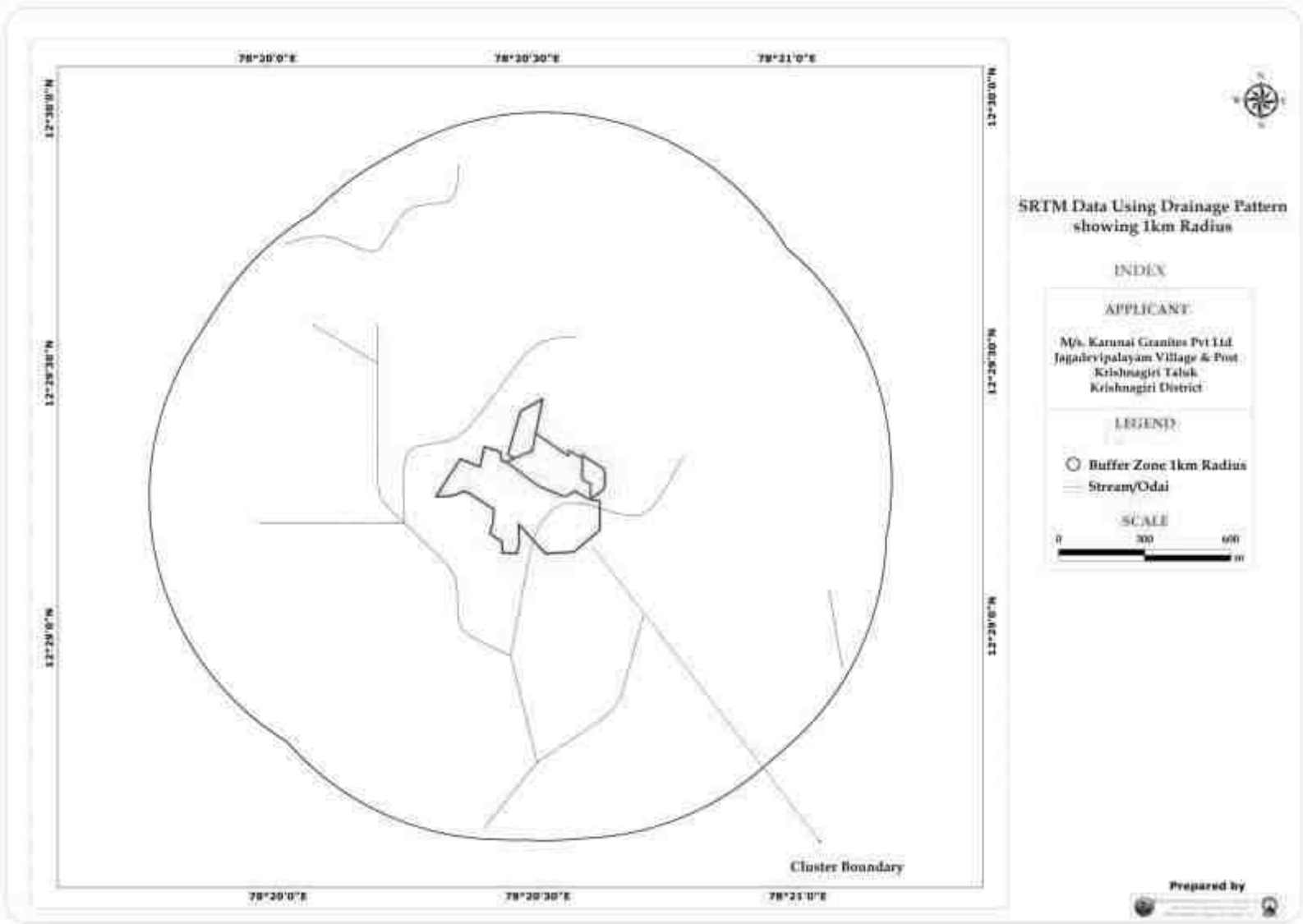


Fig No 4.5 Map Showing drainage pattern within 1km radius of the project site

4.6.2 Anticipated Impact on Ground water due to proposed project

The water table in this region is about 50m bgl. The proposed depth of mining for four quarries will be 35m bgl. Thus, the mining activity will not intersect ground water table. No chemical having toxic elements will be used for carrying out mining activity. Also granite does not contain any kind of toxic element which can contaminate the water. So the rain water or water used for drilling purposes which infiltrates into the ground in the lease area does not affect the quality of ground water. The schematic representation of depth of mining and water table is given in Figure 4.6 & 4.7.

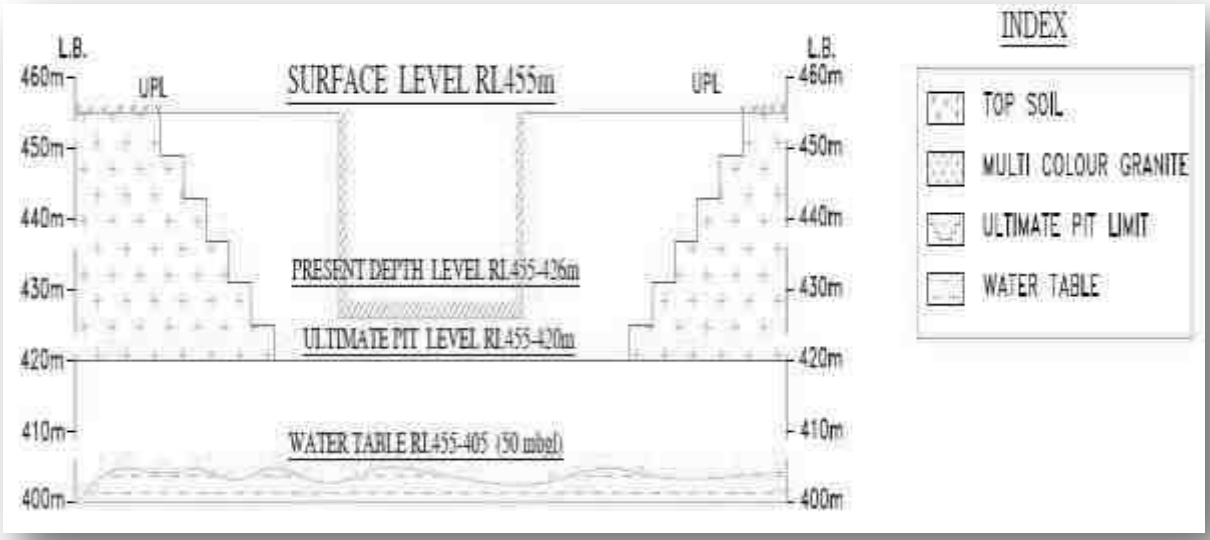


Fig.4.6 Schematic representation of depth of mining and water level for M/s. Karunai Granites Private Limited (3.15.5 Ha)

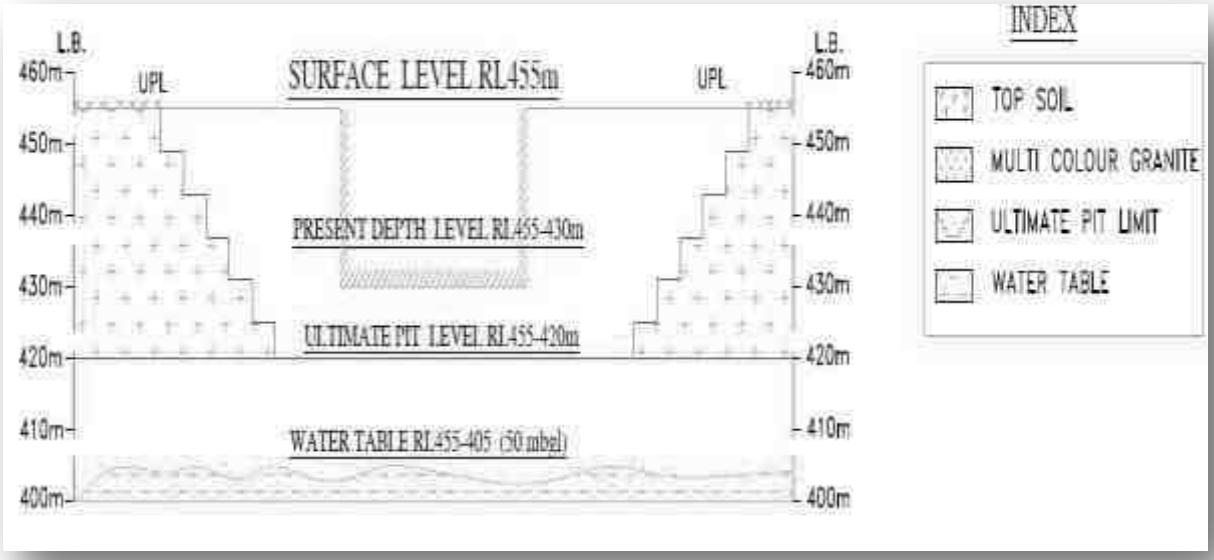


Fig.4.7 Schematic representation of depth of mining and water level M/s. Karunai Granites Private Limited (11.59.0 Ha)

4.6.3 Management of rain water in the pit during Monsoon Season

During monsoon season, the rain water gets stored in the quarried out pit. For the working purpose, rain water will be pumped and allowed to store in the surface setting tank constructed outside the lease area to remove suspended solids if any. After the sedimentation process, the water from the settling tank will be used for dust suppression, and green belt development within the lease area.

4.6.4 Water Quality Index

Water Quality Index value has been calculated for the observed values and compared with drinking water specification as per IS 10500:2012 and results were discussed. The WQI has been calculated by using the standards of drinking water quality recommended by the World Health Organization (WHO), Bureau of Indian Standards (BIS) and Indian Council for Medical Research (ICMR). The weighted arithmetic index method (Brown et. al.,) has been used for the calculation of WQI of the water body.

Water Quality Index = Σ qn Wn / Σ Wn

Further quality rating or sub-index (qn) was calculated using the following expression.

qn = 100*[Vn – Vio] / [Sn – Vio] Where,

qn = Quality rating for the nth water quality parameter.

Vn = Estimated value of the nth parameter at a given sampling station.

Sn = Standard permissible value of the nth parameter.

Vio = Ideal value of nth parameter in a pure water.

Ideal value in most cases Vio = 0 except in certain parameters like PH and dissolved oxygen. Vio for PH = 7 and Vio for DO = 14.6

Wn = Unit weight for the nth parameter.

The overall Water Quality Index (W.Q.I.) was calculated by aggregating the quality rating with the unit weight linearly.

Table 4.25: Water Quality Index (W.Q.I.) and Status of water quality (Chatterji and Raziuddin 2002)

Water Quality Index Level	Water Quality Status
0 – 25	Excellent water quality
26 - 50	Good water quality
51 - 75	Poor water quality
76 - 100	Very Poor water quality
>100	Unfit for Drinking

Table 4.26: Analyses of water quality using Water Quality Index

Parameters	As Per IS 10500:2012	Unit Weight (Wn)	Core Zone (Pit Water)	Jagadevipalayam	Jitanpalli	Bagimanoor village
Water Quality Index Level			**23.5**	**53.1**	**38.6**	**25.6**
Water Quality Status			**Good water quality**	**Poor water quality**	**Good water quality**	**Good water quality**
pH value at 25°C	6.5 – 8.5	0.079	8.57	8.29	7.90	7.38
Turbidity , NTU	Max 1 NTU	0.0853	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
Total Dissolved Solids, mg/L	Max 500 mg/L	0.135	254	**654**	**530**	370
Total Hardness as $CaCO_3$, mg/L	Max 200 mg/L	0.059	133	**222**	**311**	**240**
Chlorides as Cl, mg/L	Max 250 mg/L	0.132	57	**362**	153	88
Sulfates as SO_4, mg/L	Max 200, mg/L	0.097	7	16	14	10
Total Iron as Fe, mg/L	Max 0.3 mg/L	0.088	0.04	0.08	0.06	0.05

Note: Water Quality is calculated only for Physical and Chemical Parameters

The value of TH, TDS and Chlorides of water sample from Jagadevipalayam is beyond the acceptable limits. Water sample from Jitanpalli village has high TDS and water sample from Bagimanoor village has high TH. Based on the Water Quality Index calculated, water qualities from all except Jagadevipalayam village are good. In Jagadevipalayam village, the water quality is found to be poor. For excellent quality, the water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate. Boiling of water will remove the microorganisms effectively from all waters in the above said villages and core zone making the water aseptically fit for drinking purposes.

4.6.5 Impact on Hydrogeology

i. RESISTIVITY SURVEY ANALYSIS

Electrical Resistivity survey by Schlumberger configuration was conducted to interpret various geological formation and possibility of water spring touch at various

depths by Inverse slope method. At a depth of 40-42 there is an indication of seepage of ground water which may yield < 1/2" of water. Water aquifer is interpreted at 42m and which may yield >2" by "V" Notch test.

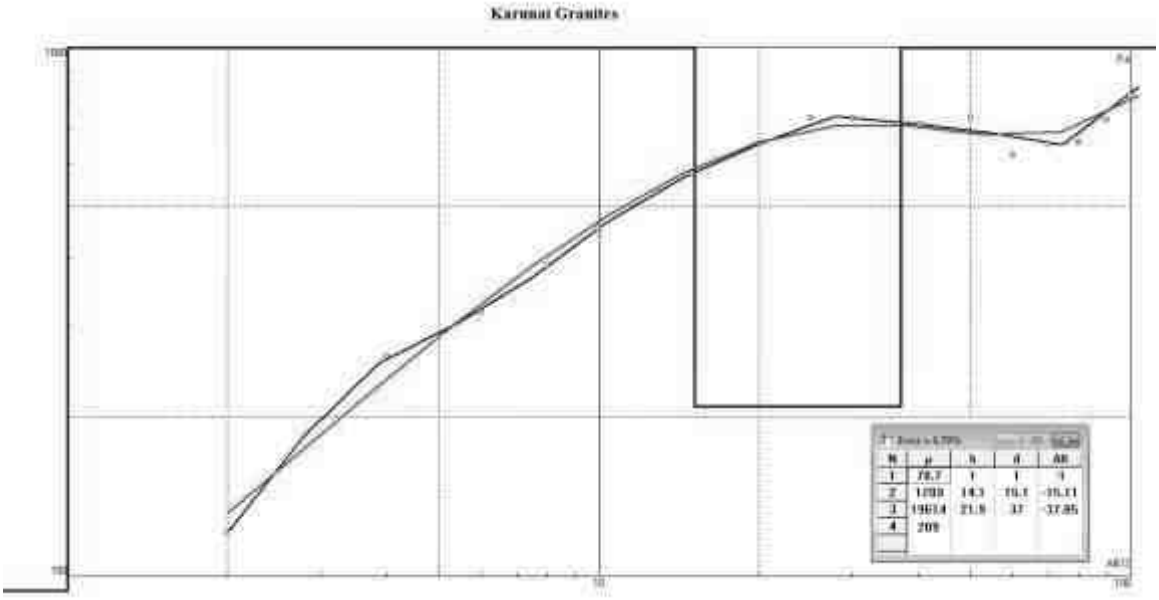


Fig No. 4.8 Interpreted resistivity curve of the study area

The various geological formations and water touch as interpreted is given below,

Table 4.27: Resistivity Survey

Layer	Depth (m)	Nature of formation	Resistivity Value
h1	0–1	Top soil & Gravel	70.7 Ω m
h2	1-50	Massive granitic formation	>1000 Ω m
h3	50-51	Fractured Formation	434Ω
h4	>51	Massive granitic formation	-

From the results of Resistivity Survey, it is understood that the study area is composed of granite deposit, with little geological disturbances by folding. It is grey in color. Mild Seepage of Ground water is reported at 50-51m bgl.

4.7 Soil Environment

4.7.1 Impact on Soil Environment

a) M/s. Karunai Granites Private Limited -3.15.5 Ha

For the plan period 2020-2025, the generation of top soil is estimated as 25593 m^3. It will be dumped along mining lease boundary as earth bund and it will be utilized for green belt development within the lease area. No chemical or toxic elements will be

used during mining activity. So the health of soil in and around the quarry will not be affected.

b) M/s. Karunai Granites Private Limited -11.59.0Ha

For the plan period 2020-2025, the generation of top soil is Nil. If top soil found it will be dumped along mining lease boundary as earth bund and it will be utilized for green belt development within the lease area. No chemical or toxic elements will be used during mining activity. So the health of soil in and around the quarry will not be affected.

4.7.2 Mitigation measures for Soil Conservation

- Garland drains will be provided around the dumps to arrest any soil carried away by the rain water. This will protect the adjacent agricultural land and surface water body from the deposition of soil.
- Toe drains with low height retaining wall will be provided all along the toe of dumps to arrest any soil from the dump slopes being carried away by the rain water
- Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises.

4.8 Waste Dump Management

4.8.1 Anticipated Impact

a) M/s. Karunai Granites Private Limited -3.15.5 Ha

The proposed rate of production of Grey granite for five years is about 45,113m^3 at the rate of 25% recovery up to permissible depth. The 75% reject of 1,35,338 m^3 shall be dumped as per earmarked site in the scheme of mining.

c) M/s. Karunai Granites Private Limited -11.59.0Ha

The proposed rate of production of Grey granite for five years is about 33,115m^3 at the rate of 25% recovery up to permissible depth. The 75% reject of 99,345 m^3 shall be dumped as per earmarked site in the scheme of mining.

4.8.2 Mitigation measures

The mineral rejects and waste shall be dumped systematically with proper repose angle and stabilization as given below,

- The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation.
- Gradation of dump shall be done automatically as coarser materials go to the bottom and finer at the top and therefore drain of rain water flow freely to the bottom without endangering the stability of dump,
- More over the dump height shall be less than 6m with natural repose angle and hence dump will be more stable.
- Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.

4.9 Municipal solid waste management

The human waste shall be treated by temporarily built septic tank and soak pit within the mine lease area. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable and disposed through garbage collector of Coimbatore Corporation.

4.10 Ecology and Biodiversity

4.10.1 Impact on Ecology and Biodiversity

The details and list of flora, fauna, reserved forest and cropping pattern within the 10km radius of study area is given in chapter 3. The impact on ecology and biodiversity due to the proposed mining activity has to be studied in detail to prepare the management plan to safeguard the flora, fauna, forest products and aquatic living organism etc.

A detailed anticipated impact of Ecology and Biodiversity due to mining activity is described in Table 4.34 & 4.35.

Table 4.28: Ecological Impact Assessments and Its Mitigations -Part 1

Sl. No	Issues	Assessment	Mitigations
1	Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea	Forest within 10km radius: Thogarapalli R.F. -2.41km – S Bargur R.F – 6.41km – NE Varatanapalli – 6.6km – NW Nandibanda R.F – 8.6km – NE Neralakotta R.F – 9.7km - NE The proposed project is not a	-.

		forest land. So, the proposed project does not attract Forest Conservation Act, 1980. There is no wild life sanctuaries found around 10km radius. Quarry area is 174km (NE) away from the Bay of Bengal. Hence the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991.	
2	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area. The fauna in the buffer zone may be affected by noise generated due to mining activity.	The noise due to the mining activity will be controlled developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the empty tipper within the speed the 20 km/hr.
3	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species sighted in core mining lease area and also in buffer zone.	Nil
4	Proposed project restricts access to waterholes for wildlife	No waterholes are in core zone. No Wild life sanctuary within 10km radius.	Nil
5	Proposed mining project impact surface water quality that also provide water to wildlife	'NO' scheduled or threatened wildlife animal sighted regularly in core area.	Nil
6	Proposed mining project increase siltation that would affect nearby Biodiversity area.	Yes, the runoff from the dump which carries the solid materials may get silt in the adjacent agricultural land and affect the cropping pattern.	Garland drainage will be excavated around the dump to arrest the runoff from dump. The drainage will be desilted after every precipitation.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'. No Wild life sanctuary within 10km radius.	Nil
8	The project release effluents into a water body that also supplies water to a wildlife	As the proposed project is mining activity there will be no possibilities of release of effluents. Also no Wild life	Nil

		sanctuary within 10km radius.	
9	Mining project effect the forest based livelihood/ any specific forest production which local livelihood depended	P No, the proposed project will not disturb forest located around the project site.	-
10	Project likely to affect migration routes	No migration route observed during monitoring period.	Nil
11	Project likely to affect flora of an area, which have medicinal value	No flora having medicinal value found within the lease area	The flora such as Neem having medicinal value found in the study area of buffer zone. Those floras will not be affected by the proposed mining activity at it will be carried out only within the lease area.
12	Forestland is to be diverted, has carbon high sequestration	'NO'. There is no forest land within the lease area.	Nil
13	The project likely to affect wetlands, fish breeding grounds, marine ecology	**'**NO'. No wetland, fish breeding grounds, marine ecology present in core mining area.	Nil

(Format Source: EIA Guidance Manual-Mining and Minerals, 2010)

Table 4.29: Ecological Impact Assessments – Part 2

Ecological Criteria	Identified Impacts	Ecological significance of Impact	Magnitude	Duration /Timing/ Frequency	Reversibility	Mitigation	Cumulative Impact
Zone of Influence	**Project site Habitat due to Site Clearance.**	The existing granite quarry is located in Jagadevipalayam village. As it is existing quarry only few shrubs and mango trees are present. During quarrying activity, PP will not cut any trees in and around the lease area.	**Low Impact**	-	**Irreversible in quarry area**	The quarried out pit will be used as water storage pond which increase agricultural activity in the buffer zone. PP also will develop green belt along the mining lease boundary.	**No Cumulative Impact**
Zone of Influence	**Ecological Impact Surrounding habitat due to fugitive emission**	The fugitive emission due to the mining activities such as drilling, blasting, loading and transportation on the haul road will be deposited on the flora and crop field in the buffer zone which affects growth and its productivity.	**Temporary Impact**	During the mining plan period	**Reversible**	The sprinkling of water over the haul road will be done. The transportation vehicles will be maintained and serviced Properly.	**No Cumulative Impact**
Accessibility	**Ecological Impact due to road construction**	No Road construction is required to assess the project site. As it is existing quarry, the approach road is already available which connect the lease area to nearest village Tar road. Further, Jagadevi to Bargur road is available on the western side.	**No Impact**		-	-	**No Impact**

Zone of Influence	**Ecological Impact on Surrounding/ Eco sensitive habitat due to waste water generated from the project activity.**	Since the proposed project is an mining activity no waste water generation is expected. Human waste and municipal solid waste will be generated due to the workers.	**No Impact**	-	-	Human waste will be properly treated by septic tank and soak pit in the lease area and dispose periodically. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable and disposed through garbage collector of Krishnagiri Municipality.	**No Impact**
Zone of Influence	**Ecological Impact on Surrounding / Eco sensitive habitat due to Noise generated from the project activity.**	During drilling or blasting, transportation of granite, noise will be generated and it may slightly affect the movement of fauna around the lease area.	**Temporary impact**	Only during drilling, blasting operation and transportation period.	No	Avenue trees will be planted along the lease area to minimize the noise level. Milli second detonators shall be used preferably 25–50ms per delay to control vibrations. Regular maintenance of vehicles and driving the empty tipper within 20km/hr speed also control the noise generations.	**No Impact**

Zone of Influence	**Ecological Impact On Surrounding/ Eco sensitive habitat due to Transportation**	There is no eco sensitive habitat found around the lease area. The fugitive emission from drilling, blasting, vehicle movement will form layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. The animals like dog, cattle may get accident due to truck movement.	**Temporary impact**	During Operation Phase	No	The truck driver will be advised to drive the vehicle within 20km/hr inside the lease area and 40km/hr outside the lease area. The truck will be covered with tarpaulin. The sprinkling of water over the haul road will be done.	**No Impact**
Zone of Influence	**Ecological Impact on Natural ecosystem, the soil micro flora and fauna and soil seed banks.**	The nearest forest is Thogarapalli R.F. located at the distance of 2.41km in south direction. Mattur stream is located near to project site at the distance of 80m in south direction. The proposed mining project will be carried out strictly within the lease area and it will not affect the nearest water bodies and reserve forest.	**No Impact**	Nil	--	Garland drainage and toe wall will be made around the existing dump to prevent the escape of runoff along with silt and stones rainy season.	**No Impact**
Zone of Influence	**Fish habitats and the Food web/food chain in the water body and Reservoir**	No major water body or reservoir is situated within 5km radius of the project site.	**No Impact**	Nil	--	--	**No Impact**

Table 4.30: Afforestation Plan of the M/s. Karunai Granites Private Limited (3.15.5 Ha)

Year	Place	Type of Trees	Number	Spacing	Rate of survival
2020-21	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2021-22	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2022-23	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2023-24	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2024-25	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%

Table 4.31: Afforestation Plan of the M/s. Karunai Granites Private Limited (11.59.0 Ha)

Year	Place	Type of Trees	Number	Spacing	Rate of survival
2020-21	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2021-22	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2022-23	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2023-24	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%
2024-25	Lease Boundary	Mango, Tamarind, Teak and other regional trees	40	5m X 5m	80%

4.11 Socio Economic

4.11.1 Anticipated Impact

Employment generation (Direct and Indirect) due to the project has generated direct and indirect employment for more than 100 persons. Preference will be given to the local population for employment in all categories including semi-skilled and unskilled. The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations.

It is obvious to assume that the activities of the mining operations will improve the socio-economic levels in the study area. The anticipated impact of this project on various aspects is described in the following sections

- Impact on human settlement: Overall, due to employment generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site. The local population will have preference to get an employment. No resettlement occurred due to mining activity. Built up land has been increased marginally.

- Impact on Population Growth: Population rate grows annually and demand of primary needs and employment will increase due to population growth. It will provide some direct and indirect employment to the people in and around the villages.

- Impact on Vegetation: No decline in agricultural land. It has been increased over a period of time by utilizing the water stored in the working pits. No deforestation will be happened.

Therefore due to mining, per capita income of local people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as Sanitary facilities, Solar Lighting to Govt school, Health Care to the villages in buffer zone, Maintenance of village road or Providing funds to local body or Prime minister's fund on Socio economic Development and relief measures. The job/ business opportunities will improve the economic condition of the persons. They are in a position to utilize this money for purchase of tractors, trucks, etc. which may be put into use for business purposes. Many **positive impacts** can be resulted from a long-term mine unit. In this context, provision of job opportunities, business, transport and communication, laborer etc are the major ones. Thus, this unit is highly favorable to poor and landless people.

4.11.2 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.
- Drilling, blasting etc at specified location will be followed with proper schedule.
- Appropriate air pollution control measure will be taken so as 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 has been provided which meet 'BIS' (Bureau of Indian Standards).

Thus, no significant impact on health and safety will be occurred due to this project.

4.12 Land Environment

4.12.1 Anticipated Impact on Land Use / Land Cover

Grey granite Quarry project will result in disturbance of the land use pattern of the mine lease area. The impact on the topography in the form of changed landscape is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc. Land requirement for the project has been assessed considering functional needs. So reclamation of mined out land will be given due importance as a step for sound land resource management. There is no release of toxic elements into the ground. No adverse impact is anticipated on land use of buffer zone associated due to the mining activity, as all the activities will be confined within the project site. The mining operations will impact the land usage and land aesthetics of quarry lease area.

The land use analyses show that the area is of predominantly Mango plantation followed by buffer zones of the study area, which clearly indicates that the development of plantation increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for developing mango plantation around the mining lease area. It will improve the livelihood of village people. The evaporation rate of the water in the pit is given detail in the report.

4.12.2 Mitigation measures

- The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil.
- Provision of Garland drainage around the dumps
- Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land
- Appropriate measures will be taken for Green belt development.
- The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.

4.13 Occupational Health Risks

4.13.1 Anticipated Impact

Occupational health and safety hazards occur during the operational phase of mining. The problem of occupational health, in the operation and maintenance phases is primarily due to dust, which could affect breathing. Health and Safety Measures to control dust inhalation; precautions would be adopted to prevent dust generation at site and dispersing in the environment. Long–term exposure to silica dust may cause silicosis. Workers are likely to get exposed to excessive noise levels during mining activities. Occupational Safety hazards related to blasting activities may result in accidental explosions, if not properly mitigated.

4.13.2 Anticipated occupational and safety hazards

- Health Impact due to Physical activity, Extremes of age, poor physical condition, fatigue, Cardiovascular disease, Skin disorders
- Noise
- Burns and shocks due to electricity
- Respiratory hazards due to Dust exposure
- Physical hazards
- Explosives
- Fire

4.13.3 Anticipated health impacts on people in nearby villages

The mining activity not only causes health hazards to quarry workers but also affect the health of nearby village people. The fugitive emission during heavy wind period travel along the predominant wind direction and people in village located along predominant wind direction gets affected. The chances of changing water quality in villages due to mining activities lead to causes various diseases in the nearby village people.

4.13.4 Mitigation measures

For the safety of workers at site, the following mitigation measures are proposed

- Excavators, dumpers, drills other automated equipments will be enclosed
- Use of personal breathing protection will be made compulsory
- Spraying with water on all working faces & haul roads, by water–sprinkler
- Regular health monitoring of workers once in 6months for silicosis

- Random health check up village people around the lease area for identify diseases if any due to mining activity
- No employee will be exposed to a noise level greater than 75 dB(A) for a duration of more than 8 hours per day without hearing protection
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 75 dB(A).
- During mining operations, all the statutory provisions of the Indian Electricity Rules 1956, and Indian Standards for installation and maintenance of electrical equipment etc. will be observed.
- Care will be taken to evacuate the mining area completely at the time of blasting operations.
- A blasting SIREN will be used at the time of blasting for audio signal
- Before Blasting and after blasting, red and green flags will be displayed as visual signals.
- Warning notice boards indicating the time of blasting and NOT TO TRESSPASS are displayed prominently.
- First-aid facilities as per provisions under Rule (44) of Mines Rules 1955
- Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A).
- Insurance will be taken in the name of the labourers working in the mines.

4.14 Agricultural Environment

4.14.1 General

The general impacts on agricultural lands will be dust pollution, as volume of dust is discharged into the air during the process of quarrying. Dust gets deposited on the leaves of plants, flowers and soil. This affects the photosynthetic and fruiting ability of the crops.

Silt from the excavation, screening process and reject during monsoon season gets washed and chokes the agricultural fields, rendering them useless for the growth of crops. Due to blasting, fly rocks may fall on agricultural fields making it difficult for the farmer to cultivate.

There is a need for dust control on haul road movements. Vehicles emit fugitive gases during transportation of materials. Those gases enter the plants through the stomata pores; it destructs chlorophyll and affects photosynthesis leading to stunted growth or death of crops.

The pumping of water from the ground for the mining activity will reduce the availability of water for the agricultural purposes.

4.14.2 Anticipated Impacts of Proposed project on Agriculture, Horticulture and livestock

The land use analyst sighted that there is mango plantation adjacent to the mining lease area based on Google earth map and field visit. Other than mango plantation, coconut plantation or small paddy field are located within 1km radius of lease boundary.

As the villages are located around the project site, the people in the villages are farming animals like goat, cow, and sheep for their livelihood. The above mentioned impact may be observed on the nearest agricultural farm during the quarrying activity. So the following mitigation measures will be suggested to protect the nearest farm. The requirement of water for the proposed project will be taken from bottom of the existing pit and water vendors. The ground water for the proposed project site will not be extracted at the same place and the proposed mining activity is 15m above ground water table. So the proposed mining activity does affect the ground water resource.

4.14.3 Mitigation Measures

- Spraying of water on the haul roads will be done to suppress the dust in the source itself. Interval of sprinkling depends on the environmental factors such as temperature, rainfall and humidity of the proposed site.
- The trees having tolerance to different air pollutants will be planted along the boundary to prevent the escape of dust to the surroundings.
- Provision of Garland drainage will be provided around the lease area to prevent the leach of silt into the farm.
- Regular check and proper maintenance of Vehicles will be carried out to minimize the emission of pollutants.
- Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.
- During monsoon season the dust deposited on the surface of plant body is washed out naturally.
- Making two bore holes which have direct conduit with the water table in the lease area will help ground water recharge during monsoon seasons. It helps the agricultural activity in the buffer area of project site.

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

Consideration of alternatives to a project proposal is a requirement of the EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environment friendly and cost effective options. Analysis of alternatives should be similar to the content of the approved mining plan.

The selection of the site is based on the following considerations which are feasible in terms of location, deposit characteristics, availability of reserves, percentage recovery, road facilities, labor availability, requirement of health and safety and environmental concerns, production scheduling, scope of mechanization/automation, land reclamation, and operating and capital cost estimates.

Krishnagiri District is comprised of Archaen peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses, and dolerites migmatites are intruded by younger formations like pegmatite and quartz veins. The dolerite dyke is intruded into the pre-existing country rock namely Biotitic Gneisses and Schist and trending 1-2kms from West to East direction and dipping almost vertical. The width of dyke is about 30m.

The order of superposition of geological sequence are given as under,

	Description		**Age**
↑	Top soil – Morum (2m Thick)	-	Recent age
	Dolerite dyke	-	Recent age
	Peninsular gneisses	-	Archaen age
	Biotite gneisses	-	Archaen complex

The Biotite gneisses are oldest rock into which the younger dolerite dykes intruded later.

The quarry site is dependent on the geology and grey granite mineral deposition of the area. This project is mineral and site specific, hence no alternative site or technology is considered for this project.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring program is mandatory to check the impact of the mining activity in the core and buffer zone. Hence regular monitoring of various environmental parameters helps in maintaining sound operating practices of the mining in line with mining and environmental regulations. Environmental Monitoring program will be conducted for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB.

6.1 Measurement methodologies

The following instruments will be used for environment monitoring for various environmental parameters.

Table No: 6.1 Instruments used for Monitoring

S. No	Instruments	Purpose of Monitoring
1	Respirable Dust Sampler	Air Pollution
2	Fine Particulate Sampler	Air Pollution
3	Sound level meter	Noise level
4	Digital Seismograph	Vibration monitoring
5	Water level indicator	Water level
6	Geophysical Instruments (DDR3)	Water table
7	Camera, Binocular & Lens	Flora, Fauna
8	GPS & DGPS	For fixing the coordinates of sampling location
9.	Electronic Total station	Reduced level & topography monitoring

In addition to the above, Primary data on land use, socio economics will be collected by visiting the field and secondary data will be collected from Government Department and other sources.

6.2 Monitoring Schedule and Frequency

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB). Monitoring program will be followed till the mining operation ceases as per the schedule below.

Table 6.2: Monitoring Schedule

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – $PM_{2.5}$, PM_{10}, SO_2 and NO_x	5 locations (One station in the core zone and at least one in nearby residential, area, one in the upwind, one station on the downwind direction and one in cross wind direction)	8 hours	Once in six months	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Once in six months	Phyiso–chemical, microbiological characteristics
4	Hydrogeology	Water level in open wells in buffer zone around 1km at specific wells	-	Once in six months	Water level monitoring devices may be used.
5	Noise	Mine Boundary, high noise generating areas within the lease and at the nearest residential area	24 hours	Monthly Once	Sound level meter
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core Zone and Buffer zone (Grab samples)	–	Once in six months	Physical and Chemical characteristics

6.3 Data Analysis

Data analysis will be done by MoEFCC/NABL approved laboratory as per CPCB guidelines & compliance reports shall be submitted to concerned authority (specified in Environment Clearance Letter issued by SEIAA, Tamil Nadu and Consent issued by TNPCB, Krishnagiri on regular basis.

6.4 Emergency procedures

The mines manager monitors the emergencies that may occur in opencast mining operations and prepares an emergency plan to deal with emergency situations during the operation of the mine. Preparation of a preventive maintenance schedule program based on recommendations given and maintenance schedules for all equipments and instruments as per recommendations of the manufacturers user manuals.

6.5 Detailed Budget

Detailed budgetary provisions for monitoring program are detailed in the following Table No 6.3.

Table No 6.3 Environment monitoring budget for M/s. Karunai Granites, an extent of 3.15.5Ha, Jagadevipalayam Village, Bargur Taluk, Krishnagiri District and Tamil Nadu

S. No	Environmental Monitoring Program	No. of samples per year	Cost per sample	Cost
1	Ambient Air Quality monitoring	5	Rs 3000	Rs15,000
2	Water quality	2	Rs 2500	Rs 5,000
3	Soil quality	2	Rs 2500	Rs 5,000
4	Noise monitoring	10	Rs 1000	Rs 10,000
5	Hydro geology	5	Rs 1000	Rs 5,000
	Total			**Rs 40,000**

Table No 6.4 Environment monitoring budget for M/s. Karunai Granites, an extent of 11.59.0Ha, Jagadevipalayam Village, Bargur Taluk, Krishnagiri District and Tamil Nadu

S. No	Environmental Monitoring Program	No. of samples per year	Cost per sample	Cost
1	Ambient Air Quality monitoring	5	Rs 3000	Rs15,000
2	Water quality	2	Rs 2500	Rs 5,000
3	Soil quality	2	Rs 2500	Rs 5,000
4	Noise monitoring	10	Rs 1000	Rs 10,000
5	Hydro geology	5	Rs 1000	Rs 5,000
	Total			**Rs 40,000**

CHAPTER – 7: ADDITIONAL STUDIES

7.1. Public Consultation

The Draft EIA report has been prepared for conducting public hearing only.

7.2 Risk assessment and Disaster Management Plan

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The mining operation is carried out under the management control and direction of a qualified mines manager. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any.

To overcome such risks, help/aid would be sought from emergency services providers like Police station, fire station, Hospital, Ambulance services in the vicinity of the mine site. Their telephone numbers and communication facilities are to be provided and displayed on the board at the mine office as well as mine site. Responsibility of coordinating rescue activities is entrusted to quarry-in- charge at the quarry site in addition to quarry-in-charge is also looking after statutory obligatory under Mines Act,1952. Name and Address of Contact Person coordinating in case of Eventuality is stated below:

Name and Address of the Proponent	**M/s. KARUNAI GRANITES PRIVATE LIMITED.,** Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.

However, the following natural/industrial hazards may occur during normal operations.

i. Operational Phase,
ii. Inundation of mine pit due to flood/excessive rains,
iii. Accident due to transport & other equipments,
iv. Safety and Environmental aspects.

Table 7.1 Risk Assessment and Disaster Management Plan

S.No	Hazards	Mitigation measures
1	Surface Fire	➢ Fire Extinguishers ➢ Sand Buckets
2	Explosives/Blasting	➢ The applicant is directly purchasing explosives from an authorized dealer and they are blasting with help of certified blaster. Agreement is made with License holder in Form-22 for store, use and sale of explosives. ➢ Only mild blasting will be carried out to affect a perfect pre-determined crack to release the block from the parent rock.
3	Flooding of Rain water	➢ Escape Routes will be provided to prevent inundation of storm water ➢ Garland drains will be provided at the toe of dump
4	Radioactive hazard	➢ Not Anticipated
5	Failure of Mine Benches and Pit Slope	➢ Ultimate or over all pit slope shall be 45° and each bench height shall be 6m height equal to the boom height of excavator and vertical. ➢ During working normally 3-6m will be maintained as per the plan.
6	Failure of Waste Dumps	➢ Stabilization of dump with top soil and tree plantation shall make the dump more stable. ➢ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.
7	Dust	➢ Periodical wetting of land by spraying $MgCl_2$ solutions. ➢ Regular water sprinkling on haulage roads ➢ Provision of Dust mask to workers ➢ Green Belt shall be carried out within the mine premises by planting trees, to improve the aesthetics of the area and also to reduce the pollution outside the activity area

8	Noise	➢ Rotation of workers to minimize exposure time of noise ➢ The equipments and machineries shall be maintained properly ➢ Provision of earmuffs to workers
9	Transportation	➢ Convex mirrors should be kept at all corners ➢ All vehicles should be fitted with reverse horn with one spotter at every tipping point ➢ Loading according to the vehicle capacity ➢ Regular checking of brakes to avoid failures ➢ Periodical maintenance of vehicles
10	General measures	➢ No entry for any unauthorized persons ➢ S1 type fencing as per DGMS circulars ➢ Quarrying as per Approved Plans only ➢ Provision of Personal Protective Equipments ➢ In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law

7.2.1 Care and Maintenance during temporary discontinuance

Watch and ward are provided permanently in the Mine premises to monitor the Mine openings to prevent inadvertent entry. Top soil bund is made partly and Stone fencing is proposed all around lease boundary to safe guard the mine and the adjacent livings. Temporary discontinuance will be minimal as there is good demand for this material in tiles industries.

7.2.2 Economic repercussions of closure of mine and manpower retrenchments

7.2.2.1 Number of local residents employed in the mine, status of continuation of family occupation and scope of joining occupation back

Total of 36 Persons get employment from the two existing quarries of M/s Karunai Granites. Most of labors are Agriculturist. In case of closure of mine, they may continue their own work or join in the neighbor mines as there are few granite quarries around this area within 500m. Since the quarry is deposited with high resources immediate retrenchment may not arise.

7.2.2.2 Compensation given or to be given to the employees connecting with sustenance of himself and their family members

In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law. All workers shall get retrenchment benefits as per labour laws under enforcement.

7.2.2.3 Satellite occupations connected to the mining industry – number of persons engaged therein – continuance of such business after mine closes

The quarrying activity shall lead to development of several ancillary units and business, which are explained below:

i. Other than mine employment, workshops, spare parts, hotels, tea shop and related several self-employment opportunities.
ii. Several shops and service providers shall grow in the public adjacent to mines.
iii. Schools and city development shall also be possible owing to the fact of economic growth in the village.

7.2.2.4 Continued engagement of employees in the rehabilitate status of mining lease area and any other remnant activities.

In the event of closure of mine, the mine worker shall get alternate work or business like agriculture etc. No serious repercussions envisaged in the event of cessation of mining activity, as they will be provided employment in other mines belong to the company.

7.2.2.5 Envisaged repercussions on the expectation of the society around due to closure of mine

Persons on roll at the time of closure will get benefit as per State Govt. guidelines as applicable at the time of retrenchment

7.2.3 Time Scheduling for abandonment

The following works are scheduled before abandoning the mine,

i. Parapet wall of 2m height will be constructed around the pit,
ii. Planting and monitoring of Afforestation program.

There is no proposal for closure of mine for the next 5 years. The parapet and plantations will be done during operation of mine. In case of any abandonment the following time is required,

Activities	Days for schedule
Time schedule for fencing	6 months
Time schedule for reclamation of mined out area	1 year

7.3 Social Impact Assessment, R&R Action Plans

The Grey Granite quarry project of **M/s. KARUNAI GRANITES** (an Extent of 3.15.5Ha and an extent of 11.59.0Ha) does not involve any kind of displacement of the population since the mining will be concentrated only in the mining area only. Not much disturbance in respect of fauna, flora and human settlement of the villages. The impact of mining activity on the population will be insignificant. Hence, Rehabilitation of settlements is not anticipated under this project as it will not be required. Thus R&R Action Plans not proposed.

The project proponent will help in uplifting the poor section of the society as part of CSR activity by undertaking social welfare programs. The Project proponent contributes 2.5% of profit towards CSR activities. This project will have a positive impact on the socio economic as it will provide considerable employment to the families in the nearby villages. Improved health care facilities are expected to come–up in the area for catering to the health needs of the miners. The impact of mining on the civic amenities will be substantial after the commencement of mining activities. The local people who are currently depending on forest and agriculture will have new avenue from the mine.

7.4 Detail study of Rainwater harvesting

7.4.1 Rain water harvesting after the completion of proposed project of M/s. Karunai Granites (an Extent of 3.15.5Ha) Grey Granite Quarry

I. Total Pit Area = 20000m^2
II. Annual rainfall of the area = 0.75 m
III. Total rainwater available to store in pit area = 15000 m^3
IV. Total volume of quarried pit = 700000 m^3

Since the rainwater directly getting stored in the quarried pit, the runoff will not take place. The Quarried Pit will be act as **Artificial Ground Water Recharge Pond.** After the rainwater getting stored in quarried pit, the water slowly infiltrates into the ground and reaches the ground water table. This will greatly increase the ground water table around the lease area.

By electrical resistivity survey it is found that there is massive rock formation from 35m bgl. So the infiltration rate of rain water is very less. If the rain water stored in pit for long period the evaporation loss will take place.

Meyer's Formula (1915) is used to find the loss of water in pit due to natural evaporation process.

Meyer's Formula (1915)

$$E_L = K_M (e_w - e_a) (1 + u9/16)$$

Where

- E_L = Evaporation Rate (mm/day)
- e_w = the saturation vapor pressure at the water temperature in mm of mercury
- e_a= the actual vapor pressure in the air in mm of mercury
- u_9 = monthly mean wind velocity in km/h at about 9 m above ground
- K_M = coefficient accounting for various other factors with a value of 0.36for large deep and 0.50 for small shallow waters.

Here,

e_w = 26.75 mm of Hg (considered average temperature, 27^oC(Summer Season) in Krishnagiri district)
e_a= 0.65 x 26.75 = 17.4 mm of Hg.
u_1 = 7.92 km/hr
u_9= 10.84 km/hr

Substitute the above parameters in Meyer's equation,

E_L=0.36(26.75-17.4) (1+ 10.84/16)

E_L = 5.6 mm/day

Evaporated Volume per day = 20,000 x 0.0056 = 112m^3/day or 112 KLD

The total quantity of rain water to be stored in quarried pit is 15000m^3. The evaporation rate of water per day is 112 m^3 based on the average temperature during May month in Krishnagiri district. It takes nearly 4 to 6 months for the complete evaporation of water. Before that the stored water will be used to irrigate the crop around the quarry area.

Other benefits are that the water will be used for the domestic purposes after the water properly treated by Sedimentation-Filtration processes. A higher quantity of about 20 liters **per capita per** day should be assured to take care of basic hygiene needs and basic food hygiene.

Thereby the Proposed quarry benefits the daily needs of water to so many families around the quarry area for every year. This is very important **positive impact** of the proposed Grey Granite quarry of M/s. Karunai Granites.

7.4.2 Rain water harvesting after the completion of proposed project of M/s. Karunai Granites (an extent of 11.59.0Ha), Grey Granite Quarry

I. Total Pit Area = 85300m^2
II. Annual rainfall of the area = 0.75 m
III. Total rainwater available to store in pit area = 63,975 m^3
IV. Total volume of quarried pit = 29,85,500m^3

Since the rainwater directly getting stored in the quarried pit, the runoff will not take place. The Quarried Pit will be act as **Artificial Ground Water Recharge Pond.** After the rainwater getting stored in quarried pit, the water slowly infiltrates into the ground and reaches the ground water table. This will greatly increase the ground water table around the lease area.

By electrical resistivity survey it is found that there is massive rock formation at from 35m bgl. So the infiltration rate of rain water is very less. If the rain water stored in pit for long period the evaporation loss will take place.

Meyer's Formula (1915) is used to find the loss of water in pit due to natural evaporation process.

Meyer's Formula (1915)

$$E_L = K_M (e_w - e_a) (1 + u9/16)$$

Where

- E_L = Evaporation Rate (mm/day)
- e_w = the saturation vapor pressure at the water temperature in mm of mercury
- e_a= the actual vapor pressure in the air in mm of mercury
- u_9 = monthly mean wind velocity in km/h at about 9 m above ground
- K_M = coefficient accounting for various other factors with a value of 0.36for large deep and 0.50 for small shallow waters.

Here,

e_w = 26.75 mm of Hg (considered average temperature, 27^oC(Summer Season) in Krishnagiri district)
e_a= 0.65 x 26.75 = 17.4 mm of Hg.
u_1 = 7.92 km/hr
u_9= 10.84 km/hr

Substitute the above parameters in Meyer's equation,

E_L=0.36(26.75-17.4) (1+ 10.84/16)

E_L = 5.6 mm/day

Evaporated Volume per day = 20,000 x 0.0056 = 112m^3/day or 112 KLD

The total quantity of rain water to be stored in quarried pit is 63975m^3. The evaporation rate of water per day is 112 m^3 based on the average temperature during May month in Krishnagiri district. This quarry shall provide water requirements throughout the year as the quarry area is 8.53 Ha.

Other benefits are that the water will be used for the domestic purposes after the water properly treated by Sedimentation-Filtration processes. A higher quantity of about 20 liters **per capita per** day should be assured to take care of basic hygiene needs and basic food hygiene.

Thereby the Proposed quarry benefits the daily needs of water to so many families around the quarry area for every year. This is very important **positive impact** of the proposed Grey Granite quarry of M/s. Karunai Granites.

7.5 Plastic/Micro plastic waste Management Plan

This is Grey Granite quarry. So the project does not need any plastic related material for quarry operations. The plastic materials will be used by the employee and labours in the form of carry bags, water bottles, etc. To avoid such situations the employees and labours will be strictly instructed to avoid the plastic materials in the lease area. Moreover they will be advised to use cloth bags, jute bags and bring the food by Steel Tiffin box.

Water will be provided by the project proponent for both drinking and domestic purposes. So the dustbins will not be needed in the quarry. To manage the unavoidable situations, Dustbins will be placed in the quarry for both decompose and non-decompose waste separately of Municipal solid waste. The collected waste will be disposed periodically as instructed by TNPCB. The board with the instruction "**Avoid plastics"** is placed in the two sides of quarry and awareness program will be conducted to the labours monthly once.

Micro plastics are small pieces of plastics less than 5mm. As usage of plastics is totally devoid in the quarry premise, the chance of Micro plastic pollution is negligible inside the lease area.


No Plastic Bags


PLASTIC
FREE ZONE


SAY NO TO
PAPER & PLASTIC
USE
CLOTH BAGS

CHAPTER – 8: PROJECT BENEFITS

Mining activity will help in improving the socio–economic benefits in areas like employment, communication and infrastructure development etc.

8.1 Physical Infrastructure

The Grey Granite project located in Jagadevipalayam Village of Krishnagiri District has well established roads, communications and other facilities. The impact on the civic amenities will be substantial after increasing the mining capacity.

The following physical infrastructure facilities will further improve due to mine.

- Afforestation
- Road Transport facilities
- Communications
- Housing facilities
- Water supply and sanitation
- Medical, Educational and social benefits will be made available to the nearby Civilian population in addition to the workmen employed in the mine.

Under plantation program, it is suggested to develop green belt further all along the boundary of mining lease area. The species to be grown in the areas will be dust tolerant and fast growing species so that a permanent green belt is created. Apart from the green belts and aesthetic plantation for eliminating fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community.

8.2. Social Infrastructure

The mining activity will create rural employment. It has been observed that local people mainly depend upon agricultural, where the income is irregular and low. The mining activity in the region will have positive impact on the social economic condition of the area by way of providing employment to the local in–habitants; wages paid to them will increase the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture by improving the life style of the people. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. Part of the royalty is given to local bodies by the State Govt. for the welfare and development of the village, District Mineral Fund @30% of the Royalty shall be given to the Dept. of Geology and Mining, Krishnagiri District. The State Government

will also benefit directly from the mine, through increased revenue from royalties, excise duty and etc…

8.3 Employment Potential

The proponent employed about 18 persons for carrying out the mining operations of which 3 are skilled,2 semi-skilled, 10unskilled workers and 3 Management and supervisory staffpersonnel. In addition there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation of Grey Granites to destinations, sanitation, supply of goods and services to the mine and other community services, etc…The local population will have preference to get an employment. The economic status of the local people will be enhanced due to mining project.

8.4 Other tangible benefits

8.4.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) refers to voluntary actions undertaken by the project proponent either to improve the living conditions (economic, social, environmental) of local communities or to reduce the negative impacts of mining activity. By definition, voluntary actions are those that go beyond legal obligations, contracts, and license agreements.

CSR programs usually invest in infrastructure (potable water, electricity, schools, roads, hospitals, hospital equipment, drainage repairs, etc.), building social capital (providing high-school and university education, providing information on HIV prevention, workshops on gender issues, information on family planning, improving hygiene, etc.), and building human capital (training local people to be employed by the mining enterprise or to provide outsourced services, promote and provide skills on micro business, aquaculture, crop cultivation, animal rearing, textile production, etc.)

8.4.2 CSR activities

The following activities which may be included by companies in their Corporate Social Responsibility Policies are notified as CSR activities under Schedule VII ((See section 135) of the Companies Act 2013:

i. eradicating extreme hunger and poverty;
ii. promotion of education;
iii. promoting gender equality and empowering women;

iv. reducing child mortality and improving maternal health;
v. combating human immunodeficiency virus, acquired immune deficiency syndrome, malaria and other diseases;
vi. ensuring environmental sustainability;
vii. employment enhancing vocational skills;
viii. social business projects;
ix. contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socio-economic development and relief and funds for the welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women; and
x. Such other matters as may be prescribed.

The Board of every company referred to in sub-section (*1*), shall ensure that the company spends, in every financial year, at least 2% of the average net profits of the company made during the three immediately preceding financial years, in pursuance ofits Corporate Social Responsibility Policy. Provided that the company shall give preference to local area and areas around it, where it operates for spending the amount earmarked for Corporate Social Responsibility activities. Provided further that if the company fails to spend such amount, the Board shallreport under clause (*o*) of sub-section (*3*) of section 134, specify the reasons for not spending the amount.

Explanation: For the purposes of this section "average net profit" shall be calculated in accordance with the provisions of section 198.

8.4.2.1 CSR Cost Estimation for proposed project of M/s. Karunai Granites (an Extent of 3.15.5Ha), Grey Granite Quarry.

CSR activities will be taken up in the nearby villages mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

i)	Sale value	=	Rs 18000 per MT
ii)	Production cost	=	Rs 15000 per MT
iii)	Profit	=	Rs 3000 per MT
iv)	Production	=	22555 MT/year
v)	Hence, Total Profit	=	22555 x 3000/MT
		=	Rs. 6,76,65,000/-
vi)	CSR @ 2.5 % Profit	=	Rs. 6,76,65,000x 2.5%
		=	Rs 16 Lakhs/Year

(As per the Companies Act, 2013 and CSR Rules, 2014)

8.4.2.2 CSR Cost Estimation for proposed project of M/s. Karunai Granites (an Extent of 11.59.0Ha), Grey Granite Quarry.

CSR activities will be taken up in the nearby villages mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

i.	Sale value	=	Rs 18000 per MT
ii.	Production cost	=	Rs 15000 per MT
iii.	Profit	=	Rs 3000 per MT
iv.	Production	=	16557 MT/year
v.	Hence, Total Profit	=	16557 x 3000/MT
		=	Rs. 4,96,71,000/-
vi.	CSR @ 2.5 % Profit	=	Rs. 4,96,71,000 x 2.5%
		i. =	Rs 12,41,775/Year

(As per the Companies Act, 2013 and CSR Rules, 2014)

Under this programme, the project proponents will take-up following activities for social and economic development of villages through local panchayat.

- Employment to eligible persons during operational phase of the mine
- Conducting Medical Camps
- Infrastructure Development like repair of roads, renovation of ponds, rainwater harvesting schemes, etc…
- Financial grant to the existing educational institutions for development of physical infrastructures
- Training for Self Employment
- Plantation in villages and all along roads.
- Providing solar lamps to nearby schools and villages by going eco-friendly.

8.4.3 Corporate Environment Responsibility (CER) for proposed project of M/s. Karunai Granites (an Extent of 3.15.5Ha), Grey Granite Quarry.

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost @ 2% of Project Cost (Rs. In Lakhs)
Providing required Facilities to Government school, Jagadevipalayam Village	78.00	1.56
Total Cost Allocation	78.00	1.56

8.4.4 Corporate Environment Responsibility (CER) for proposed project of M/s. Karunai Granites (an Extent of 11.59.0Ha), Grey Granite Quarry.

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost @ 2% of Project Cost (Rs. In Lakhs)
Providing required facilities to Government school, Jagadevipalayam Village	81.50	1.63
Total Cost Allocation	81.50	1.63

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 PROJECT COST

After making exhaustive study, it is considered that the mining project may be implemented.

a) M/s. Karunai Granites (an Extent of 3.15.5Ha), Grey Granite Quarry.

Project cost for the existing Grey Granite Quarry over an area of 3.15.5Ha falling in Village Jagadevipalayam, District Krishnagiri is Rs. 78,00,000/- and EMP Cost is Rs. 9,50,000/-

This project provides direct employment to 18 people and indirect employment to nearly 20 people. In a family 4 persons, totally 152 persons will get benefit because of the project.

b) M/s. Karunai Granites (an Extent of 11.59.0Ha), Grey Granite Quarry.

Project cost for the proposed Grey Granite Quarry over an area of 11.59.0Ha falling in Village Jagadevipalayam, District Krishnagiri is Rs. 81,50,000/- and EMP Cost is Rs. 10,50,000/-

This project provides direct employment to 18 people and indirect employment to nearly 20 people. In a family 4 persons, totally 152 persons will get benefit because of the project.

The quarrying activity will definitely benefit the people (directly as well as indirectly) as follows

- Granite is used as construction material. So Surrounding dealer and building contractor get granite easily with less transportation cost.

- The Management will ensure good production and in turn there will be good revenue to the Government of Tamil Nadu and Government of India through taxes. The industry is an asset to the nation.

- At the end of the project the pit will act as rain water harvesting tank which is useful for agricultural purpose. Thereby it will increase the survival of people around the quarry.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

The **Environment Management Plan (EMP)** is required to ensure sustainable development in the study area. Hence it needs to be a comprehensive plan for which the industry, Government, Regulating agencies likes Pollution Control Board working in the region and more importantly the population of the area need to extend their co-operation and contribution.

It has been evaluated that the project area will not be affected significantly due to mining activity. Mitigation measures at the source level and an overall Management Plan at the site level are elicited so as to improve the surrounding environment.

Table 10.1 Environmental Management Plan			
S.No	**Parameters**	**Mining Activity**	**Mitigation measures**
1	Air Environment	Drilling	o Dust extractor or wet drilling to be followed to control dust at source of emission o Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	o Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	o Water sprinkling be done before loading by making it moist
		Transportation	o Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste o Overloading will be prevented o Trucks/Dumpers covered by tarpaulin covers
		DG Sets	o DG sets will be used only during power failure o Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	o Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust. o Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, and goggles as per the MMR, 1961 amendments and circulars of DGMS. o Regular health check–up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried

			out as per the Factories Act o Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.
2	Water Environment	Surface water	o Wastewater discharge from mine if any will be treated in settling tanks before using for dust suppression and tree plantation purposes.
		Ground water	o The mining activity will not intersect the ground water table o De silting will be carried out before and immediately after the monsoon season
		Stormwater	o Pit will be used for Storage of rainwater o Rain water 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. o The proponent will collect and judicially utilize the rainwater as part of rain water harvesting
		General measures	o Regular monitoring and analyzing the quality of water
3	Noise Environment	Drilling	o Limiting time exposure of workers to excessive noise
		Blasting	o Carrying out blasting only during day time and not on cloudy days o Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent

			blow out of holes. o Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	o Proper and regular maintenance of vehicles, machinery and other equipments. o The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. o Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles. o Adequate silencers will be provided in all the diesel engines of vehicles. o Minimum use of horns and speed limit of 10 km/hr in the village area. o It will be ensured that all transportation vehicles carry a valid PUC Certificates
		General measures	o Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas o Provision of Quiet areas, where employees can get relief from workplace noise. o The development of green belts around the periphery of the mine to attenuate noise. o Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.
4	Vibration	Blasting	o No deep holes blasting envisaged.

			○ Small dia shot holes are used for breaking boulders. ○ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios. ○ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone ○ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	○ Humus top soil shall be preserved for reuse in afforestation and agriculture ○ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises ○ Garland drains will be provided around the mine and dumps to arrest any soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	○ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form

			vegetation. o Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse o Dump should be terraced for every 5m height and stabilized
7	Plantation	Mine lease boundary and waste dump	o Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise o Stabilization of Dump with plantation o It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation. o The plant should be planted taken from nursery, where the survival rate is high.
8	Land Environment		o The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil. o Provision of Garland drainage around the dumps o Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land o Appropriate measures will be taken for Green belt development. o The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.
9	Socio Economic		o Good maintenance practices will be adopted for 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. ○ Drilling, blasting etc at specified location will be followed with proper schedule. ○ Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone. ○ An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication. ○ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards). ○ As a part of CSR activities, community welfare activities will be undertaken by the proponent which leads to socio economic development
10	Occupational Health	○ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955 ○ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A). ○ Insurance will be taken in the name of the labourers working in the mines ○ Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc…

10.1 Description of the administrative aspects of M/s. Karunai Granites (an Extent of 3.15.5Ha), Grey Granite Quarryensuring that mitigative measures are implemented and their effectiveness monitored, after approval of EIA

Regular monitoring network to maintain environmental quality will be implemented.

Table 10.2 EMP Budget for Plan period

S. No	Description	Budget
1.	Personal protective equipment	Rs 1,00,000
2.	Environmental Monitoring	Rs 2,25,000
3.	Occupation Health	Rs 1,00,000
4.	Green Belt & Dust suppression	Rs 4,00,000
5.	Tyre/Wheel washing station	Rs 1,00,000
6.	Sign Boards	Rs 25,000
	Total	**Rs 9.50 lakhs**

Table 10.3 Budget Allocation for Mine Closure Plan as per ToR

S. No	Description	Budget
1.	Parapet wall around dump (1m = Rs 500)	Rs 1,00,000
2.	Fencing around mines	Rs 2,00,000
3.	Making Pit for pond after the activity of mines	Rs 50,000
4.	Green belt development	Rs 1,00,000
	Total	**Rs 4.5 lakhs**

Apart from the afforestation plan given in Mining plan, the above table depicts the budget allocated for additional green belt development as specified by ToR.

10.2 Description of the administrative aspects of M/s. Karunai Granites (an Extent of 11.59.0Ha), Grey Granite Quarry ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of EIA

In order to maintain the environmental quality within the standards, regular monitoring network to maintain environmental quality will be implemented.

Table 10.4 EMP Budget for Plan period

S. No	Description	Budget
1.	Personal protective equipment	Rs 1,00,000
2.	Environmental Monitoring	Rs 3,50,000
3.	Occupation Health	Rs 75,000
4.	Green Belt & Dust suppression	Rs 4,00,000
5.	Tyre/Wheel washing station	Rs 1,00,000
6.	Sign Boards	Rs 25,000
	Total	**Rs 10.5 lakhs**

Table 10.5 Budget Allocation for Mine Closure Plan as per ToR

S. No	Description	Budget
1.	Parapet wall around dump (1m = Rs 500)	Rs 1,00,000
2.	Fencing around mines	Rs 3,00,000
3.	Making Pit for pond after the activity of mines	Rs 50,000
4.	Green belt development	Rs 1,00,000
	Total	**Rs 5.5 lakhs**

Budget is allotted for additional green belt development as specified by ToR in addition to budget allotted for afforestation plan given in Mining Plan.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

The Applicant, **M/s. Karunai Granites Private Limited** has been granted two quarry leases from the State Government for quarrying grey granite over an extent of 3.15.5 Ha and 11.59.0 Ha in S.F.No 299/2 (P) & 301/1 (P) and in S.F.No 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A respectively in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District vide G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995 and G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999 respectively for the period of ten years.

The mining plan for the areas 3.15.5 Ha and 11.59.0 Ha was approved by commissioner of geology and mining, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994 and letter No.2245/MM9/2004 dated 24.08.2004 respectively. For the lease area 3.15.5 Ha, the lease deed was executed on 02.02.1995 and had expired on 01.02.2005 and for the lease area 11.59.0 Ha, the lease deed was executed on 03.02.2000 and had expired on 02.02.2010.

The project proponent had submitted an application on 21.01.2004 and 22.01.2004 for renewal of quarry leases of 3.15.5 Ha and 11.59.0 Ha respectively and the renewal applications are pending. The quarries were worked under the high court order MP.Nos.1 & 1 of 2010 & WP.NOS 3034 & 3035 of 2010.

Accordingly Scheme of mining is prepared under Rule 18 (3) of GCDR, 1999 and Rule 41 of TNMMCR, 1959 for the existing mining lease once in five years for systematic and scientific development of quarry. Now the 3rd and 2nd scheme of mining has been prepared for the lease area 3.15.5 Ha and 11.59.0 Ha respectively and it is waiting for approval from department of geology and mining.

The grey granite quarries of M/s Karunai Granites Private Limited falls under violation case as they started working before grant of EC as per MoEF&CC Notification S.O 804(E) dated 14.03.2017. Therefore, the Proponent, M/s Karunai Granites Private Limited applied for grant of Terms of Reference to SEIAA/SEAC, TN under violation for lease area 3.15.5 Ha and 11.59.0 Ha.

The proposals have been placed in 340th and 357th SEAC meeting and in 585th and 603rd SEIAA meeting and SEIAA granted Terms of Reference for preparation of EIA/EMP report, Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation for obtaining an Environment Clearance from SEIAA/SEAC, Tamil Nadu. The details of Terms of reference are given in below table.

Table No11.1 Details on Terms of Reference

S.No	Name of Proponent	ToR Application No	SEAC and SEIAA Meeting No	TOR letter No
1	M/s. Karunai Granites Private Limited (3.15.5 Ha)	SIA/TN/MIN/26168/2018 Dated 22.05.2018	340th and 357th SEAC meeting, dated 23.12.2022 and 23.02.2023 respectively 585th and 603rd SEIAA meeting, dated 13.01.2023 and 21.03.2023 respectively	Lr.No.SEIAA TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023
2	M/s. Karunai Granites Private Limited (11.59.0 Ha)	SIA/TN/MIN/53603/2016 Dated 10.05.2016	340th and 357th SEAC meeting, dated 23.12.2022 and 23.02.2023 respectively 585th and 603rd SEIAA meeting, dated 13.01.2023 and 21.03.2023 respectively	Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023

In TOR letters, it is mentioned that public hearing needs to be conducted for the existing granite quarries of M/s. Karunai Granites Private Limited for obtaining EC. As per MOEF&CC SO 141 (E) dated 15.01.2016-Appendix XI, there shall be one public consultation for entire cluster after which the final Environmental Impact Assessment Report or Environmental Management Plan report for the cluster shall be prepared.

Based on the OM issued by MOEF & CC, the combined Draft EIA/EMP report has been prepared as per the Terms of Reference including Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation for the two quarries in the cluster of 14.745 Ha for conducting public hearing. The points raised in the public hearing and the commitments of the project proponent will be given detail in the Final EIA Report which will be submitted to SEAC/SEIAA, TN for obtaining environmental clearance.

11.1 Details of Project and Project Proponent

Table No 11. 2 Details on Project and Project Proponent

A. Proposed Projects to Conduct Public Hearing	
1. M/s. KARUNAI GRANITES PRIVATE LIMITED (3.15.5 Ha)	
Particulars	**Details**
Address of the Project Proponent	**M/s. KARUNAI GRANITES PRIVATE LIMITED** Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.
Lease Area	3.15.5 Hectares (Patta Land)
Site Location	S.F.No: 299/2 (P) & 301/1 (P), Jagadevipalayam Village, Bargur Taluk and Krishnagiri District and Tamil Nadu
Geographical Co-ordinates	Latitude: 12°29'14.95"N to 12°29'22.53"N Longitude: 78°20'26.88"E to 78°20'36.60"E
Toposheet No.	57 L/7
Elevation	Elevation of the area is 455-457m above MSL
G.O Letter	G.O. (2D).No: 9 Industries (E2) Dept. dated 18.01.1995.
Period of Lease	10 years (02.02.1995 to 01.02.2005)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Mining Plan Approval Details	Mining plan approved by Commissioner of Geology and Mining, Guindy, Chennai vide letter No. 14761/B1/1994, dated 22.09.1994. Now the 3rd scheme of mining has been prepared for the period from 2020-2021 to 2024-2025 and submitted for approval.
2. M/s. KARUNAI GRANITES PRIVATE LIMITED (11.59.0 Ha)	
Particulars	**Details**
Address of the Project Proponent	**M/s. KARUNAI GRANITES PRIVATE LIMITED** Jagadevipalayam Village & Post, Bargur Taluk (Formerly Krishnagiri), Krishnagiri District, Tamil Nadu.
Lease Area	11.59.0 Hectares (Patta Land)
Site Location	S.F. No. 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village, Bargur Taluk and Krishnagiri District and Tamil Nadu
Geographical Co-ordinates	Latitude: 12°29'9.06"N to 12°29'26.41"N

	Longitude: 78°20'18.72"E to 78°20'38.29"E
Toposheet No.	57 L/7
Elevation	Elevation of the area is 465m above MSL
G.O Letter	G.O. (3D).No.87 Industries (E.2) Department dated 2.11.1999
Period of Lease	10 years (03.02.2000 to 02.02.2010)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Mining Plan Approval Details	Mining plan approved by Commissioner of Geology and Mining, Guindy, Chennai vide letter No.2245/MM9/2004 dated 24.08.2004. Now the 2nd scheme of mining has been prepared for the period from 2020-2021 to 2024-2025 and submitted for approval.

11.2 SCOPE OF THEPROJECT

The proposal for Environmental Clearance of two existing granite quarries of **M/s. Karunai Granites Private Limited (3.15.5 Ha and 11.59.0 Ha)** requires EIA/EMP Report as per respective Terms of Reference including Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation.

11.3 ENVIRONMENTAL SETTINGS & MINING DETAILS

Table No 11.3 Accessibility

Nearest Village	Jagadevipalayam • For Lease Area of 3.15.5 Ha – 2.0km – SW • For Lease Area of 11.59.0- 1.8km – SW

Nearest Settlement

Sno	Village Name	Total population as per 2011 census	Distance with Direction
1	Jagadevipalayam	6747	4.7 km-SW
2	Gangavaram	3122	8.6 km-S
3	Orappam	3512	7.4 km-SW
4	Sigaralapalli	7765	6.9km-E
5	Kandikuppam	5734	7.6 km-NW

	6	Gandhinagar	9114	4.0km-S
	7	Oppathavadi	9604	7.5km-NE
	8	Batlapalli	3724	6 km-SE
	9	Pasinayanapalli	20749	6.57 km-SE
	10	Kannandahalli	8562	9.53 km-S
Nearest Town	Krishnagiri– 12 km - W			
Nearest Roadway	MDR-860– Kaveripattinam to Pochamapalli – 15km - SW NH -77 – Krishnagiri to Uthangarai – 1.5 km - South SH-131 – Bargur to Tirupatturi – 5.5 km – NE Jagadevi to Bargur Village road – 1.4km - W			
Nearest Railway station	Patchur Railway Station– 18 km –NE			
Nearest Airport	Kampegowda International Airport, Bengaluru –102km – NW			
Table No 11.4 Environmental Sensitiveness				
Interstate Boundary	Tamil Nadu –Andhra Pradesh –16km (NE)			
Coastal Zone	Bay of Bengal – 174km – East			
Reserve Forest	1. Thogarapalli R.F. -2.41km – S 2. Bargur R.F – 6.41km – NE 3. Varatanapalli – 6.6km – NW 4. Nandibanda R.F – 8.6km – NE 5. Neralakotta R.F – 9.7km - NE The proposed projects site does not attract Forest Conservation Act, 1980.			
Wildlife sanctuary	Nil within 10km radius. Cauvery Wildlife Sanctuary – 40km – W The Proposed projects site does not the Wildlife (Protection) Act, 1972.			
Water bodies	1. Mattur Stream – 80m – S 2. A lake – 941m – S 3. A lake near Gettur village – 3.0km – W 4. A lake near Blinayanapalli village – 4.2km – NW 5. A lake near Simanur Village– 3.6km - NW 6. Bargur River – 4.5km - NE			
Defense Installations	Nil within 10km radius			
Critically Polluted area	Nil within 10km radius			

Seismic zone	Zone-III, Moderate damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002

Table No 11.5 Mining Details – M/s. Karunai Granites Private Limited (3.15.5 Ha)

Method of Mining	Open cast Semi -Mechanized method of mining
Geological resources	9,91,353m^3
Mineable reserves	6,16,470m^3
Production (25%)	45,113m^3 for five years or 9022.6 m^3/annum(Avg)
Top soil	25593m^3 for plan period (2020-25)
Reject (75%)	1,35,338 m^3
Ore: Waste ratio	1: 4.07
Depth of Mining	35m bgl
Water Table	50 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°
Period of Lease	10 years (02.02.1995 to 01.02.2005)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Existing pit dimension	**Pit** / **L(m)** / **W(m)** / **Max.D(m)** I / 190m / 48m / RL(455-426m)29m
Project Cost	Rs 78.0 Lakhs
EMP Cost	Rs 9.50 lakhs
CER Cost	Rs.1.56 lakhs

Table No 11.6 Mining Details – M/s. Karunai Granites Private Limited (11.59 Ha)

Method of Mining	Open cast Semi -Mechanized method of mining
Geological resources	2662984m^3
Mineable reserves	2044654m^3
Production (25%)	33,115m^3 for five years or 6,623 m^3/annum(Avg)
Top soil	-
Reject (75%)	99345 m^3
Ore: Waste ratio	1: 3.0
Depth of Mining	35m bgl.
Water Table	50 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°

Period of Lease	10 years (03.02.2000 to 02.02.2010)
Renewal of quarry	20 years (Under Deemed Extension as Per GCDR, 1999)
Existing pit dimension	**Pit** | **L(m)** | **W(m)** | **Depth in (m)** I | 356m | 105m | RL455m-RL430m (25m)
Project Cost	Rs 81.50 Lakhs
EMP Cost	Rs 10.5 lakhs
CER Cost	Rs.1.63 lakhs

11.4 Description of the environment

11.4.1 Base line environmental study

Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The baseline monitoring study has been carried out during December 1st 2022 to February 28th 2023 to assess the existing environmental scenario in the area. For the purpose of EIA studies, mine lease area was considered as the core zone and area outside the mine lease boundary up to 10km radius from the lease boundary was considered as buffer zone.

Table No 11.7 Baseline Data

Particulars	Details	Standards
Meteorology (October 1st 2019 – December 31st, 2019)		
Rainfall (Avg.)	31 mm	--
Temperature (Avg.)	22-24°C	--
Wind speed	2.4-2.6m/s	--
Wind Direction	From E, SE NE to W, NW, SW	
Ambient Air Quality (NAAQS)		
PM_{10}	38-52 µg/m^3	100 µg/m^3
$PM_{2.5}$	19-30 µg/m^3	60 µg/m^3
SO_2	3-14µg/m^3	80 µg/m^3
NO_x	7-18 µg /m^3	80 µg/m^3
Noise Level (CPCB Standards)		
Day time (6:00 am - 10:00 pm)	Core zone – 40.3 – 44.6 dB (A) Buffer zone – 44.6 – 49.8 dB (A))	**Industrial Area** Day Time - 75 dB (A) **Residential Area** Day Time – 55 dB (A)

Night time (10:00 pm - 06:00 am)	Core zone – 38.7 – 41.9 dB (A) Buffer zone – 42.5 – 45.4 dB(A)	**Industrial Area** Night Time – 70 dB(A) **Residential Area** Night Time – 45 dB (A)
Water Quality IS 10500:2012 (Desirable limits)		
pH	7.90 – 8.57	6.5 to 8.5
TDS	254 - 654 mg/l	500 mg/l
Electrical conductivity at 25˚C	450 - 1076 micromhos/cm	
Total Hardness as $CaCO_3$	133 - 311 mg/l	200 mg/l
Total suspended solids	0- 2	IS:3025:P.16:1984:R.2012
Chlorides Cl	57 - 362mg/l	250 mg/l
Total iron Fe	0.04 – 0.08mg/l	0.3mg/l
Sulfates SO_4	7 - 16mg/l	200 mg/l
Soil Quality		
pH	7.10 – 8.99	Neutral to slightly alkaline
Bulk density	1.04 – 1.17 g/cc	Favorable physical condition for plant growth.
Hydro Geology		
Water Table	50 m bgl	

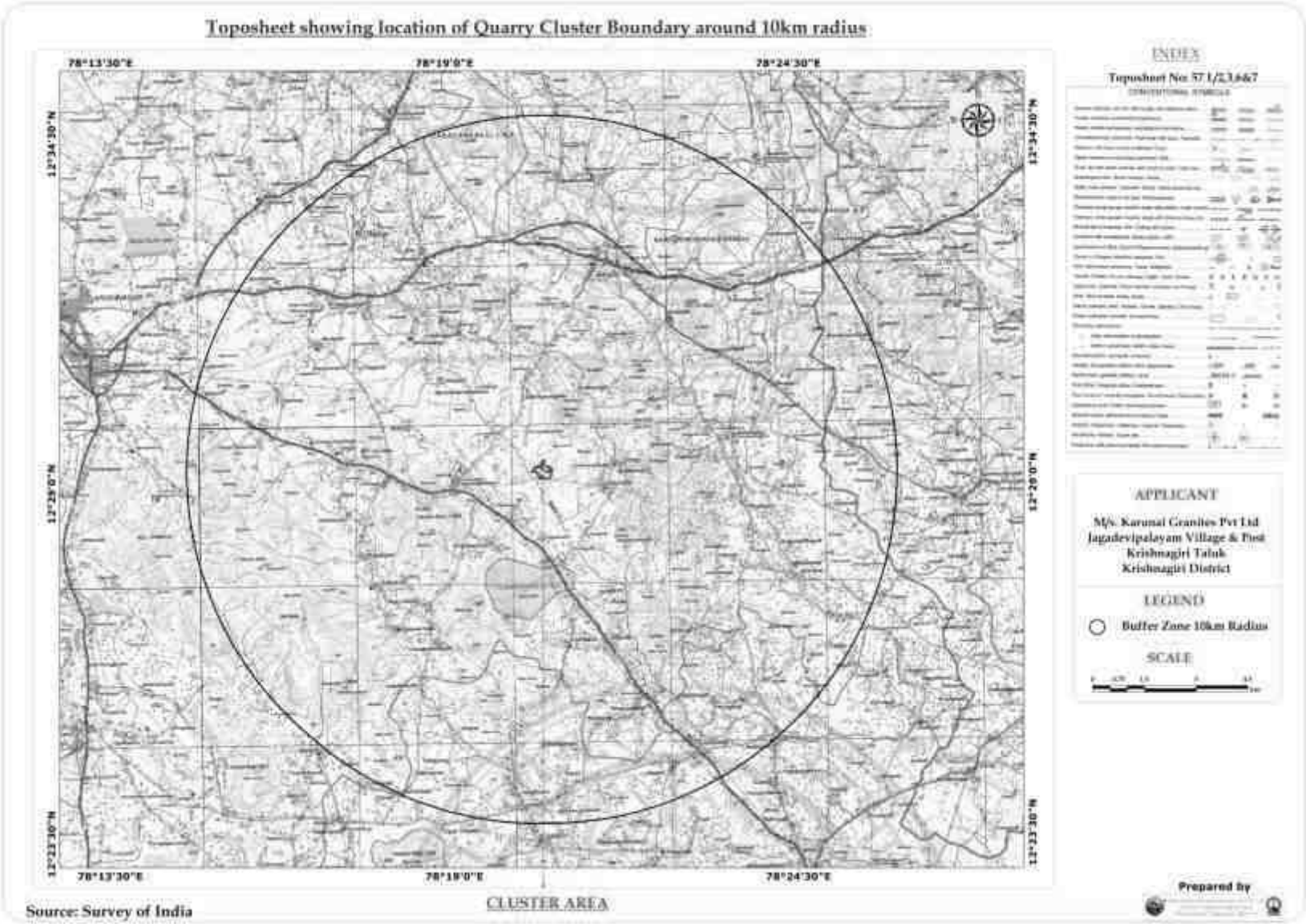


Fig No 11.1 Toposheet showing location of the lease area

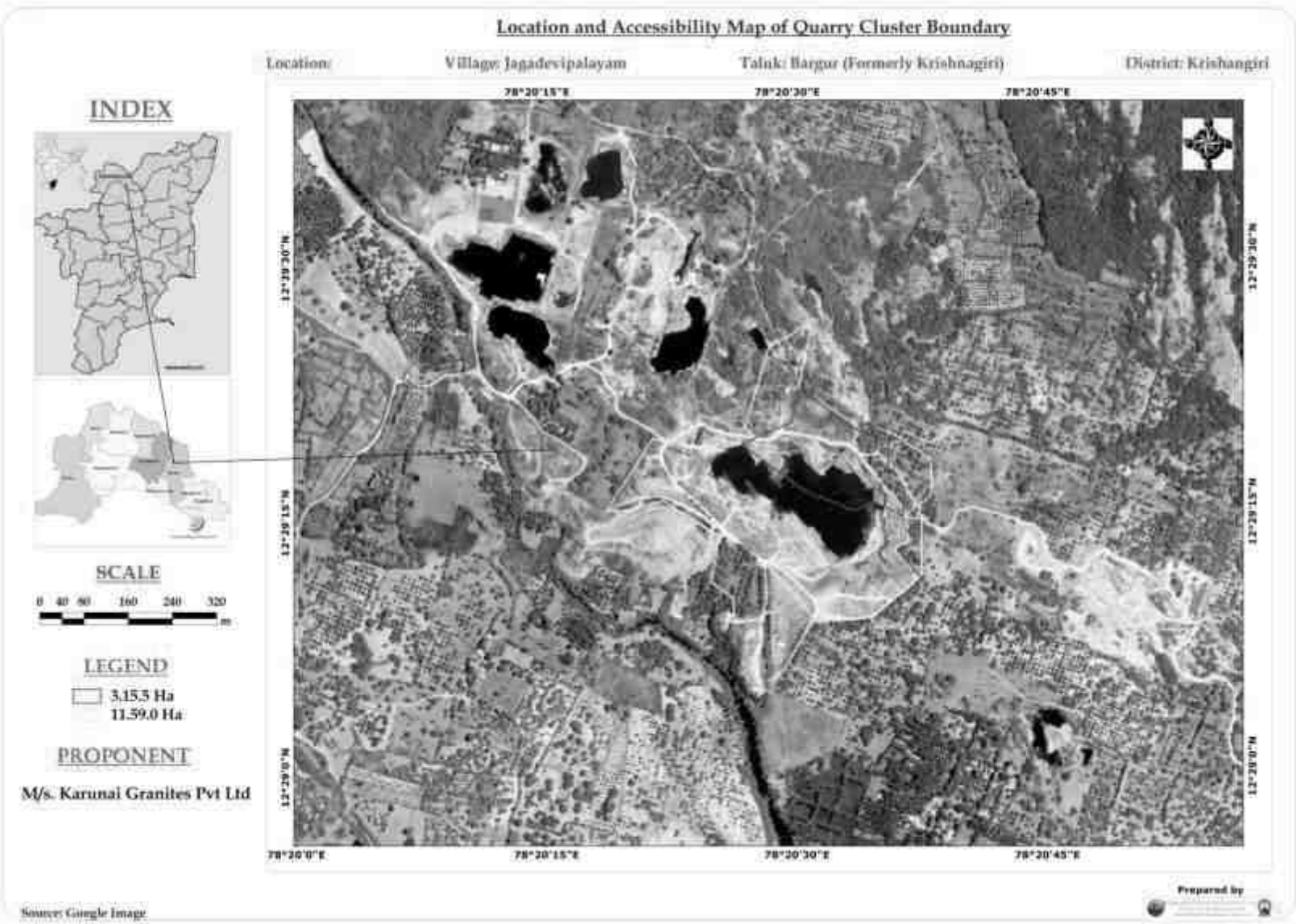


Fig No 11.2 Map Showing the Location and Accessibility of Quarry Lease Boundary

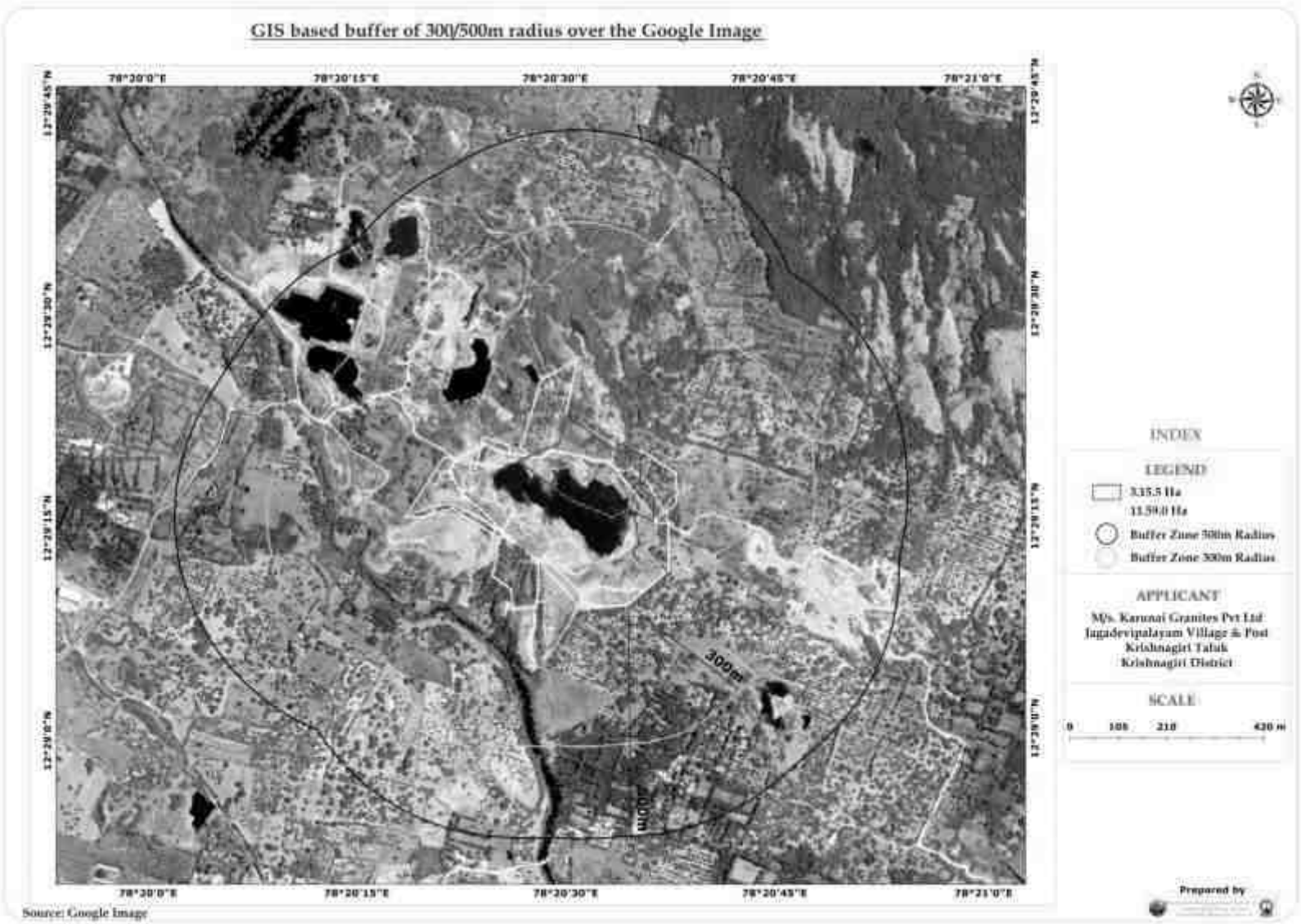


Fig No 11.3 Google Earth Image showing 300m and 500m radius around lease area

11.5 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.5.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by adopting semi–mechanized methods which involves Jack Hammer drilling and blasting, excavation, loading and transportation.

AERMOD was used for prediction of impact of PM_{10} during conditions i) Loading/unloading and transportation of granite and weathered rock by trucks on Haul road. Total predicted 24-h maximum GLC of PM_{10} at project site for scenario 1 i.e loading-unloading and transportation was 57.96µg/m^3 occurred at the project site after superposition of base-line value 46 µg/m^3 over the incremental value of 11.96µg/m^3 to combined impact of loading and unloading and transportation over the haul road. Meteorological data under worst case scenario providing 24-h maximum average GLC was discussed above.

11.5.2 Noise Environment

Noise pollution poses a major health risk to the mine workers. The sources of noise in the proposed open cast grey granite quarry are such as Drilling, Blasting, and during movement of vehicles.

The noise generated by the mining activity is dissipated within the core zone. This is because of distance involved and other topographical features adding to the noise attenuation. From the results, it can be seen that the ambient noise levels (day time and night time) at all the locations will remain within permissible limits prescribed by CPCB and 90dB (A) norms of DGMS. At present there is no mining activity carried out. However, the expected noise levels are not likely to have any effect. Precaution will be made to keep down the noise exposure level of 85 dB (A) to the operating personnel for 8 hrs duration.

11.5.3 Ground Vibration

a) M/s. Karunai Granites Private Limited 3.15.5 Ha

The charge per blast of 120kg is well below the Peak Particle Velocity of 5mm/s but the proponent proposes to use only 43kg of explosives per day for the lease area 3.15.5 Ha.

b) M/s. Karunai Granites Private Limited 11.59.0 Ha

The charge per blast of 120kg is well below the Peak Particle Velocity of 5mm/s but the proponent proposes to use only 31kg of explosives per day for the lease area 11.59.0 Ha.

11.5.4 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in the mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water. But these granite quarries are devoid of any such impacts.

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during mining process. The depths of mining of two existing quarries are 35m bgl whereas the depth of ground water table is 50m bgl. So the mining activity will not intersect the ground water table.

The value of TH, TDS and Chlorides of water sample from Jagadevipalayam is beyond the acceptable limits. Water sample from Jitanpalli village has high TDS and water sample from Bagimanoor village has high TH. Based on the Water Quality Index calculated, water qualities from all except Jagadevipalayam village are good. In Jagadevipalayam village, the water quality is found to be poor. For excellent quality, the water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate. Boiling of water will remove the microorganisms effectively from all waters in the above said villages and core zone making the water aseptically fit for drinking purposes.

Prolonged consumption of water containing high TH causes Cardio vascular problems, diabetes, skin diseases, rashes, reproductive failure and renal failure. For the excellent quality of drinking the water must be treated with reverse osmosis process to overcome above mentioned such impacts on human body. Boiling of water will remove the microorganisms effectively from all waters in the above said villages and core zone making the water aseptically fit for drinking purposes.

11.5.5 Soil Environment

a) M/s. Karunai Granites Private Limited -3.15.5 Ha

For the plan period 2020-2025, the generation of top soil is estimated as 25593 m^3. It will be dumped along mining lease boundary as earth bund and it will be utilized for green belt development within the lease area. No chemical or toxic elements will be used during mining activity. So the health of soil in and around the quarry will not be affected.

b) M/s. Karunai Granites Private Limited -11.59.0Ha

For the plan period 2020-2025, the generation of top soil is Nil. If top soil found it will be dumped along mining lease boundary as earth bund and it will be utilized for green belt development within the lease area. No chemical or toxic elements will be used during mining activity. So the health of soil in and around the quarry will not be affected.

11.5.6 Waste Dump

a) M/s. Karunai Granites Private Limited -3.15.5 Ha

The proposed rate of production of Grey granite for five years is about 45,113m^3 at the rate of 25% recovery up to permissible depth. The 75% reject of 1,35,338 m^3 shall be dumped as per earmarked site in the scheme of mining.

b) M/s. Karunai Granites Private Limited -11.59.0 Ha

The proposed rate of production of Grey granite for five years is about 33,115m^3 at the rate of 25% recovery up to permissible depth. The 75% reject of 99,345 m^3 shall be dumped as per earmarked site in the scheme of mining.

11.5.7 Biological Environment

There are no notified endangered species in the area, which may be affected due to the quarry activities; therefore the biological environment will not have significant impact due to quarrying activity. The impact on the biological environment due to amount of dust generation is minimized by well-developed green belt in and around the quarry lease area.

11.5.8 Land Environment

Granite quarry project will result in disturbance of the land use pattern of the mine lease area. The land degradation is unavoidable during quarry activities like excavation, overburden dumping, soil extraction etc. So reclamation of mined out land and proper formation of benches will be given due importance as a step for sound land resource management.

The land use analyses show that the area is of predominantly Mango plantation followed by buffer zones of the study area, which clearly indicates that the development of plantation increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for

developing mango plantation around the mining lease area. It will improve the livelihood of village people. The evaporation rate of the water in the pit is given detail in the Chapter 7.

11.5.9 Socio Economic Environment

The quarrying activity will definitely increase the employment opportunity (directly as well as indirectly) in the project area. Some of these impacts would be beneficial. The expectation of the people of area is concerned towards employment, education, road and health facilities. The literacy rate may be increased with the economic benefits which may arise from the quarrying activities.

a) M/s. Karunai Granites Private Limited (3.15.5 Ha)

Direct Employment - 18 persons
Indirect Employment - 20 persons

b) M/s. Karunai Granites Private Limited (11.59.0 Ha)

Direct Employment - 18 persons
Indirect Employment - 20 persons

Indirect employment is that people will keep shops such as tea shops, hotels, spare parts store, mechanic shed, etc. around the quarry depending on the proposed projects. Population rate is increased day by day in India. It is necessary to create employment to all people for their livelihood and country's economic development.

Table 11.8 Environmental Management Plan

S.No	Parameters	Mining Activity	Mitigation measures
1	Air Environment	Drilling	○ Dust extractor or wet drilling to be followed to control dust at source of emission ○ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	○ Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	○ Water sprinkling be done before loading by making it moist
		Transportation	○ Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste ○ Overloading will be prevented ○ Trucks/Dumpers covered by tarpaulin covers
		DG Sets	○ DG sets will be used only during power failure ○ Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	○ Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust. ○ Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles as per the MMR, 1961 amendments and circulars of DGMS. ○ Regular health check–up of workers and nearby villagers in the impacted area should be carried out and also regular

			occupational health assessment of employees should be carried out as per the Factories Act o Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.
2	Water Environment	Surface water	o Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
		Ground water	o The mining activity will not intersect the ground water table o Desilting will be carried out before and immediately after the monsoon season
		Storm water	o Pit will be used for Storage of rainwater o Rain water 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. o The proponent will collect and judicially utilize the rainwater as part of rain water harvesting
		General measures	o Regular monitoring and analyzing the quality of water
3	Noise Environment	Drilling	o Limiting time exposure of workers to excessive noise
		Blasting	o Carrying out blasting only during day time and not on cloudy days o Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to

			prevent blow out of holes. o Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	o Proper and regular maintenance of vehicles, machinery and other equipments. o The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. o Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles. o Adequate silencers will be provided in all the diesel engines of vehicles. o Minimum use of horns and speed limit of 10 km/hr in the village area. o It will be ensured that all transportation vehicles carry a valid PUC Certificates
		General measures	o Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas o Provision of Quiet areas, where employees can get relief from workplace noise. o The development of green belts around the periphery of the mine to attenuate noise. o Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.
4	Vibration	Blasting	o Specific charge pattern has to be designed by proper trial

			vibration studies with varying charge ratios. o Milli second detonators shall be used preferably 25–50ms per delay to control vibrations o If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone o In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	o Humus top soil shall be preserved for reuse in afforestation and agriculture o Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises o Garland drains will be provided around the mine and dumps to arrest any soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	o The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to

			form vegetation o Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse
7	Plantation	Mine lease boundary and waste dump	o Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise o Stabilization of Dump with plantation o It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation. o The plant should be planted taken from nursery, where the survival rate is high.
8	Land Environment		o The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil. o Provision of Garland drainage around the dumps o Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land o Appropriate measures will be taken for Green belt development. o The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.
9	Socio Economic		o Good maintenance practices will be adopted for machinery and equipment, which will help to avert potential noise problems. o Green belt will be developed in and around the project site as

			per Central Pollution Control Board (CPCB) guidelines. o Drilling, blasting etc at specified location will be followed with proper schedule. o Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone. o An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication. o For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards). o As a part of CSR activities community welfare measures will be taken by Proponent through local Panchayat
10	Occupational Health		o First-aid facilities as per provisions under Rule (44) of Mines Rules 1955 o Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A). o Insurance will be taken in the name of the labourers working in the mines o Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc…

11.6 Analysis of Alternatives

The quarrying site is dependent on the geology and mineral deposition of the area. Hence, this project is, mineral and site specific and no alternative site considered for this project.

11.7 Environmental Monitoring Program

Success of any environmental management programme depends upon the efficiency of the organizational set up responsible for the implementation of the programme. Regular monitoring of the various environmental parameters is also necessary to evaluate the effectiveness of the management programme. Environmental Monitoring Programme will be conducted for various environmental components as per conditions stipulated in the Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB.

Table No: 11.9 Post Project Environmental Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – $PM_{2.5}$, PM_{10}, SO_2 and NO_x	5 locations (One station in the core zone and at least one in nearby residential, area, one in the upwind, one station on the downwind direction and one in cross wind direction)	8 hours	Once in six months	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Once in six months	Phyiso–chemical, microbiological characteristics
4	Hydrogeology	Water level in open wells in buffer zone	-	Once in six months	Water level monitoring devices

		around 1km at specific wells			may be used.
5	Noise	Mine Boundary, high noise generating areas within the lease and at the nearest residential area	24 hours	Monthly Once	Sound level meter
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core Zone and Buffer zone (Grab samples)	–	Once in six months	Physical and Chemical characteristics

11.8 Project Benefits

The proponent, **M/s. Karunai Granites Private Limited** is very much conscious of his obligations to society at large. Under plantation programme, it is suggested to develop green belt further all along the boundary of the quarry lease area. Apart from the green belts and aesthetic plantation for eliminating fugitive emissions and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community. The quarrying activity will create rural employment. In addition there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation of granite and other community services etc. The local population will have preference to get an employment. The proponent will help in socio economic development of the village by providing educational facilities to children, and welfare amenities like drinking water to school; road and medical facilities to villages and employment opportunities to nearby villagers. CSR budget is allocated as 2.5% of the profit.

11.9 Conclusion

As discussed, it is safe to mention that the project is not likely to cause significant impacts on the ecology and environment of the area, as adequate preventive measures will be adopted to contain the pollutants within permissible limits. The total operations shall be carried out with ease & minimum risk to the workers. The proposed Environmental Management Plan will keep the area in a safe environment with negligible impact on the environment. Plantation will substantiate the impact due to the quarrying activity. Quarrying activity will help in improving the socio–economic benefits in areas like employment, communication and infrastructure development.

CHAPTER - 12: DISCLOSURE OF CONSULTANTS ENGAGED

AADHI BOOMI MINING AND ENVIRO TECH (P) LTD, a QCI/NABET Accredited EIA Consultant Organization having it's Registered Office at Salem and Branch at Porur, Chennai were promoted by a team of professional Geologists\ Mining\ Environment\ Civil\ Mechanical\ Chemical Engineers\Scientists. The company has vast experience in various disciplines including Exploration and mining of minerals and was incorporated in 2002 in the name of Suriya Mining Services providing expert advice and solutions for clients' requirement in the field of Mineral prospecting, Exploration, Mining, Geo-technical, Techno economic Feasibility reports\evaluation, Mineral Engineering, Environment Impact Assessment (EIA), Environment Management Plan (EMP), Environment Monitoring and related liaison jobs like Environment Clearance, Wild life and Forest clearance from DEIAA/SEIAA/NBWL/CRZ, MoEF& CC etc of all accredited sectors.

12.1 SCOPE

- EIA & EMP for all accredited sectors and Monitoring as per SPCB/CPCB/MoEF & CC
- Environment/ Wild life/ CRZ/ Forest Clearance
- Social Impact Analysis (SIA) and Eco-Biodiversity studies for Mine Closure Plan
- Remote Sensing & GIS including Satellite data processing, ASTER, DEM etc for application in Forest, Agriculture, Disaster, Mineral Exploration, Environment Modelling, Town planning etc
- Geological Surveying, Mapping, Exploration and Project Management
- Geophysical, Geochemical & Geotechnical studies to locate concealed deposit\ formation including structural studies
- Noise and Vibration studies as per DGMS\MoEF & CC to design controlled blasting where inhabitations are located within 300m
- Mine Design and costing, selection of Machineries and Project Evaluation
- Statutory Mine Plans & Sections, Mining Plan and other mandatory projects
- Design and development of Mineral Beneficiation Plant including mineral separation studies.

12.2 INFRASTRUCTURE

- Our Human resources are well expertise in all functional areas as per Ver. 3 of NABET\QCI. Our Hi Tech ISO certified Office and Lab are accredited by NABL and MoEFCC.

- And have latest field Investigation devices like Respirable and Fine Dust Samplers, Digital Seismograph, DDR3 Resistivity Meter, Echo sounder, DGPS, Total Station, Water level monitoring meters, GPS 62S, Sound Level Meter etc.

12.3 DISCLOSURE OF CONSULTANT FOR EIA STUDY

The Applicants, **M/s. Karunai Granites Private Limited (an extent of 3.15.5Ha and 11.59.0)** appointed **AADHI BOOMI MINING AND ENVIRO TECH PRIVATE LTD**, having its office at 3/216, K.S.V Nagar, Narasothipatti, Alagapuram, Salem – 636 004, Tamil Nadu, for preparation of EIA/EMP reportfor obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu.

AADHI BOOMI MINING AND ENVIRO TECH PRIVATE LTD has MOU with **EKDANT ENVIRO SERVICES (P) LTD** laboratory at Chennai and has own Laboratory named **ABM ENVIRONMENTAL AND ANALYTICAL LABORATORY, accredited by NABL** for sampling and testing of air, water, noise and soil samples. Ekdant Enviro Services are recognized by the Ministry of Environment and Forests, Government of India under the relevant provision of Environment (Protection) Act 1986 and Accredited by NABL and NABET, Quality Council of India, New Delhi.

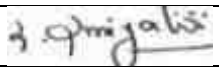
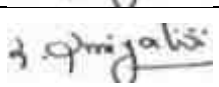
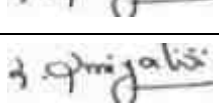
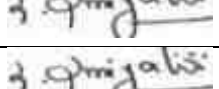
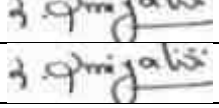
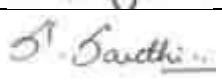
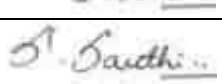
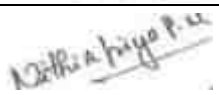
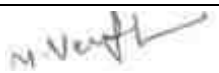
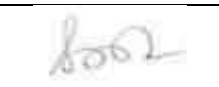
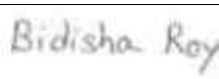
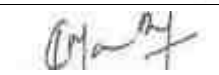
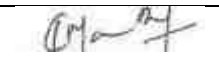
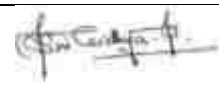
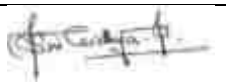
S. No.	Study	Consultants/LAB
1	Generation of Base Line Data	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem
2	Remote Sensing and Land use/Land cover Studies	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem
3	Preparation of EIA and EMP Report	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem
4	Ecological Damage Assessment, Remediation Plan, Natural Resource Augmentation and Community Resource Augmentation	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem

12.4 DECLARATION OF EXPERTS INVOLVED IN THE EIA REPORT PREPARATION

Names of the EIA coordinator, Functional Area Experts and other Team Members engaged and nature of consultancy rendered is provided in NABET Annexure –VII of EIA report. The multidisciplinary team comprises of Environmental Engineers, Geologists and Geographers who involved in preparation of Environmental Impact Assessment Report and Environment Management Plan for various functions like Air

quality, Water quality, Noise levels, Soil Conservation, Hydro geology, Ecology and bio-diversity, Land use and Socio–Economics.

Table 12.1: Declaration of Experts

S.No	Name of the Expert	Category	Functional Areas	Signature
1.	Mr.S.Suriyakumar	A	EIA Co-ordinator	
		A	Solid and Hazardous Waste SHW*-HW* only	
		A	Risk Assessment and Hazard Management (RH)	
		A	Land Use (LU)	
		A	Soil Conservation (SC)	
2.	Mrs. S. Santhi	B	Land Use (LU)	
		B	Socio Economics (SE)	
3.	Dr. Nithia Priya P.M	B	Water Pollution Monitoring, Prevention and Control (WP)	
4.	Mr. M. Venkatesh Prabhu	B	Noise and Vibration (NV)	
5	Mr.R.Prakash Babu	B	Air Pollution, Monitoring, Prevention and Control (AP)	
			Noise and Vibration (NV)	
6	Bidisha Roy	B	Meteorology, Air Quality Modelling & Prediction (AQ)	
7.	Mr. K. Manuraj	B	Geology (GEO)	
			Hydrogeology (HG)	
Team Member Involved in Report Preparation				
8.	Mrs. S. Sri Vidhya	Team Member	Water Pollution Monitoring, Prevention and Control (WP) under FAE - Dr. Nithia Priya P.M	
			Meteorology, Air Quality Modelling & Prediction (AQ) under FAE - Mr. M. Venkatesh Prabhu	

CHAPTER 13
ECOLOGICAL DAMAGE ASSESSMENT, REMEDIATION PLAN, NATURAL RESOURCE AUGMENTATION AND COMMUNITY RESOURCE AUGMENTATION

13.1 Introduction

M/s. Karunai Granites Private Limited continued to operate the two grey granite quarries over an extent of 3.15.5 Ha and 11.59.0 Ha in S.F.No 299/2 (P) & 301/1 (P) and in S.F.No 294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A respectively in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District without obtaining Environment Clearance (EC) after 15.01.2016 under EIA Notification, 2006 and considered as a violation case. In view of the above the proponent applied TOR to SEAC/SEIAAs and SEIAA recommended TOR vide Lr.No.SEIAA TN/F.No.5292/2016/TOR-1398/2023 dated 21.03.2023 for the lease area (3.15.5 Ha) and vide Lr.No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 dated 21.03.2023 for the lease area (11.59.0 Ha) for preparation of EIA/EMP report, Ecological damage assessment, remediation plan, natural resource augmentation and resource augmentation for obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu. The damage caused was assessed as per **CPCB guidelines.**

13.2 CPCB Guidelines for environmental compensation for violation cases

During the violation Period, impacts of mining activity on the Environmental Components viz. Air, Water, Land, Biological and Socio-economic Environment are assessed based on the Norms specified by the Central Pollution Control Board (CPCB) to implement "Polluter Pays" Principle and to levy Environmental Compensation for Restoration of Environmental Damages.

The Environmental Compensation shall be based on the following formula:

EC = PI x N x R x S x LF

EC is Environmental Compensation in Rupees
PI = Pollution Index of Industrial Sector
N = Number of days of violation took place
R = A factor in Rupees for EC
S = Factor for Scale of Operation
LF = Location Factor.

13.3 Environmental compensation for Grey Granite of M/s. Karunai Granites Private Limited (3.15.5 Ha)

M/s. Karunai Granites Private Limited operated the quarry between 15.01.2016 and 10.01.2017 and excavated **6602.794** of granite. Project proponent had obtained dispatch slip from 02.02.2016 to 09.01.2017 for the total quantity of 6602.794 cum of grey granite. Therefore, the number of days operated the quarry during violation period including development works, formation of benches is approximately **100 days** excluding non working days, Sundays (50 days) and government holidays (17 days).

Environmental Compensation for the quarrying activity carried out during violation period is computed as follows:

Environmental Compensation, EC = PI × N × R × S × LF

Where

PI = 80 for Red Category Industry
N = 100 days
R = Rs.100 (Minimum)
S = 0.5 for cumulatively Small Scale Unit
LF = 1.0 for population less than 1.0 million

EC = 80 x 100 x 100 x 0.5 x 1.0
EC = Rs. 4,00,000

13.4 Impacts of Mining activity on Environmental Components (3.15.5 Ha)

13.4.1 Impact on Land Environment

During Mining activity, land was damaged by not adopting environment management plan. As per scheme of mining (2015-2020), the proponent quarried granite by adopting four benches and by kept the slope of pit as 45°. The project proponent dumped all the rejects outside the lease area in southwest direction. As the garland drainage was not made around the dump, heavy rainfall during monsoon season carried the silt and small stones from the dump and it caused the deposition of silt in the adjacent lands. Some of the rejects were scattered around the dump and affected the growth of plants in that particular places. Refer Fig No 13.1.

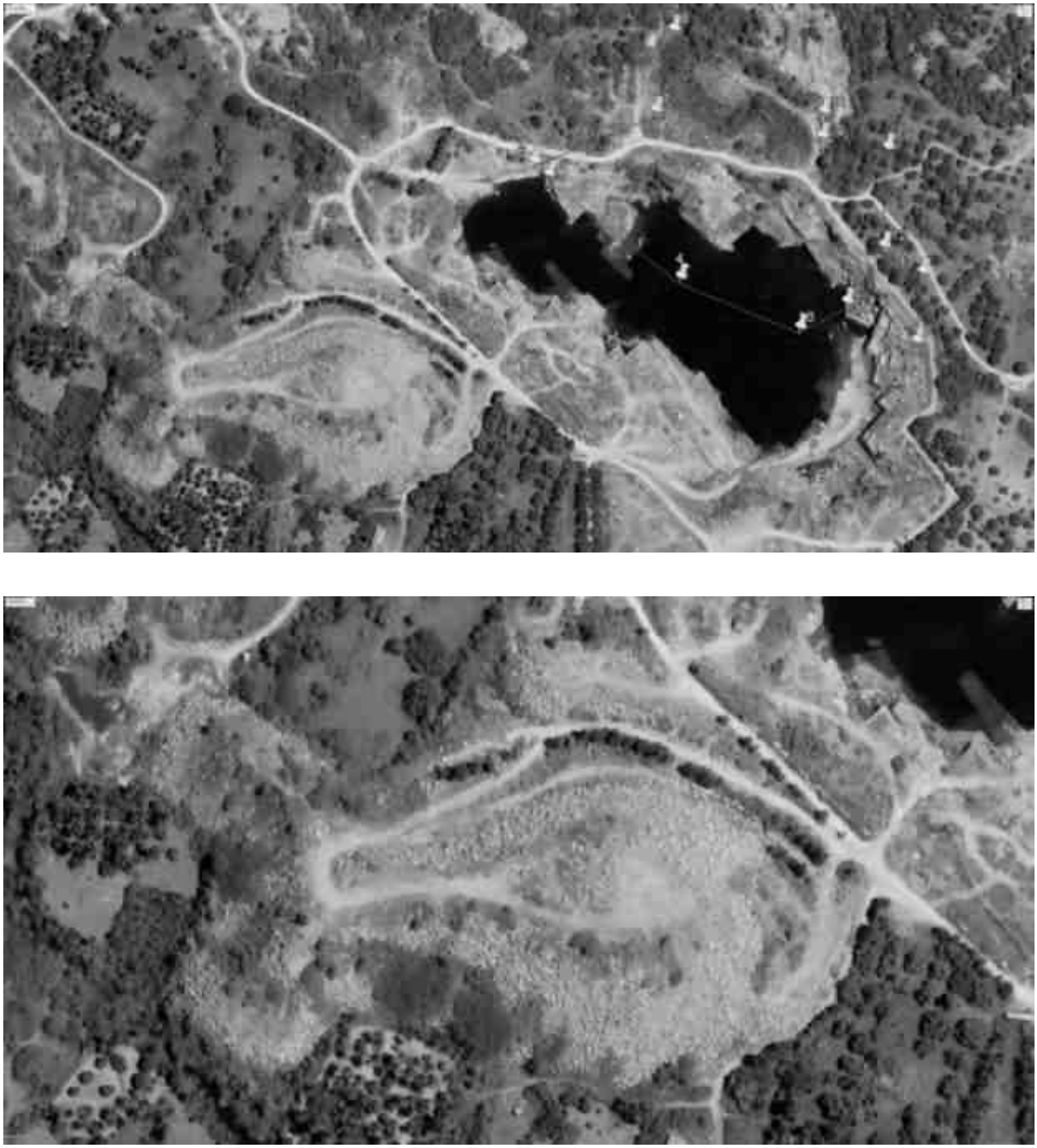


Fig No 13.1 Photos showing reject dump without garland drainage

13.4.1.1 Remediation Plan

To compensate the land damage caused due to scattered rejects around the dump and non adoption of garland drainage, the rejects has to be dumped properly by accumulating the scattered rejects and garland drainage has to be made around the

dumps. The estimated time period for the above work is approximately 3 days. The machineries and labors engaged for the work is given below.

Total workers required per day	= 5 Nos
Wages per labor per day	= Rs.1000
Wages for 5 labors per day	= Rs.5,000
Diesel required per day	= 50 liters
Cost of fuel per day	= Rs.5,000

The estimated cost for reclamation of land is **Rs. 30,000**

13.4.2 Air Environment

The increase in pollution in Air environment causes so many health issues to workers and village people. The mining was carried out without any environment management plan such as water sprinkling system along haul roads, covering truck by tarpaulin while transportation of minerals and provision of PPE to workers. It is needed to estimate the fugitive emission during the violation period to identify the level of impact on air environment. The fugitive emission has been arrived by AERMOD software with the inputs of meteorological data, location and depth of the mines, production per hour and distance of the nearest habitations.

The Total quantity of production during violation period = 6602.794 cum (2016-17)
= 16506.985 MT
= 16506.985/100
= 165.06985 MT/ day

Formula to find the emission rate during loading of minerals:

$$\mathbf{E = [\{(100 - m)\ (m)^{-1}\}^{0.1}\ \{(s)\ (100 - S)^{-1}\}^{0.3}\ h^{0.2}\ \{(u)\ (0.2 + 1.05)^{-1}\}\{(xl)\ (15.4 + 0.87xl)^{-1}\}]}$$

Formula to find the emission rate during movement of vehicles in the haul roads:

$$\mathbf{E = [\{(100\text{-}m)\ (m)^{-1}\}^{0.35}\ \{(us)\ (100\text{-}s)^{-1}\}]^{0.7}\{0.5 + 0.1(f + 0.42v)\}\ 10^{-3}}$$

Table 13.1 INCREMENTAL RISE IN CONCENTRATION (GLCs) OF PM10 (AP) ON LOADING, UNLOADING & TRANSPORTATION ACTION

Locations	Locations Code	Background value in $\mu g/m^3$	Incremental GLC in $\mu g/m^3$	Total Predicted GLC in $\mu g/m^3$
Mine site	AQ1 - Centre	46	31.39	77.39
National Ambient Air Quality Standards (NAAQS)				100

The above table 13.1 shows that the incremental GLC due to mining activity during violation period is 31.39$\mu g/m^3$. The total predicted GLC was 77.39$\mu g/m^3$ which is slightly high due to lack of environmental management plan but it was within the NAAQS.

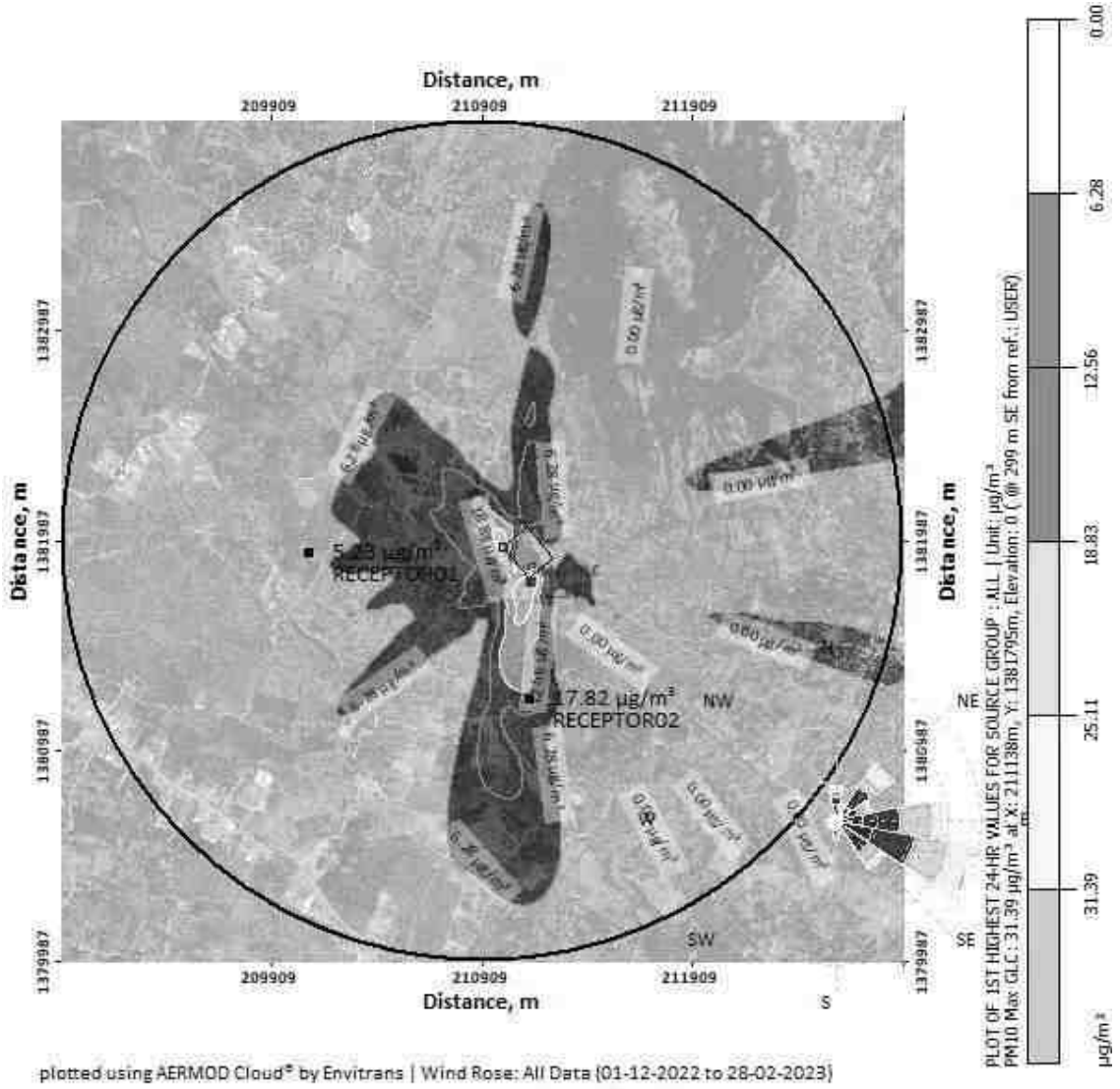


Fig No 13.2 Isopleths of PM10 is 31.39 µg/m3 occurred near the project site (3.15.5 Ha) during violation period due to i) loading and unloading and ii) transportation of Granite over the haul road and iii) open pit surface

13.4.2.1 Impact due to Air Pollution

- The dust generated from the mining activity deposited on the flora in and around the lease area and affected its rate of growth.
- Those dust also deposited on the nearest structures like temple, schools and residential houses.
- Other effect of fugitive emission during mining activity was causing health issues to the workers.

13.4.2.2 Remediation Plan

- The dust gets deposited on the structures and flora was washed out during monsoon season.
- The medical check will be carried out for all labors worked during violation period.
- The Green belt will be developed around the lease boundary to prevent the escape of dust.

  The cost for remediation plan is estimated below

Total man power during violation period	= 18 No's
Cost of medical checkup for a person	= Rs.1,000
Total cost for medical checkup (Workers)	**= Rs.18,000**

13.4.3 Water Environment

By analyzing through Google map and field visit, it is found that, there is Mattur Stream located at the distance of 80m in south direction. During quarrying operation, all the rejects were dumped in the southwest direction near to Mattur stream. Some quantity of reject were scattered around the dump but did not dump into the stream. So the carrying capacity of Mattur stream was not disturbed due to quarry operation during violation period. The quality of water in the stream was also found good.

The water utilized by the proponent during violation period is 4 KLD. Out of 4 KLD, 0.3KLD was procured from mineral water industries vendor for drinking purposes. The remaining 3.7KLD was sourced from good yielded open well through water vendors. The water extracted from open well has been recharged during every year rainy seasons. This existing granite quarry is not working for past 5 years. The rain water stored in the

mined out pits enhances the agricultural activity around the lease area by increasing ground water table. This is a positive impact.

13.4.4 Ecology and Biodiversity

13.4.4.1 Impact Assessment on Biological Environment

There are five Reserve Forest located within 10km of the project site. The nearest Reserve Forest is Thogarapalli R.F located at the distance of 2.4km in south direction The mining has been done only within the lease area. It did not affect any lands in adjacent to mining lease area. As per mining plan (2015-20), 40 trees per annum have been planned to plant around the lease boundary. But the proponent did not plant as per scheme of mining. The plantation of trees provides the habitation for fauna like reptiles, birds and mammals and it maintains ecological balance. The well grown trees absorb the gas emitted by vehicles, human beings and release oxygen. So it control temperature rise and climate change due to mining activity. The greenbelt around the lease boundary act as barrier as it control noise and air pollution.

13.4.4.2 Remediation Plan

The proponent has to plant the sapling around the entire lease boundary to maintain the ecological balance, global warming etc.

The cost of one sapling with fencing, watch and ward	= Rs 250
No of saplings planned to plant (Lease boundary)	= 50 No
Total cost for Plantation	**= Rs. 12,500**

13.4.5 Socio economic environment

13.4.5.1 Impacts on Socio economic environment

The industrial development in the area has both positive and negative impacts. The positive impacts are providing employment to the local village people. Thereby living standard of the village people will be increased. Likewise this granite quarry provided employment to nearly 18 people. Depending on this quarry so many people earned money by keeping hotels, tea shops and mechanical shops etc. The negative impacts are noise and air pollution, resettlements and rehabilitations, ground vibrations causing cracks in the houses, impacts on adjacent agricultural lands, open pits causing accidents to human beings and cattle. This existing quarry did not disturb/relocate any village or

need resettlement. The fencing is still not done around this mine which is danger to cattle and human beings.

13.4.5.2 Remediation plan

- As per MMR, 1961, S1 type of fencing has to be erected around the mining lease area.

The cost estimated for S1 fencing = Rs. 39,500

Table 13.2 Cost Estimated for Remediation Plan (3.15.5 Ha)

S.No	Description	Cost
1	Land Reclamation	Rs.30,000
2	cost for medical checkup (18 Workers)	Rs.18,000
3	Cost for Plantation around lease boundary	Rs.12,500
4	Cost estimated for S1 fencing around lease area	Rs.39,500
	Total Cost	**Rs.1,00,000**

Table 13.3 Natural and Community Resource Augmentation Plan (3.15.5 Ha)

S. No	Activities	Financial Proposal
Natural Resource Augmentation Plan		
1	Development of Rain water harvesting pit in the following places Houses - 4 Shopping complexes - 2 Govt schools - 2 Govt offices - 2	Rs.50,000
2	Installing three numbers of 120W solar street light with Pole One 120W solar light with Pole = Rs.25,000 (including installation cost)	Rs.75,000
3	Plantation in common areas of villages like bus stops, Govt hospitals, VAO offices (100 Trees)	Rs.25,000
	Total	**Rs.1,50,000**

Community Resource Augmentation Plan		
1	Placing 10 numbers of cement concrete chairs in bus stops and in public places in nearest villages. One RCC chair – Rs. 3500	Rs.35,000
2	Providing One 75 LPH R.O Water Plant to the nearest Government school	Rs.30,000
3	Developing sanitary facilities in the nearest Government school	Rs. 85,000
	Total	**Rs 1,50,000**

Total Cost (Remediation Plan + NRAP+CRAP) = Rs.4,00,000

The proponent will take bank guarantee of Rs. 4,00,000 for the lease area of 3.15.5 Ha once the SEAC accepted the estimated cost of Remediation, NRAP, CRAP during appraisal of EC proposal.

13.5 Environmental compensation for Grey Granite of M/s. Karunai Granites Private Limited (11.59.0 Ha)

M/s. Karunai Granites Private Limited operated the quarry between 15.01.2016 and 10.01.2017 and excavated **4325.267** of granite. Project proponent had obtained dispatch slip from 02.02.2016 to 09.01.2017 for the total quantity of 4325.267 cum of grey granite. Therefore, the number of days operated the quarry during violation period including development works, formation of benches is approximately **80 days** excluding non working days, Sundays (50 days) and government holidays (17 days).

Environmental Compensation for the quarrying activity carried out during violation period is computed as follows:

Environmental Compensation, EC = PI × N × R × S × LF

Where

PI = 80 for Red Category Industry
N = 80 days
R = Rs.100 (Minimum)
S = 0.5 for cumulatively Small Scale Unit
LF = 1.0 for population less than 1.0 million

EC = 80 x 80 x 100 x 0.5 x 1.0

EC = Rs. 3,20,000

13.6 Impacts of Mining activity on Environmental Components (11.59.0 Ha)

13.6.1 Impact on Land Environment

During Mining activity, land was damaged by not adopting environment management plan. As per scheme of mining (2015-2020), the proponent quarried granite by adopting four benches and by kept the slope of pit as 45°. The project proponent dumped all the rejects outside the lease area in southwest direction. As the garland drainage was not made around the dump, heavy rainfall during monsoon season carried the silt and small stones from the dump and it caused the deposition of silt in the adjacent lands. Some of the rejects were scattered around the dump and affected the growth of plants in that particular places. Refer Fig No 13.1.

Fig No 13.3 Photos showing reject dump without garland drainage

13.6.1.1 Remediation Plan

To compensate the land damage caused due to scattered rejects around the dump and non adoption of garland drainage, the rejects has to be dumped properly by accumulating the scattered rejects and garland drainage has to be made around the dumps. The estimated time period for the above work is approximately 3 days. The machineries and labors engaged for the work is given below.

Total workers required per day	= 5 Nos
Wages per labor per day	= Rs.1000
Wages for 5 labors per day	= Rs.5,000
Diesel required per day	= 50 liters
Cost of fuel per day	= Rs.5,000

The estimated cost for reclamation of land is **Rs. 30,000**

13.6.2 Air Environment

The increase in pollution in Air environment causes so many health issues to workers and village people. The mining was carried out without any environment management plan such as water sprinkling system along haul roads, covering truck by tarpaulin while transportation of minerals and provision of PPE to workers. It is needed to estimate the fugitive emission during the violation period to identify the level of impact on air environment. The fugitive emission has been arrived by AERMOD software with the inputs of meteorological data, location and depth of the mines, production per hour and distance of the nearest habitations.

The Total quantity of production during violation period = 4325.267 cum (2016-17)
= 10813.1675 MT
= 10813.1675/80
= 135.1646 MT/ day

Formula to find the emission rate during loading of minerals:

$$\mathbf{E = [\{(100 - m)\ (m)^{-1}\}^{0.1}\ \{(s)\ (100 - S)^{-1}\}^{0.3}\ h^{0.2}\ \{(u)\ (0.2 + 1.05)^{-1}\}\{(xl)\ (15.4 + 0.87xl)^{-1}\}]}$$

Formula to find the emission rate during movement of vehicles in the haul roads:

$$\mathbf{E = [\{(100\text{-}m)\ (m)^{-1}\}^{0.35}\ \{(us)\ (100\text{-}s)^{-1}\}]^{0.7}\{0.5 + 0.1(f + 0.42v)\}\ 10^{-3}}$$

Table 13.4 INCREMENTAL RISE IN CONCENTRATION (GLCs) OF PM10 (AP) ON LOADING, UNLOADING & TRANSPORTATION ACTION

Locations	Locations Code	Background value in µg/m^3	Incremental GLC in µg/m^3	Total Predicted GLC in µg/m^3
Mine site	AQ1 - Centre	46	31.39	77.39
National Ambient Air Quality Standards (NAAQS)				100

The above table 13.2 shows that the incremental GLC due to mining activity during violation period is 31.39µg/m^3. The total predicted GLC was 77.39µg/m^3 which is slightly high due to lack of environmental management plan but it was within the NAAQS.

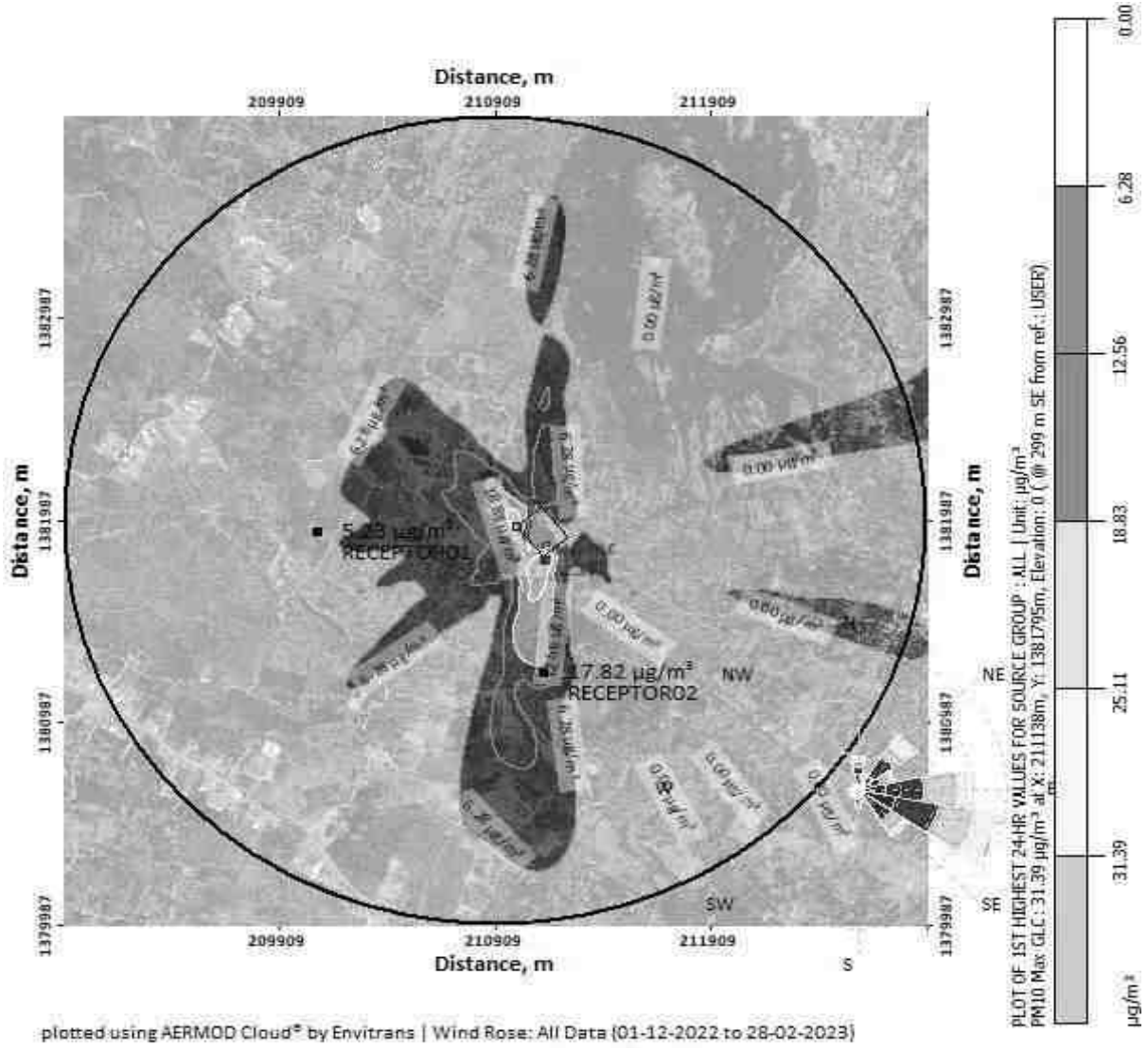


Fig No 13.4 Isopleths of PM10 is 31.39 µg/m3 occurred near the project site (11.59.0 Ha) during violation period due to i) loading and unloading and ii) transportation of Granite over the haul road and iii) open pit surface

13.6.2.1 Impact due to Air Pollution

- The dust generated from the mining activity deposited on the flora in and around the lease area and affected its rate of growth.
- Those dust also deposited on the nearest structures like temple, schools and residential houses.
- Other effect of fugitive emission during mining activity was causing health issues to the workers.

13.6.2.2 Remediation Plan

- The dust gets deposited on the structures and flora was washed out during monsoon season.
- The medical check will be carried out for all labors worked during violation period.
- The Green belt will be developed around the lease boundary to prevent the escape of dust.

  The cost for remediation plan is estimated below

Total man power during violation period	= 18 No's
Cost of medical checkup for a person	= Rs.1,000
Total cost for medical checkup (Workers)	**= Rs.18,000**

13.6.3 Water Environment

By analyzing through Google map and field visit, it is found that, there is Mattur Stream located at the distance of 80m in south direction. During quarrying operation, all the rejects were dumped in the southwest direction near to Mattur stream. Some quantity of reject were scattered around the dump but did not dump into the stream. So the carrying capacity of Mattur stream was not disturbed due to quarry operation during violation period. The quality of water in the stream was also found good.

The water utilized by the proponent during violation period is 4 KLD. Out of 4 KLD, 0.3KLD was procured from mineral water industries vendor for drinking purposes. The remaining 3.7KLD was sourced from good yielded open well through water vendors. The water extracted from open well has been recharged during every year rainy seasons. This existing granite quarry is not working for past 5 years. The rain water stored in the

mined out pits enhances the agricultural activity around the lease area by increasing ground water table. This is a positive impact.

13.6.4 Ecology and Biodiversity

13.6.4.1 Impact Assessment on Biological Environment

There are five Reserve Forest located within 10km of the project site. The nearest Reserve Forest is Thogarapalli R.F located at the distance of 2.4km in south direction The mining has been done only within the lease area. It did not affect any lands in adjacent to mining lease area. As per mining plan (2015-20), 30 trees per annum have been planned to plant around the lease boundary. But the proponent did not plant as per scheme of mining. The plantation of trees provides the habitation for fauna like reptiles, birds and mammals and it maintains ecological balance. The well grown trees absorb the gas emitted by vehicles, human beings and release oxygen. So it control temperature rise and climate change due to mining activity. The greenbelt around the lease boundary act as barrier as it control noise and air pollution.

13.6.4.2 Remediation Plan

The proponent has to plant the sapling around the entire lease boundary to maintain the ecological balance, global warming etc.

The cost of one sapling with fencing, watch and ward	= Rs 250
No of saplings planned to plant (Lease boundary)	= 50 No
Total cost for Plantation	**= Rs. 12,500**

13.6.5 Socio economic environment

13.6.5.1 Impacts on Socio economic environment

The industrial development in the area has both positive and negative impacts. The positive impacts are providing employment to the local village people. Thereby living standard of the village people will be increased. Likewise this granite quarry provided employment to nearly 18 people. Depending on this quarry so many people earned money by keeping hotels, tea shops and mechanical shops etc. The negative impacts are noise and air pollution, resettlements and rehabilitations, ground vibrations causing cracks in the houses, impacts on adjacent agricultural lands, open pits causing accidents to human beings and cattle. This existing quarry did not disturb/relocate any village or

need resettlement. The fencing is still not done around this mine which is danger to cattle and human beings.

13.6.5.2 Remediation plan

- As per MMR, 1961, S1 type of fencing has to be erected around the mining lease area.

The cost estimated for S1 fencing = Rs. 39,500

Table 13.5 Cost Estimated for Remediation Plan (11.59.0 Ha)

S.No	Description	Cost
1	Land Reclamation	Rs.30,000
2	cost for medical checkup (18 Workers)	Rs.18,000
3	Cost for Plantation around lease boundary	Rs.12,500
4	Cost estimated for S1 fencing around lease area	Rs.1,00,000
	Total Cost	**Rs.1,60,000**

Table 13.6 Natural and Community Resource Augmentation Plan (11.59.0 Ha)

S. No	Activities	Financial Proposal
Natural Resource Augmentation Plan		
1	Development of Rain water harvesting pit in 3 Govt schools	Rs.15,000
2	Installing Two numbers of 120W solar street light with Pole One 120W solar light with Pole = Rs.25,000 (including installation cost)	Rs.50,000
3	Plantation in common areas of villages like bus stops, Govt hospitals, VAO offices (60 Trees)	Rs.15,000
	Total	**Rs.80,000**
Community Resource Augmentation Plan		
1	Placing 6 numbers of cement concrete chairs in bus stops and in public places in nearest villages. One RCC chair – Rs. 3500	Rs.21,000

2	Providing One 75 LPH R.O Water Plant to the nearest Government school	Rs.30,000
3	Providing Projector set up for teaching purpose to the nearest Government school	Rs. 29,000
	Total	**Rs 80,000**

Total Cost (Remediation Plan + NRAP+CRAP) = Rs.3,20,000

The proponent will take bank guarantee of Rs. 3,20,000 for the lease area of 11.59.0 Ha once the SEAC accepted the estimated cost of Remediation, NRAP, CRAP during appraisal of EC proposal.

Annexure of Karunai Granites

(Extent: 3.15.5 Ha)

THIRU. DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR) (Under Violation)

Lr No.SEIAA-TN/F.No.5292/2016/TOR-1398/2023 Dated: 21.03.2023

To

M/s. Karunai Granites Private Limited,
Jagadevipalayam Village & Post,
Krishnagiri Taluk,
Krishnagiri District - 635 203.

Sir/Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference (ToR) under violation for the Existing Grey Granite Quarry lease over an extent of 3.15.5 Ha in S.F.Nos. 299/2 Part & 301/1 Part of Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu by M/s. Karunai Granites Private Limited under project category – "B1" and Schedule S.No. 1(a) – ToR issued without Public Hearing – Preparation of EIA report, EMP report, ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation – Regarding.

Ref:
1. MoEF & CC Notification S.O. 804 (E) dated 14.03.2017.
2. MoEF & CC Notification S.O.1030 (E) dated 08.03.2018.
3. Online proposal No. SIA/TN/MIN/26186/2018, Dated: 22.05.2018.
4. Your Application for Terms of Reference dated: 13.05.2016.
5. Minutes of the 340th SEAC meeting held on 23.12.2022.
6. Minutes of the 585th SEIAA meeting held on 13.01.2023.
7. Minutes of the 357th SEAC meeting held on 23.02.2023.
8. Minutes of the 603rd SEIAA meeting held on 20.03.2023 & 21.03.2023.

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Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, M/s. Karunai Granites Private Limited has submitted application for ToR on 13.05.2016, in Form-I, Pre- Feasibility report for the Existing Grey Granite Quarry lease over an extent of 3.15.5 Ha in S.F.Nos. 299/2 Part & 301/1 Part of Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Existing Grey Granite quarry over an Extent of 3.15.5 Ha at S.F.Nos: 299/2 Part & 301/1 Part, Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamilnadu by M/s. Karunai Granites Private Limited - for the Terms of Reference "Under Violation". (SIA/TN/MIN/26186/2018 Dated: 22.05.2018)

The proposal was placed in 340th SEAC meeting held on 23.12.2022. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following

1. The Project Proponent, M/s. Karunai Granites Private Limited has applied for the Environmental Clearance under Violation for the Existing Grey Granite quarry over an Extent of 3.15.5 Ha at S.F.Nos: 299/2, part & 301/1 Part Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamilnadu by M/s. Karunai Granites Private Limited, Tamilnadu.
2. The proposed quarry/activity is covered under Category "B" – "Under Violation" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The project proponent has obtained Mining lease vide Government Order (2D).No.9 Industries (E.2) Department dated 18.01.1995 for Ten years and the lease deed was executed on 02.02.1995. The period of lease is for 10 years upto 01.02.2005.
4. The Mining Plan was approved by Commissioner of Geology and Mining, Guindy, Chennai vide letter No. 14761/B1/1994 dated 22.09.1994. The lessee has preferred an application submitted on dated 28.01.2004 for renewal and the same is pending
5. The High Court Order MP. Nos. 1& 1 of 2010 & WP. Nos. 3034 & 3035 of 2010.
6. The mining lease was issued for the period of 10 years. The approved mining plan is for the period of four years & production should not exceed 143640 cu.m of RoM including 35909 cu.m of Grey Granite & 107731 cu.m of Granite Waste) along with

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13794 cu.m of Weathered Granite, 1428 cu.m of Topsoil. The ultimate depth is 19m BGL.

7. MoEF&CC notification vide S.O. 804 (E) Dt. 14.3.2017.
8. MoEF & CC Notification S.O.1030 (E) dated 08.03.2018.
9. MoEF&CC Office Memorandum No. F.No. Z-11013/22/2017-IA.II (M) dated 15.03.2018.
10. MoEF &CC OM F. No. 22-10/2019-IA.111 dated 09.09.2019.
11. Hon'ble NGT(SZ) order dated 30.06.2020 in O.A.No.136 of 2017.
12. MoEF&CC, Office Memorandum Dt:12.11.2020.

Based on the presentation and documents furnished by the project proponent, SEAC decided to grant of Terms of Reference (TOR) under Violation category, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants.

1. The PP shall furnish an Independent Chapter 13 as per the MoEF & CC Violation Notification – S.O. 804 (E), dated. 14.03.2017 prepared by the accredited consultants within a period of one year from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance.
2. The Project proponent shall conduct and furnish Minutes of Public hearing as per ToR issued Dt: 18.05.2018 & 30.07.2018. Accordingly, the PP shall submit revised EIA/EMP.
3. As a part of procedural formalities as per the MoEF & CC Violation Notification – S.O. 804 (E), dated. 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environment (Protection) Act, 1986 against violation.
4. Copy of valid mining lease approval obtained from the competent Authority.
5. Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.

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6. Copy of request letter submitted for renewal of mining plan.
7. Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
8. Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining, and copy of remittance of total penalty by PP.
9. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
10. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
11. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
12. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
13. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
14. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
15. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
16. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,

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a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
b) Quantity of minerals mined out.
c) Highest production achieved in any one year
d) Detail of approved depth of mining.
e) Actual depth of the mining achieved earlier.
f) Name of the person already mined in that leases area.
g) If EC and CTO already obtained, the copy of the same shall be submitted.
h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.

17. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
18. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
19. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
20. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
21. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
22. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons

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from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.

23. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
24. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
25. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
26. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
27. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
28. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
29. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
30. Impact on local transport infrastructure due to the Project should be indicated.

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31. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
32. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
33. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
34. The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.
35. The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.
36. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
37. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
38. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/ Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
39. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.

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40. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
41. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
42. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
43. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
44. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
45. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
46. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
47. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
48. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Subsequently it was placed in 585th SEIAA meeting held on 13.1.2023.

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The Authority noted that this proposal seeking Terms of Reference (ToR) under Violation lacks the following valid mandatory documents for considering issue of TOR.

1. Copy of approved second scheme of mining plan by the competent authority of the Dept. of Geology and Mining
2. Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date
3. Copy of request letter submitted for renewal of mining Plan

In view of the above, Authority after detailed discussion decided to refer back the proposal to SEAC to furnish remarks whether the issue of Terms of Reference (ToR) under violation is feasible without above said valid mandatory documents.

Based that this proposal has again been placed in 357th SEAC meeting held on 23.2.2023 and the PP has made re presentation covering the above points is as follows.

Sl.No	Details Sought by SEIAA	Reply furnished by the PP
1.	Copy of approved second scheme of mining plan by the competent authority of the Dept. of Geology and Mining	Scheme of mining has been prepared and submitted to DGM for approval. It will be submitted along with EC application.
2.	Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date	The quarry is said to be working under court order
3.	Copy of request letter submitted for renewal of mining Plan	Covering letter for submission of SOM is enclosed.

The committee carefully examined the points raised by SEIAA and the replies given by the PP and decided to reiterate its recommendation already made in 340th Meeting of SEAC held on 23.12.2022. All other conditions stipulated in the earlier minutes will remain unaltered.

Appendix

List of Native Trees Suggested for Planting

1. ***Aegle marmelos*** – Vilvam
2. ***Adenaanthera pavonina*** - Manjadi
3. ***Albizia lebbeck*** – Vaagai

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4. ***Albizia amara*** - Usil
5. ***Bauhinia purpurea*** - Mantharai
6. ***Bauhinia racemosa*** - Aathi
7. ***Bauhinia tomentosa*** – Iruvathi
8. ***Buchanania axillaris*** - Kattuma
9. ***Borassus flabellifer*** - Panai
10. ***Butea monosperma*** - Murukka maram
11. ***Bobax ceiba*** – Ilavu, Sevvilavu
12. ***Calophyllum inophyllum*** - Punnai
13. ***Cassia fistula*** - Sarakondrai
14. ***Cassia roxburghii***- Sengondrai
15. ***Chloroxylon sweitenia*** - Purasa maram
16. ***Cochlospermum religiosum*** – Kongu, Manjal Ilavu
17. ***Cordia dichotoma*** – Mookuchali maram
18. ***Creteva adansonii*** – Mavalingum
19. ***Dillenia indica*** – Uva, Uzha
20. ***Dillenia pentagyna*** – Siru Uva, Sitruzha
21. ***Diospyros ebenum*** - Karungali
22. ***Diospyros chloroxylon*** – Vaganai
23. ***Ficus amplissima*** – Kal Itchi
24. ***Hibiscus tiliaceus*** – Aatru poovarasu
25. ***Hardwickia binata*** – Aacha
26. ***Holoptelia integrifolia*** - Aayili
27. ***Lannea coromandelica*** - Odhiam
28. ***Lagerstroemia speciosa*** - Poo Marudhu
29. ***Lepisanthus tetraphylla*** - Neikottai maram
30. ***Limonia acidissima*** - Vila maram
31. ***Litsea glutinosa*** –Pisin pattai
32. ***Madhuca longifolia*** - Illuppai
33. ***Manilkara hexandra*** – Ulakkai Paalai
34. ***Mimusops elengi*** - Magizha maram
35. ***Mitragyna parvifolia*** - Kadambu

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36. ***Morinda pubescens*** – Nuna
37. ***Morinda citrifolia*** – Vellai Nuna
38. ***Phoenix sylvestre*** - Eachai
39. **Pongamia pinnata** – Pungam
40. **Premna mollissima** – Munnai
41. **Premna serratifolia** – Narumunnai
42. **Premna tomentosa** - Purangai Naari, Pudanga Naari
43. **Prosopis cinerea** - Vanni maram
44. **Pterocarpus marsupium** - Vengai
45. **Pterospermum canescens** – Vennangu, Tada
46. **Pterospermum xylocarpum** - Polavu
47. **Puthranjiva roxburghii** – Puthranjivi
48. **Salvadora persica** – Ugaa Maram
49. **Sapindus emarginatus** - Manipungan, Soapu kai
50. **Saraca asoca** - Asoca
51. **Streblus asper** - Piraya maram
52. **Strychnos nuxvomica** – Yetti
53. **Strychnos potatorum** - Therthang Kottai
54. **Syzygium cumini** - Naval
55. **Terminalia bellerica** - Thandri
56. **Terminalia arjuna** - Ven marudhu
57. **Toona ciliate** – Sandhana vembu
58. **Thespesia populnea** - Puvarasu
59. **Walsuratrifoliata** – valsura
60. **Wrightia tinctoria** – Veppalai
61. **Pithecellobium dulce** – Kodukkapuli

Discussion by SEIAA and the Remarks:-

The subject was placed in 603rd Authority meeting held on 20.03.2023 & 21.03.2023. The Authority noted that the subject was appraised in 357th SEAC meeting held on 23.02.2023. The committee decided to reiterate its recommendation already made in 340th meeting of SEAC held on 23.12.2022.

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After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) under violation category** for the period of 3 years for undertaking EIA study followed by the EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants subject to the conditions as recommended by SEAC & normal / Standard conditions in addition to the following conditions and conditions stated therein vide **Annexure 'B'.**

1. The ToR issued only to carry out EIA studies and mere preparation of EIA report will not entitle the PP to EC.
2. The project proponent shall furnish the status of court case.
3. The project proponent shall furnish approved and valid scheme of mining plan along with EIA report.
4. The project proponent shall furnish the letter obtained from AD mines regarding extension of lease / execution of new lease along with EIA report.
5. The project proponent shall furnish valid EMP.
6. The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC.
7. The PP shall furnish Copy of valid mining lease approval obtained from the competent Authority.
8. The PP shall furnish Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
9. The PP shall furnish EMP for the project life including progressive mine closure plan and final mine closure plan with detailed budget plan.
10. The PP shall study in detail about CO_2 release and temperature rise and add to micro climate alternations and the same shall be included in the final EIA report.
11. The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.
12. The PP shall study in detail about Soil health, Climate change leading to Droughts, Floods etc.
13. The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
14. The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.
15. The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA report.

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16. The PP shall study the impact on Invasive Alien Species (IAP).

In case the PP does not furnish Chapter 13 as directed by SEAC, MS, SEIAA may refer the file to SEAC for further action.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

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Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
    a) Soil health & soil biological, physical land chemical features .
    b) Climate change leading to Droughts, Floods etc.
    c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
    d) Possibilities of water contamination and impact on aquatic ecosystem health.
    e) Agriculture, Forestry & Traditional practices.
    f) Hydrothermal/Geothermal effect due to destruction in the Environment.
    g) Bio-geochemical processes and its foot prints including environmental stress.
    h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.

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21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks

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and temperature reduction including control of other emission and climate mitigation activities.

33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

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41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Additional TOR specified by the SEAC to deal with the violation aspects of the mining projects

SECTION A

As per the MoEF & CC Notification S.O. 1030 (E) dated: 08.03.2018,

1. "The cases of violations will be appraised by the Expert Appraisal Committee at the Central level or State or Union territory level Expert Appraisal Committee constituted under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 with a view to assess that the project has been constructed at a site which under prevailing laws is permissible and expansion has been done which can run sustainably under compliance of environmental norms with adequate environmental safeguards, and in case, where the findings of Expert Appraisal Committee for projects under category A or State or Union territory level Expert Appraisal Committee for projects under category B is negative, closure of the project will be recommended along with other actions under the law.

2. In case, where the findings of the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee on point at sub-paragraph (4) above are affirmative, the projects will be granted the appropriate Terms of Reference for undertaking Environment Impact Assessment and preparation of Environment Management Plan and the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee, will prescribe specific Terms of Reference for the project on assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter in the environment impact assessment report by the accredited consultants, and the collection and analysis of data for assessment of ecological damage, preparation of remediation plan and natural and community resource augmentation plan shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or a environmental laboratory accredited by the National Accreditation Board for Testing and Calibration Laboratories, or a laboratory of

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the Council of Scientific and Industrial Research institution working in the field of environment."

After the appraisal of the project, the SEAC decided that the Para No.2 stated above is applicable to the project. Hence, the proponent is directed to prepare appropriate reports as contained in the Para 2.

While complying with the specific aspects of the MoEF & CC directions as stated in the Para 2 above, the following steps should be followed:

Step 1: Enumerate the aspects of Violation:

a) The proponent should enumerate the violations as applicable to the project.
b) Furnish a description of each violation with quantitative and qualitative data.
c) Violation categories are to be decided taking into consideration the stage at which the project execution stands.

Step 2: Ecological Damage Assessment:

a) For each aspect of violation enumerated in step (1), identify the resultant environmental damage that may have been caused.
b) Furnish a description of the environmental damages with quantitative and qualitative data.

Step 3: Remediation Plan:

a) For the Environmental damage(s) identified in the step (2) above, prepare the remediation plan for the each or combination of damages.
b) The remediation plan should essentially consists of problem statement, target to be achieved (quantity), standards, technology/ procedure for remediation, equipment and machinery to be used, time schedule and remediation cost(direct and indirect cost, capital as well as O&M costs).

SECTION B

1. Natural resource Augmentation:
   a) The resources that should be considered for augmentation should essentially consist of land, biota, air, water and other resources as applicable.

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b) Proponent may choose one or more of the resource augmentation as applicable and provide a description of the augmentation proposal in detail for each resource.

c) The proponent should also furnish the cost for each augmentation scheme.

2. Community resource Augmentation:

a) The proponent should prepare a plan of action for addressing the needs of the community in terms of resources in the sectors of education, health and sports primarily and other such resources as applicable to the community in the vicinity of the project.

b) The community resource augmentation plan should consist of rehabilitation of houses and people, budget allocation and time schedule for completing the activity.

SECTION C

The proponent should prepare content for the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation separately in a chapter and include in the EIA / EMP report.

SECTION D

a) After the appraisal of the EIA / EMP report submitted by the proponent, the SEAC will make a judgement of the quality of the content in the EIA / EMP report specifically with reference to the chapter covering the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.

b) In the judgement of SEAC, if the quality of the content in the chapter is not satisfactory, the SEAC may direct the proponent to further revise the chapter and resubmit the EIA/EMP report.

c) If SEAC concludes that the technical part is satisfactory and the costing aspect is not satisfactory then the SEAC may revert to legal provisions, MoEF & CC guidelines and similar expert committee recommendations for finalizing the cost aspects or the SEAC may use its own expertise and experience in finalizing the cost.

SECTION E

The proponent is directed to furnish data as per the questionnaire appended in Annexure I. It will help the SEAC in arriving the ecological damage and the associated cost.

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SECTION F

In compliance with the Supreme Court order stated in MoEF & CC letter F.No. 3-50/2017 IA.III-pt dated: 05th January 2018, the proponent is required to submit the No Objection Certificate obtained from the Department of Geology and Mining, Government of Tamil Nadu regarding payment of 100% cost of illegally mined mineral under section 21(5) of MMDR Act 1957 which would account for mining operations in violation of the following:

a) Without Environmental Clearance (EC), or in excess of the quantity approved in EC
b) Without Consent to Operate (CTO) or in excess of the quantity approved in CTO and
c) Without mining plan/scheme of mining or in excess of the quantity approved in mining plan / scheme of mining
d) Without Forest Clearance
e) Any other violation

List out the details of reserve forest and wildlife sanctuary nearby the project site (the details should also include other districts which are nearby the project site) and also furnish the detail of distance between the project site and reserve forests/wildlife sanctuary.

Whether the project site attracts the HACA clearance? If so, also furnish the HACA clearance for the mining from the competent authority.

The proponent is instructed to fill in the form contained in **Annexure 1** to work out the details of the ecological damage during the violation period.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.

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3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

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10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly

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authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in

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the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per

CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

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28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be

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included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

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44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land

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features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1) Project name and location (Village, District, State, Industrial Estate (if applicable).
2) Products and capacities. If expansion proposal then existing products with capacities and reference to earlier EC.
3) Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
4) Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
5) Measures for mitigating the impact on the environment and mode of discharge or disposal.
6) Capital cost of the project, estimated time of completion.
7) Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
8) Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
9) Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
10) Likely impact of the project on air, water, land, flora-fauna and nearby population
11) Emergency preparedness plan in case of natural or in plant emergencies
12) Issues raised during public hearing (if applicable) and response given
13) CER plan with proposed expenditure.
14) Occupational Health Measures
15) Post project monitoring plan

Besides the above, the below mentioned **general points** should also be followed:-

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.

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SEIAA-TN

b. All documents may be properly referenced with index, page numbers and continuous page numbering.

c. Copy of permission related to Port facility, Desalination plant, wind mill /solar power plant from competent Authority.

d. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.

e. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

f. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009,18th March 2010, 28th May 2010 , 28th June 2010 ,31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance
- The TORs prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

The receipt of this letter may be acknowledged.

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Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Krishnagiri District.
7. Stock File.

Annexure 1

Additional information for considering EC for mining projects

<table>
<tr><th>S.No.</th><th>Details to be provided</th><th>Page no.</th></tr>
<tr><td>1)</td><td>Name of the project lease & owner</td><td></td></tr>
<tr><td>2)</td><td>Lease Extent</td><td></td></tr>
<tr><td>3)</td><td>Lease Validity</td><td></td></tr>
<tr><td>4)</td><td>Approved Mining Plan/Scheme – Review
a) Specify whether DSR is provided (applicable in case of minor minerals only)</td><td></td></tr>
<tr><td>5)</td><td>Specify - Nature and type of violation
I. Without EC or in excess of quantity approved in EC
II. Without CTO or in excess of quantity approved in CTO
III. Without mining plan/Scheme of mining or in excess of quantity approved in Mining plan/Scheme of mining.
IV. Without forest Clearance
V. Any other violation</td><td></td></tr>
<tr><td>6)</td><td>Violation period
I. Number of months
II. Number of Years</td><td></td></tr>
<tr><td>7)</td><td>Exploitation/Excavation quantity- Reserves proved through exploration by drilling</td><td></td></tr>
<tr><td>8)</td><td>Give details of production from the date of execution of the lease deed / since 1994
<table>
<tr><td rowspan="2">Year and quantity</td><td colspan="2">2010-11*</td><td colspan="2">2011-12*</td><td colspan="2">2012-13*</td></tr>
<tr><td>Planned</td><td>Actual</td><td>Planned</td><td>Actual</td><td>Planned</td><td>Actual</td></tr>
<tr><td>Ore/mineral/granite blocks (tonnes)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Waste (tonnes/cu.m)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7">* year of mining operation</td></tr>
</table></td><td></td></tr>
</table>

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9)	Quantity mined out during the violation period & if, yes indicate the violated quantity, in term of % of consented quantity.	

Year and quantity mined out during the violation period	2010-11		2011-12		2012-13	
	Planned	Actual	Planned	Actual	Planned	Actual
Ore/mineral/granite blocks (tonnes)						
Waste excavation (tonnes/cu.m)						

10)	State illegal mining/encroachments outside the lease boundary? Percentage of quantity mined out outside the lease boundary.	
11)	Method of working	
	I. Category type: (a) Mechanised (b) Semi – Mechanised (c) Manual	
	II. Construction and design of haul roads	
	a) Dimension as per the statutory requirements which were followed or otherwise	
	b) Number of vehicles plying on the main haul roads inside the mine and the approach road to the pit located outside the mine, if any.	
	c) Are any measures taken to minimise fugitive dust generated form mine haul roads? Does it comply with the CPCB/PCB Guidelines?	
	d) Is there a possibility that air pollutants emitted from the project area that do not comply with air quality standards as per CPCB/PCB?	
12)	Mechanized / Semi – Mechanized Method of Mining	
	(i) Number of loading / excavating equipments as per approved mining plan and capacity.	
	(ii) Number of loading / excavating equipments actually being deployed and capacity.	

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	(iii) Type and number of transporting equipments.	
	(iv) Type of transporting system used – (a) trucks (b) Any other mode	
	(v) Capacity and Number of trucks used as per approved mining plan	
	(vi) Capacity and Number of trucks used actually in the mine.	
	(vii) Number and capacity of loading equipments and trucks used not in line with approved mining plan.	
	(viii) Impact of excess deployment of loading equipments (excavators) and transporting equipments on environment. (a) Air pollutants (b) Water Quality (c) Land Quality (d) Noise level	
	(ix) Does the deployment of loading equipments (excavators) and trucks fulfil the statutory requirements as per MMR 1961, with respect to the site conditions?	
13)	Method of Rock Breaking/Material preparation for the excavation:	
	(i) Methodology adopted –	
	a) Drilling and blasting	
	b) Rock breakers	
	c) Rippers	
	d) Surface miners	
	e) Direct mucking by excavators	
	f) Manual means	
	g) Any other methods or combination of above	
	(ii) In case of drilling and blasting method:	
	(a) Type of blasting: short hole or deep hole	
	(b) Whether controlled blasting technique adopted? If yes, specify the technique with details of study, year of study	
	(c) Impacts due to blasting defined as per the studies, if any carried out previously as indicated	

	Capacity (m^3)	Numbers
Excavator		
Trucks		

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	(d) Dust pollution	
	(e) Noise level (dB(A))	
	(f) Ground vibration studies and Fly rock projection	
	(iii) Impact of preparation of Ore and waste on environment-	
	a) Air Pollution	
	b) Noise Pollution	
	c) Water Pollution	
	d) Safety standards	
	e) Traffic density	
	f) Road Condition (vulnerability)	
14)	Construction and Design of Dumps.	
	a) Place/Location	
	b) Approach to Dump form the mine distance and safety standards.	
	c) Area of extent occupied	
	d) Dimension of Dump and No. of terrace with heights (benches)	
	e) Vegetation covered ; If yes, specify the details of plants	
15)	Construction and Design of Waste Dumps	
	(i) Numbers and Location of Dumps as per approved Mining Plan	
	(ii) Specify whether reject dumps are located within or outside mining lease	
	(iii) Area occupied in excess of the approval mining plan.	
	(iv) Dimension of Terracing, Light, shapes, etc., Dump as per approved Mining Plan	
	(v) Fresh/Existing Dimension Height, shape, width. etc., of Dumps in the mine.	
	(vi) Volume/Quantity added to Waste/Dump during the violated period.	
	(vii) Approach to the Dump-Dimension, distance.	
	(viii) Number of and type of equipments deployed in Dump.	
	(ix) Provision of Garland drains around the Dumps.	
	(x) Any vegetation made on the slopes.	
	(xi) Provision of safety standards.	
	(xii) Impact of Waste/Dumps on environment.	
	a) Air pollution	
	b) Water pollution	
	c) Dust pollution	
	d) Noise pollution	
	(xiii) Terracing	

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16)	Construction and Design of Ore and sub grade ore/mineral Stacks:-	
	(i) Number and Location of Ore stacks.	
	(ii) Dimension of Ore/sub grade Stacks as per the Approved Mining Plan	
	(iii) Volume/Quantity added during the violation period.	
	(iv) Any Screening plant or any other loading equipment engaged during the violated period.	
	(v) Approach to Ore / sub grade stack –Distance, hazards.	
	(vi) Safety standards adopted while operation.	
	(vii) Impact of ore/sub grade on environment	
	a. Air pollution	
	b. Water pollution	
	c. Dust pollution	
	d. Noise pollution	
17)	Mine Pit Water	
	(i) Intersection of Ground water table, specify the measures taken.	
	(ii) Ground water table as per hydro geological Studies (Pumping test).	
	(iii) Provision of Garland drains around pit and dumps	
	(iv) Water pollution	
	(v) Management of mine water.	
	(vi) Ultimate pit limit, w.r.t Ground water intersection and management of drainage of ground water.	
18)	Diversion of General Drainage/River/Nallah course for mining	
19)	Clearing of vegetation before the commencement of mining operation- Number of trees (species wise)	
20)	Man Power	
	(a) Statutory management	
	(b) Regular (Non –statutory) Manpower	
21)	Occupational Health and Safety.	
	(a) Periodical monitoring of health standards of persons employed as per Mine Act, 1952.	

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	(b) Failure to inform statutory bodies periodically, if any	
22)	Population (Nearby Habitation)	
	(i) Population/Significant Population/Dense Population within the buffer zone of 10 Kms.	
	(ii) People displacement due to mining activities	
	(iii) Location/ Existence of habitation near the river or any other historical/sensitive/ forest distance.	
	(iv) Impact of mining on Surrounding and habitation-Air, Water, Noise, Pollution.	
	(v) Socio Economic aspects of mining.	
23)	CSR	
	(a) Field ground Activities or studies. Actual amount spent towards CSR and the future proposal.	
24)	NOC from DMG for quantity clarification in respect of settlement of all the amount payable against identified violation.	
25)	For the Clearance of EC, Public Hearing is mandated as per MoEF & CC Notification.	
26)	Conceptual post mining land use/restoration	
27)	Litigation/court cases, if any pending	
28)	Disaster management plan for the mine	

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ANNEXURE - IV

ABSTRACT

Mines and Minerals-Minor Mineral-Dharmapuri District-Krishnagiri Taluk-Jagadevipalayam village-Grant of quarrying lease to quarry grey granite over an extent of 7.80 acres in S.No.299/2 part and 301/1 part to Tvl.Karunai Granites Private Limited-Orders Issued

Industries(A2) Department

G.O.2D No. 9 Dated: 18.1.95

Read:

1. Application from Tvl.Karunai Granites Private Limited dated Nil received on 23.8.94.
2. From the Collector of Dharmapuri District letter No.1966/94(A.Mines) dated 25.8.94.
3. From the Director of Geology and Mining letter No. Ac.14761/81/94,dated 22.9.94.
4. From Tvl.Karunai Granites Private Limited letter dated Nil received on 19.12.94 and dated nil received on 23.12.94.

...

ORDER:

Tvl.Karunai Granites Private Limited have applied for grant of quarrying lease to quarry grey granite over an extent of 9.00 acres of patta lands in S.No.299/2 part and 301/1 part in Jagadevipalayam village,Krishnagigi Taluk,Dharmapuri District. Subsequently Tvl.Karunai Granites Private Limited in their letter fourth read above have requested to consider their quarrying lease application to a reduced extent of 7.80 acres for the above area.

2. The District Collector Dharmapuri and the Director of Geology and Mining have forwarded the application of Tvl. Karunai Granites Private Limited for passing orders. The firm has since furnished the following documents:-

a) Latest solvancy and Income Tax clearance certificate.
b) Registration certificate.
c) Articles of Association of the company.
d) consent letter from Thiru K.Karunakaran who has got surface right.
e) An undertaking from the firm to the effect that areas applied for in S.No.299/2 part and 301/1 part should be first sub-divided and demarcated before execution of lease deed.
f) An undertaking from the firm to the effect that the adjoining Government lands shall not be encroached upon while quarrying out quarrying operations.

P.T.O.

3.The Government after careful examination have decided to grant quarrying lease to quarry grey granite to Tvl.Karunai Granites Private Limited in patta lands.

4.In exercise of powers conferred under Rule 19-A of Tamil Nadu Minor Mineral Concession Rules,1959, the Governor of Tamil Nadu hereby grants quarrying lease to Tvl.Karunai Granites for quarrying grey granite over an extent of 7.80 acres of patta lands in S.No.299/2 part (6.80 acres) and 301/1 part (1.00 acre) in Jagadevipalayam village,Krishnagiri Taluk, Dharmapuri District for a period of ten years subject to condition specified in the annexure to this order. This quarrying lease is subject to such further modifications, additions and alterations that may be included in the agreement to be executed.

5.The Collector of Dharmapuri District is requested to take necessary further action for the execution of agreement in the prescribed form and communicate the date of execution of agreement to the Government and Director of Geology and Mining.

(BY ORDER OF THE GOVERNOR)

C.RAMACHANDRAN,
ADDITIONAL SECRETARY TO GOVERNMENT.

To

Tvl.Karunai Granites Private Limited,
No.2/145, Shanthi House,Madras Main Road,
Krishnagiri 635 001. Dharmapuri District.
The Director of Geology and Mining,Madras-32.
The Collector,Dharmapuri District.

Copy to:

The Industries(OP.II) Department,Madras-9.

Forwarded/By order.

Section Officer.

ms.18/1.

ANNEXURE

1. The applicant shall execute an agreement within one month from the date of receipt of the Government order.

2. The date of commencement of the period of permission shall be the date on which the agreement is executed.

3. The applicant shall pay seigniorage or dead rent which ever is more in respect of the actual quantity of granit removed at the rates prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.

4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.

5. The applicant should also allow any Officer authorised by the District Collector or any officer authorised by him in this behalf or any other officer authorised by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.

6. The applicant shall carry out the quarrying operations in skillful, scientific systematic manner keeping in view the proper safety of the labour conservation of minerals and preservation of environmental ecology.

7. The applicant shall allow any Officer authorised by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.

8. No quarrying and activities connected thereto shall be done before the execution of the agreement and its registration at the cost of the applicant.

9. No hindrance shall be caused to the adjoining pattadars or public.

10. The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.

11. The terms and conditions are also subject to such further modifications, deletion and additions alteration as may be ordered by the Government to be included in the agreement to be executed for this purpose.

p.t.o.

12. The applicant should maintain at his cost proper sign boards indicating the survey numbers, years of the permission, name of the permission holder and the permission period to the satisfaction of the District Collector/Director of Geology and Mining and maintain it at all time at the quarry site.

13. No working shall be made within a distance of 7.5 metres of the boundaries of the remitted area.

14. The applicant should make his own arrangements to form the approach road from the public road to the place of his quarry.

15. The applicant shall be permitted to quarry the mineral and transport the same to their place of his/her choice pending result of the Special Leave Petition filed by the Government in the Supreme Court against the High Court Judgement dated 23.12.92.

P.J. Lawson
Section Officer.

ANNEXURE - V

5000Rs.

FORM OF JOINT AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS BY LESSEES IN RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT.

THIS AGREEMENT made the 2nd day of February, 1995, between THIRU P.P.KAVERI CHETTY, S/O BETHAPPA CHETTY, 2/143, SHANTHI HOUSE, MADRAS MAIN ROAD, KRISHNAGIRI-635 001, DHARMAPURI DISTRICT, (hereinafter referred to as "the registered holder" which expression shall where the context so admits include his heirs, executors, administrators, legal representatives and assigns) of the first part and

COLLECTOR
DHARMAPURI

430

Document No. 430 of 1995 of Book - I

Contains 1 Sheets 1 Sheet

Sub-Registrar

Presented in the Office of the Sub-Registrar of Dharmapuri and fee of Rs. 2070.00 between the hours of 3 and 4 P.M. on the 7th day of April 1995 by

Execution Admitted By

LEFT THUMB

RIGHT THUMB

S/o. Bethappa Chetty
Business, 2/145, Shanthi House, Madurai main Road, Krishnagiri.

S/o P.P. Kaveri Chetty,
Business do. Managing Director of Kaveri Granites.

S/o. Chinnasamy

S/o V. Govinda Chetty do- Peragopalha Chetty.

Identified by N. Vasudhevan, IAS, Dt. Collector of Dharmapuri

7th day of April 1995

Sub Registrar

3000 Rs.

Tvl. PARIMAL GRANITES PRIVATE LTD., No.2/145, SHANTHI [illegible], MADRAS MAIN ROAD, KRISHNAGIRI-635 001, DHARMAPURI [illegible] (hereinafter referred to as "the Lessee" which expression shall where the context so admits shall include their heirs, executors, administrators, legal representatives and assigns) of the second part, the Governor of Tamil Nadu (hereinafter referred to as "the Government" which expression shall where the context so admits shall include his successors in office and assigns) of the third part.

1142
167 to 179

Registered as No. 430 of 1995
of Book 1 Volume 142 Pages 167
to 178 10th day of April 95
Sub-Registrar

Note: No of copies registered with original two.

Sub Registrar

Document No. 430 of 1995 of Book I
Contains 18 Sheets 2nd Sheet

Sub-Registrar.

3000Rs.

- 3 -

WHEREAS the registered holder holds the lands described in the schedule hereto and is entitled to carry on by himself or by others mining operations in the said lands according to the rules from time to time issued by the Government.

AND WHEREAS mining operations in the said lands cannot be carried on under the said rules without the approval of the Collector of Dharmapuri District (hereinafter referred to as "the Collector" in the State of Tamil Nadu).

DIRECTOR

COLLECTOR,

3000Rs.

AND WHEREAS the registered holder has given notice of his intention to carry on mining operations for Grey granite and of the said lease or intended lease to the lessee of the lands described in the said lands and has lodged with the Collector the lease and an accurate map or sketch of the said lands.

AND WHEREAS the Collector is prepared to allow the said registered holder or lessee to commence mining operations and to deposit mining waste in or on the said

COLLECTOR

500Rs.

₹500/-

T. G. சிவராமன்,

32084
27.1.95

- 5 -

lands described in the schedule for a term of Ten years beginning on 2nd day of February, 1995 upon the registered holder and the lessee entering into the agreement herein contained.

AND WHEREAS the registered holder has deposited with the Collector, the sum of Rs. 3000/- as security for the due performance of the covenants, agreements and provisos or damage which may be incurred by the Government by reason of any of the said lands described in the schedule hereto being rendered unfit for cultivating by the mining

5/51

COLLECTOR,

[illegible] GRANITES (P) LTD.

[illegible] KARUNAKARAN]
MANAGING DIRECTOR

operations therein or by the deposit of mining waste thereon by either the registered holder or the lessee.

AND WHEREAS the lessee has at the request of the registered holder and in consideration of such approval by the Collector of the mining operations as hereinbefore recited agreed to join in these presents for the purpose of entering into covenants, agreements and provisos hereinafter contained as surety for the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder and the lessee do hereby jointly and severally and each of them doth individually hereby covenant and agree with the Government as follows:

1) To carry on mining operations during the said term in a proper and workman like manner and to deposit mining waste on the lands described in the schedule hereto and to answer and to account at all reasonable times to the Government for all acts and defaults committed by any servants, agents or workmen employed by the registered holder or lessee in carrying on such operations or in making such deposits.

2) To pay on the 5th day of January 1995 next and on the 5th day of January of every succeeding year so long as the operations aforesaid are carried on into the Treasury/State Bank of India at — — to the credit of the Government in addition to the land assessment for the time being payable

6/5/1

COLLECTOR,
DHARMAPURI.

KARUNAI GRANITES (P) LTD.
K. KARUNAKARAN
MANAGING DIRECTOR

in respect of the said lands seigniorage on the minerals mined at the rates prescribed by the Government from time to time.

3) To abide by the rules prescribed by the Government from time to time regarding quarrying of minor minerals.

4) To keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder or the lessee from the said lands and also the number of persons employed in carrying on the said mining operations therein and to prepare and maintain from time to time when so directed by the said Collector complete and correct plans of all mines and working in the said lands and to allow any officer thereunto authorised by the Director of Geology and Mining, Tamil Nadu, from time to time and at all times to examine such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matters aforesaid as the Government may from time to time require and direct.

5) To allow any officer authorised by the Director of Geology and Mining, Tamil Nadu in that behalf from time to time and at all times to enter upon any part of the said lands where mining operations may be carried on for the purpose of inspecting the same.

KARUNAI GRANITES (P) LTD.

(K. KARUNAKARAN)
MANAGING DIRECTOR

7/5)

COLLECTOR,
DHARMAPURI.

6) To forthwith send to the Collector a report of any accident which may occur at or in the said land and also of the discovery therein of any minerals other than (here enter the minerals specified in the notice given by registered holder).

7) Not to claim any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on or any mining operations or by the deposit of mining waste unless thirty times of the assessment thereon has been deducted under proviso 2 hereunder.

PROVIDED ALWAYS and it is hereby further agreed by and between the parties as follows:

1) That it shall be lawful for the registered holder or lessee as the case may be at any time to cease mining operations under these presents provided the registered holder or lessee shall pay the Government or the Collector the land assessment, cess and seigniorage payable by the registered holder or the lessee under these present upto the end of the year in which the registered holder or the lessee shall cease such minimum operations and shall restore the said lands fence or fill in abandoned pits and excavations therein if required by the Collector as next hereinafter provided and upon, the registered holder or the lessee so doing these presence shall cease and determine.

2) That in case the registered holder shall

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(K. KARUNAKARAN)
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8/5/ COLLECTOR,
DHARMAPURI.

relinquish the whole or part of the said lands in case or the expiry of sooner determination of this agreement then and in any such case, the registered holder in the case of relinquishment and the registered holder and the lessee in other cases shall restore aabd lands or the rares relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation and shall securely and permanently fence or fill in all abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in and in case the registered holder or the lessee shall be fail, or neglect any such lands with the registered holder or the lessee be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit or excavation which the registered holder or the lessee shall be required to so fence or fill them and in any such case it shall be lawful for the Collector to so restore any such lands or as the case may be so fence or fill in any pit or excavation at the expense of the registered holder or lessee and to apply the said sum of Rs. 3000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation.

If, however, the amount of deposit is not sufficient to cover the cost of such restoration of fencing

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DHARMAPURI.

or filling as the case may be or to meet thirty times the assessment in the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

3) That all land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, or any subsisting statutory modification thereof, as if the same were arrear of land revenue.

4) That in the event of any breach of the registered holder of any of the conditions of these presents, it shall be lawful for the Government to levy enhanced seigniorage subject to the maximum of ~~five~~ times the normal rate or for the Collector to give notice in writing to the registered holder of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the registered holder in respect of any antecedent claim or breach of covenant or condition.

5) That any notice to be given to registered holder may be addressed to his last known place of above and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

6) Should any question or dispute arise regarding

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(K. KARUNAKARAN)
MANAGING DIRECTOR

10/51

COLLECTOR,

an agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holders thereunder, the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining. In case the registered holder, lessee is not satisfied with decision of the Director of Geology and Mining, the matter shall be referred to the State Government.

SPECIAL CONDITIONS.

1) The date of commencement of the period of permission shall be the date on which the agreement is executed.

2) The registered holder shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rates prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.

3) The registered holder should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.

4) The registered holder should also allow any officer authorised by the District Collector or any officer authorised by him in this behalf or any other officer

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COLLECTOR

KARUNAI GRANITES (P) LTD.

(K. KARUNAKARAN)
MANAGING DIRECTOR

authorised by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.

5) The registered holder shall carry out the quarrying operations in skillful, scientific, systematic manner keeping in view the proper safety of the labour conservation of minerals and preservation of environmental ecology.

6) The registered holder shall allow any officer authorised by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 3 and 5 above and also carry out the directions issued to the satisfaction of the above said authorities.

7) No hindrance shall be caused on the adjoining pattadars or public.

8) The registered holder should restrict his mining operation strictly within the permitted area as defined in the sketch.

9) The terms and conditions are also subject to such further modifications, deletion and addition, alteration as may be ordered by the Government to be included in the agreement to be executed for this purpose.

KARUNA GRANITES (P) LTD.

(K. KARUNAKARAN)
MANAGING DIRECTOR

12/51

COLLECTOR,
DHARMAPURI.

10) The registered holder should maintain at his cost, propersign boards indicating the survey numbers, years of the permission, name of the permission holder and the permission period to the satisfaction of the District Collector/Director of Geology and Mining and maintain it at all time at the quarry site.

11) No working shall be made within a distance of7.5 metres of the boundaries of the permitted area.

12) The registered holder should make his own arrangements to form the approach road from the public road to the place of his quarry.

13) The registered holder shall be permitted to quarry the mineral and transport the same to their place of his choice pending result of the Supreme Court on the Special Leave Petition filed by the Government against the High Court Judgement, dated 23.12.92.

14) The firm should not encroach upon the adjoining Government lands while carrying out quarrying operations.

KARUNAKARAN GRANITES (P) LTD.
(K. KARUNAKARAN)
MANAGING DIRECTOR

13/5/

COLLECTOR,
DHARMAPURI.

THE SCHEDULE.

NAME OF THE TALUK : KRISHNAGIRI&REGISTRATION DISTRICT,
Bargur Sub Registration District
NAME OF THE VILLAGE : JAGADEVIPALAYAM.

Survey Number	Total Extent in Hecs.	Extent granted in Acres	Assess-ment	Boundaries
299/2 Part	3.245	6.80	9.00	North:S.No. 299/2 Part South:S.No. 294 East :S.No. 301 West :S.No. 294 & 298
301/1 Part	1.050	1.00	3.55	North:S.No. 301/1 Part South:S.No. 299 East :S.No. 299 West :S.No. 301/3

Permission granted as per G.O.2D No.9, Industries(E2) Department, dated 18.1.95, for a periodof 10 years from the date of execution of the lease deed.

THE PRESENT MARKET VALUE OF THE PROPERTY IS Rs.2,00,000/-

IN WITNESS where of THIRU P.P.KAVERI CHETTY, S/O BETHAPPA CHETTY, 2/145, SHANTHI HOUSE, MADRAS MAIN ROAD, KRISHNAGIRI-635 001, the registered holder and Tvl.KARUNAI GRANITES PRIVATE LTD., No.2/145, SHANTHI HOUSE, MADRAS MAIN ROAD, KRISHNAGIRI-635 001, DHARMAPURI DISTRICT, and the

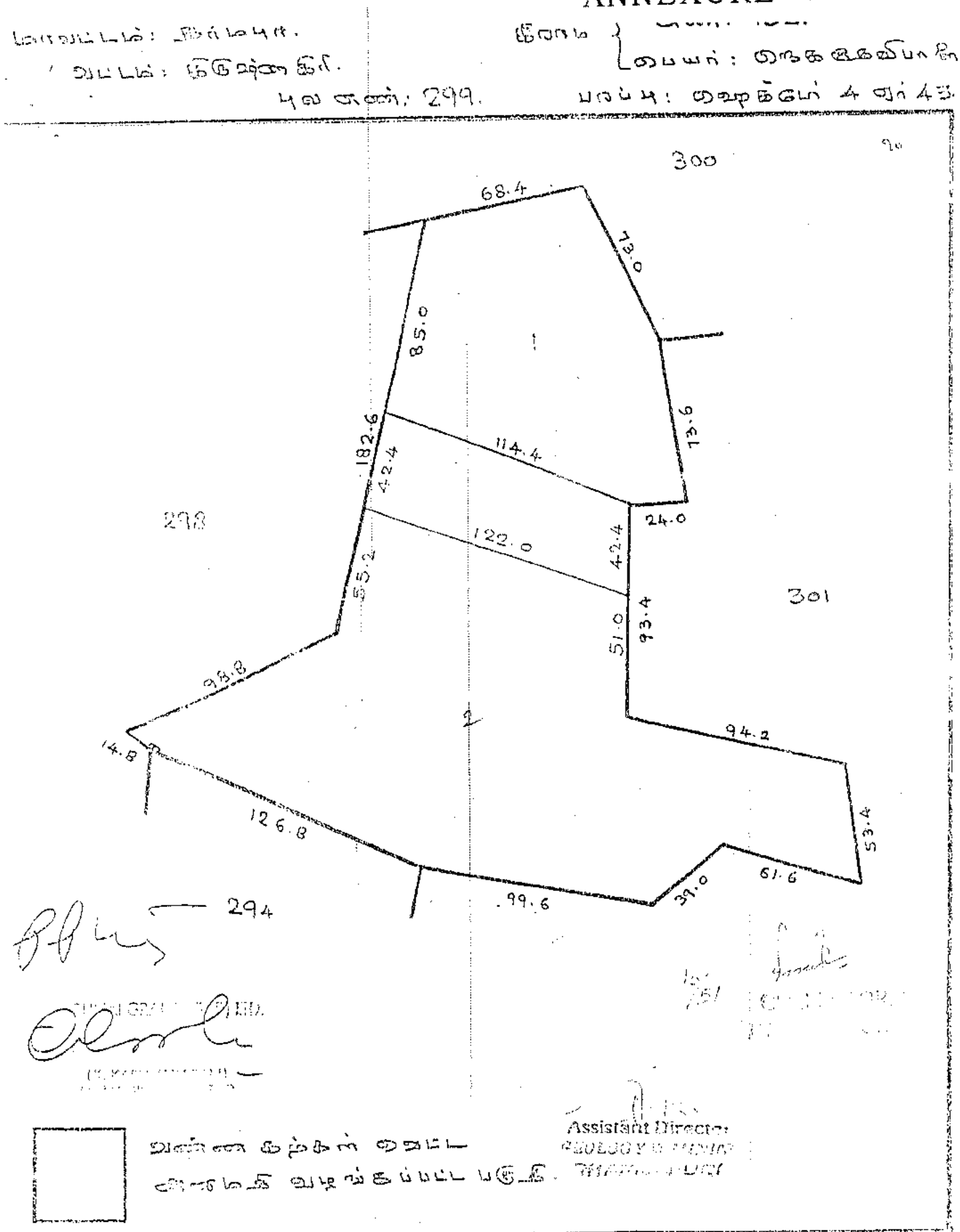
14/5/

COLLECTOR,
DHARMAPURI.

KARUNAI GRANITES (P) LTD.

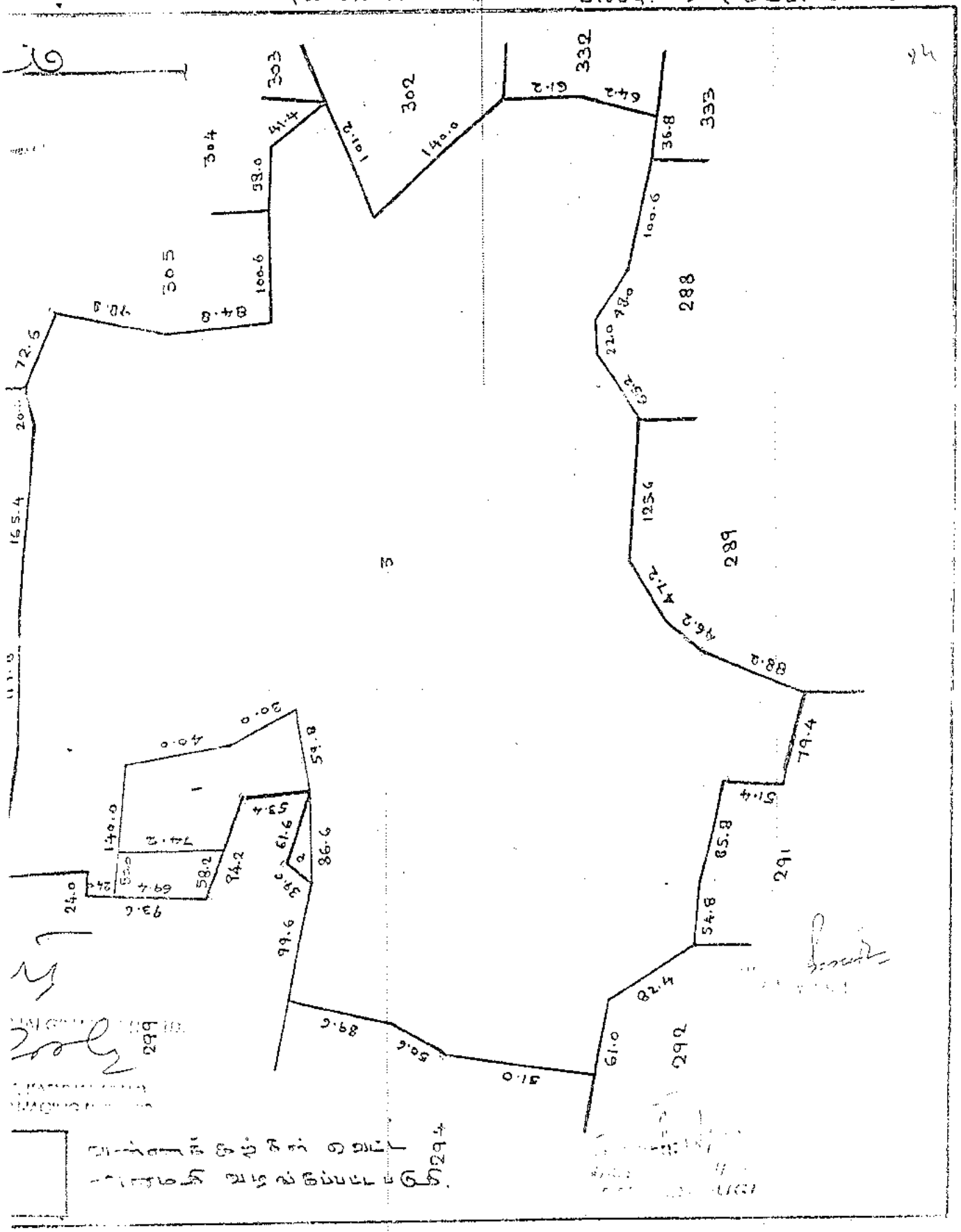
(K. KARUNAKARAN)
MANAGING DIRECTOR

ANNEXURE - VI - A



Assistant Director

ANNEXURE - (1-B


302
303
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305
332
333
288
289
291
292
229
140.0
101.2
61.2
64.2
36.8
100.6
98.0
22.0
125.6
47.2
46.2
88.2
79.4
51.4
65.8
54.8
82.4
61.0
99.6
86.6
61.6
54.8
74.2
58.2
94.2
69.4
93.6
24.0
72.6
20.0
165.4
111.0
40.0
30.0
84.8
100.6
33.0
41.4
70.8

Annexure V - Copy of Combined sketch

ANNEXURE - VI

Kondapparayanipalli

Pagumanoor Malai
306

Pasinayanapalli

PASINAYANAPA

ANNEXURE - VIII

1412

இ. நம்பர் 10 பிரிவு I--13 -ம் பசலியில் [illegible] ஜில்லா [illegible] தாலுகா

138. ஜெகதேவிபாளையம் கிராமத்தில் [illegible]

பட்டா நம்பர், 969 வெங்கடப்ப கௌடு மகன் P.P. காவேரி கௌடு ①

வருவாய் விவரங்கள் (1)	நிலத்தின் நம்பரும் உட்பிரிவும் (2)	புன்செய் விஸ்தீர்ணம் (3)		புன்செய் தீர்வை (4)		நன்செய் விஸ்தீர்ணம் (5)		நன்செய் தீர்வை (6)		மொத்த தீர்வை (7)		குறிப்பு (8)
		ஹெக்டேர்	ஏர்.	ரூ.	பைசா.	ஹெக்டேர்	ஏர்.	ரூ.	பைசா.	ரூ.	பைசா.	
கிருஷ்ணகிரி [illegible] K. கிருஷ்ணன் ②												
	299/2	3.24.5		9	00	–		–		9	00	
												/உண்மை நகல்/
												கிராம நிர்வாக அலுவலர் 138-ஜெகதேவி பாளையம். 13/12/2002
பட்டா எண். 1090 காவேரி கௌடு மகன் கிருஷ்ணன்.												
	301/1	1.050		3	55	–		–		3	55	
	2	0.100		0	34	–		–		0	34	
	301/3D	2.620		8	98	–		–		8	98	
மொத்தம்		3.770		12	87	–		–		12	87	
												/உண்மை நகல்/
												கிராம நிர்வாக அலுவலர் 138-ஜெகதேவி பாளையம். 13/12/2002

Continuation Sheet

1	2	3	4	5	6(a)	6(b)

[illegible] மாவட்டம் [illegible] வட்டம் 138 ஜெகதேவி பாளையம்.
கிராம 'அ' பதிவேடு (A Register) நகல்.

1	2	3.	4	5	6.	7	8.	9	10	11	12
299/2	299/2பா	ந	4	--	8-3	4	2-77	3.245	9.00	969 [illegible]	
301/1	301/பா	ந.	4	--	8-2	3	3.38	1.050	3.55	1090 [illegible]	
301/2	301/பா	ந.	4	--	8-2	3	3.38	0.100	0.34	1090 [illegible]	
301/3D	301/3பா	ந.	4	--	8-2	3	3.38	2.620	8.98	1090 [illegible]	

உண்மை நகல்

Page number ......

13/12/2002

கிராம நிர்வாக அலுவலர்
138- ஜெகதேவி பாளையம்.

[illegible]

மாவட்டம்: திருப்பூர் கிராமம்: 138 ஜெகதேவி பாளையம்

வட்டம்: [illegible]

பட்டா எண்: 1090

புல எண்	பழைய சர்வே எண்	புன்செய்		நன்செய்		மொத்த தீர்வை
		ஹெக்டேர்	தீர்வை	ஹெக்டேர்	தீர்வை	
	[illegible]					
	301/1	1.05.0	3.55	—	—	3.55
	-2	0.10.0	0.34	—	—	0.34
	301-3D	2.62.0	8.98	—	—	8.98
		3.67.0	12.87	—	—	12.87

உண்மை நகல் /

[signature]

கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்,

[illegible]

	2	3	4	5	6	7	8	9	10	11	12
-1	301-Lm	[illegible]	4	...	8-2	3	338	1.05.0	3.55	1090. [illegible]	
					8-2	3	338	0.10.0	0.34	1090 [illegible]	
-2	-Lm	[illegible]	4	...	8-2	3	338	3.95.5	13.22	1136. [illegible]	
-3A	-Lm	[illegible]	4	...	8-2	3	338	1.41.5	5.00	1132 [illegible]	
-3B	-Lm	[illegible]	4	...	8-2	3	338	24.41.5	82.60	1005. [illegible] மற்றும் 4. [illegible]	
-3C	-Lm	[illegible]	4	...	8-2	3	338	2.62.0	8.48	1090. [illegible]	
-3D	-Lm	[illegible]	4								
								33.55.5	113.60		

கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்,

R.F. III. A-10 MDU.

கிராமக் கணக்கு எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

1412- ஆம் பசலியில் தருமபுரி மாவட்டம் கிருஷ்ணகிரி வட்டம் 138. ஜெகதேவி

நில அளவை எண். (1)	உட்பிரிவு எண். (2)	பரப்பு. (3)	தீர்வை. (4)	ஒரு போகம் அல்லது இரு போகம். (5)	கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர். (6)	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா. (7)	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது. (8)	பயிரின் பெயர். (9)	பயிரான /அறுவடை யான பரப்பு. (10)	உண்மையான பாய்ச்சல் ஆதாரம். (11)	விளைச்சல் அளவு விழுக்காடு. (12)
					969						
299	2	3.24	9.00		கா. [illegible]						
					1090						
301	1	1.05	3.55		கா. [illegible]						
	2	0.10	0.39		-do-						
301	3D	2.62	8.98		-do-						

(நில வரித் திட்டத்தின்படி புலன்களின் விபரம்: (1)–(5); சாகுபடியாளரின் பெயர்: (7); முதல் போகம்: (8)–(12); இரண்டாம் போகம்: (13)–(17))

எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது. (13)	பயிரின் பெயர். (14)	பயிரான / அறுவடையான பரப்பு. (15)	உண்மையான பாய்ச்சல் ஆதாரம். (16)	விளைச்சல் அளவு விழுக்காடு. (17)	கிராம அலுவலரின் குறிப்புரை :- (1) புலன்களின் பகுதிகளில் மட்டும் பயிரிடப்பட்ட இனங்களில் விங்குகள் அளவில். (2) கைப்பற்றில் இல்லாத நிலங்களின் சாகுபடியின் பரப்பு தன்மையும் (3) முந்தைய மாதத்தில் பாய்ச்சல் உதவியின்றி பயிரிடப்பட்டவை என்று பதிவாகியுள்ள நிலங்களுக்கு பிந்தைய மாதங்களில் நீர் பாய்ச்சப்பட்ட விவரங்கள். (18)	கீழ்க்கண்டவகையில் பயிரிடப்படாது உள்ள நிலத்தின் தன்மை மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (அ) வனம், (ஆ) பயனற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாய மற்றும் இதர காரியங்களுக்கு பயன் படுத்தப் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ) நிலையான புல் தரைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (ஊ) விதைக்கப்பட்ட நிகர பரப்பில் சேர்க்கப்படாத மரவகைப் பயிர்களும் தோப்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள். (18அ)	பயிர் பார்வையிடும் அலுவலர் குறிப்புரைகள். (19)
					தரிசு	தரிசு Sd xxx DRO 19/11/2002	

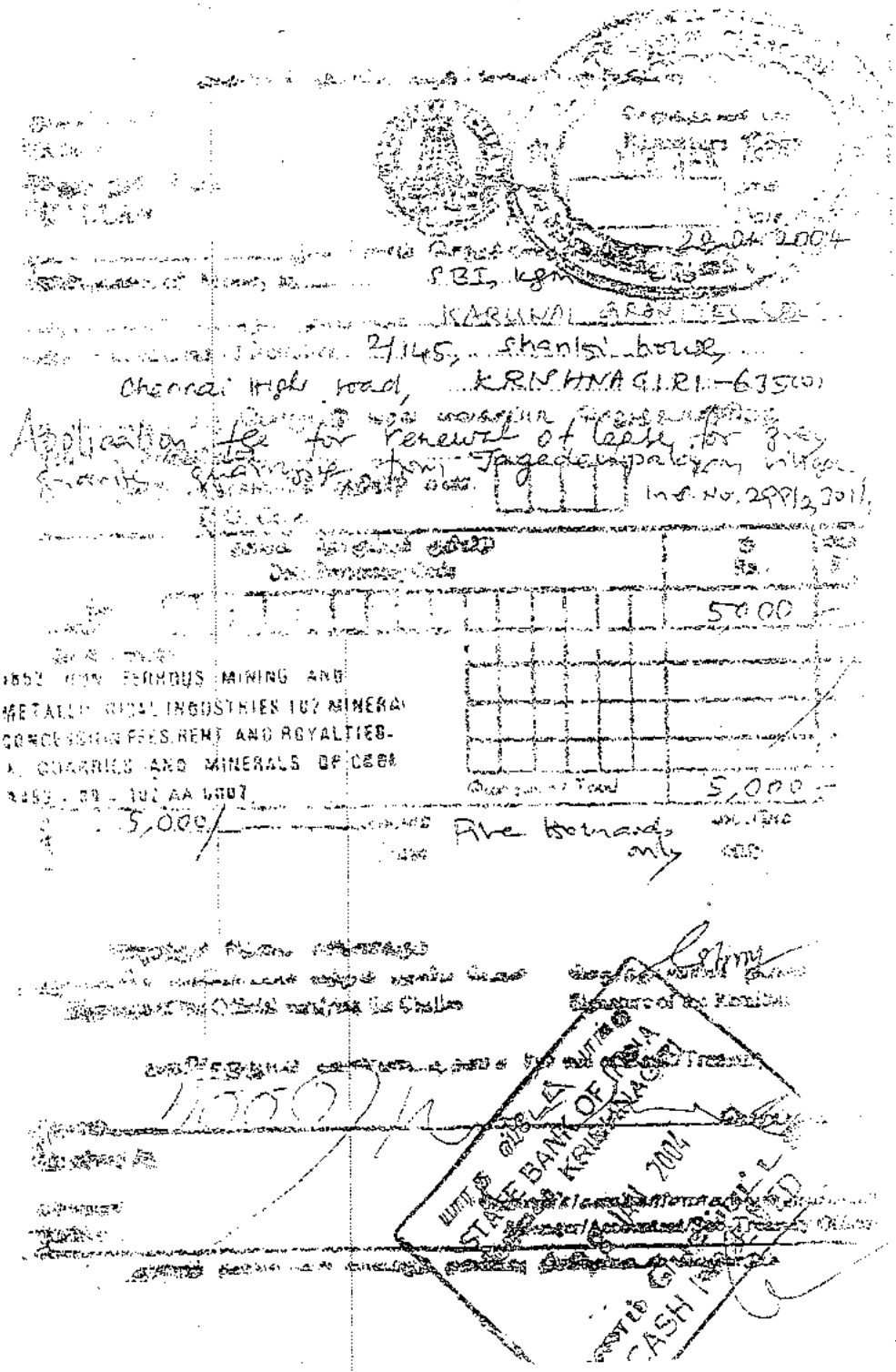
12 [illegible]

[illegible] 13/12/2002

கிராம நிர்வாக அலுவலர்

138 ஜெகதேவி கிராமம்

ANNEXURE - IX


20.04.2004
SBI, KGM
KARUNA GRANITES
2/145, Shanti bavan,
Chennai High road, KRISHNAGIRI-635001
Application fee for renewal of lease for
Inf. No. 2991/2011
5000
5,000/-
Five thousand only
STATE BANK OF INDIA
KRISHNAGIRI
CASH

APPENDIX -VII

(See Rules 8-C and 19 - A of T N M M C R- 1959)

APPLICATION FOR ~~FRESH~~ RENEWAL OF GRANT OF QUARRYING LEASE

(To be submitted in triplicate)

To

The Secretary to the Government,
Industries Department,
Fort St.George, Secretariat,
Chennai - 600 009.

Through : 1. THE DISTRICT COLLECTOR,
KRISHNAGIRI DISTRICT.

2. THE DIRECTOR OF GEOLOGY AND MINING
GUINDY, CHENNAI - 32.

Respected Sir,

I. I request that a quarrying lease under rules 19- A of the Tamil Nadu Minor Mineral concession Rules, 1959 may be granted to us.

II. A Sum Rs.5,000/- (Rupees Five Thousand Only) being non refundable application fee for fresh grant of quarrying lease has been remitted under the following Head of Account.

"0853 Non Ferrous Mining and Metallorgical Industries - 102 , Mineral Concession Fees, rent and royalties - A, Quarries and Minerals - D.P. Code No.0853-102 - AA-0007".

.....2

III. The required Particulars are given below:

1. Name of the applicant with Full address	:	KARUNAI GRANITES (P) LTD 2/145, Shanthi House, Chennai High Road, Krishnagiri 635 001.
2. Is the applicant a Government Company /firm	:	Private limited Company
3. Names of the Directors	:	K.KARUNAKARAN Managing Director K.SENTHIL RANI Director
Members and their Nationality (Documentary evidence should be		INDIAN (Memorandum of Association & Articles of association copy enclosed)
4. Profession or nature of business of the applicant.	:	Granite Exporter
5. Is the application for fresh grant or for renewal	:	~~FRESH~~ RENEWAL
6. Particulars of remittance of non refundable application fee	:	Application fee Rs.5,000/-(Five thousand only) Remitted SBI, Krishnagiri on 28.1.2004 .

7. Has the applicant filled the non refundable application fee If not wether the applicant has filed a sworn affidavit stating that the applicant.		Form 2 D Enclosed
a. Has filed up to date income -tax returns.		
b. Has paid the income tax [illegible]		
c. Has paid the Income - tax on the basis of self assessment as prescribed in the Income- Tax Act 1961.		
8. Type of Granite which the applicant intends to quarry.		Grey Granite
9. Period for which quarrying lease permission is required.	:	20 Years
10. Total extent of are applied for	:	3.15.5 Hectare.
11. Details of the area for which the quarrying lease or permission renewal of lease is required.		

.....4

District	Taluk	Village	Survey No	Area (Hectares)
1.	2.	3.	4.	5
Krishnagiri	Krishnagiri	Jagadevipalayam	299/2 301/1	3.15.5

12. In case of Patta lands whether documents in proof of having surface rights or consent of the registered holder have been enclosed : Yes, Enclosed. Chitta, FMB Sketch, Adangai, A Register Enclosed.

12.A. Whether details of survey numbers of the adjoining /abutting lands on all sides have been indicated in the F.M.B. Sketch. : Yes Enclosed

13. Whether the F.M.B. Sketch and the toposketch showing the area applied for have been enclosed : Yes Enclosed.

14. Financial resources of the applicant (enclose a copy of solvency Certificate) : Yes, Solvency Certificate Copy Enclosed.

15. A sworn affidavit furnishing the particulars of areas already held under prospecting Licennce and quarrying lease for granite in each District of Tamil Nadu already applied for but not granted and being applied for simultaneously : Affidavit enclosed

16. (a) Latest Mining dues clearance certificate towards payment of quarrying dues if any : Enclosed

.....5

16. b). If on the date of application, the application does not held any prospecting licencee and quarrying lease whether a sworn affidavit to this effect if furnished.	:	Affidavit enclosed
17. If the applicant intends to supervise the works, his/her their previous experience of perospecting on mining should be explained. If, he/ she/they intends to appoint a his qualifications and the nature of his previous experience should be specified and his consent latter should be furnished.	:	The applicant is expertised in granite quarrying and has got 15 Years experience in mining Operations. The company is raising experienced Technical people to look after mining operation.
18. In case of renewal whether approved mining plan Scheme valied at the time of filing renewal application has been furnished.	:	Yes Enclosed
19. Wether any penal action taken initrafed against the leassee for violation of lease conditions if so, furnish details and enclose supporting documents	:	Nil
20. Any other particulars which the applicant desirs to furnish.	:	

I do hereby declare that the particulars furnished above are correct and are ready to furnish any other details and security deposit as may be required by the Government.

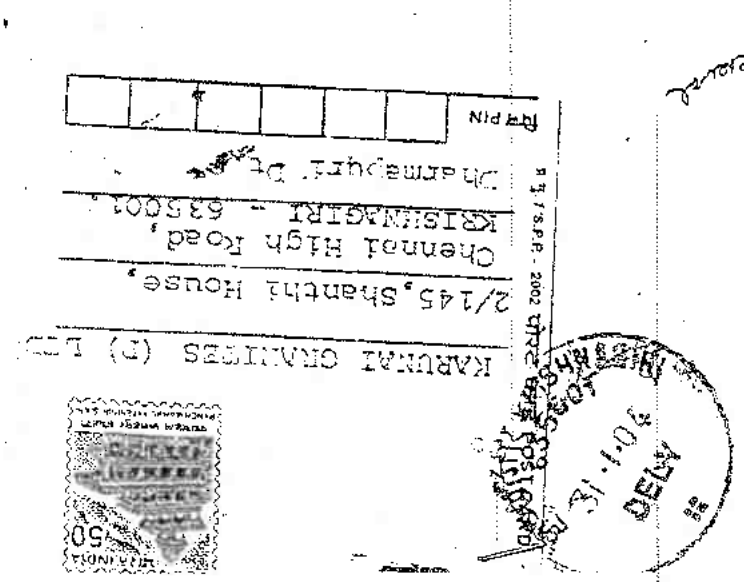
Yours faithfully,

Place : Krishnagiri.

For KARUNALGRANITES (P) Ltd

Date : 21.01.2004.

(K.KARUNAKARAN)
MANAGING DIRECTOR



396

RUGD. Acknowledgment Card.

The DISTRICT COLLECTOR
COLLECTORATE
DHARMAPURI - 636,705.

Annexure VIII - Copy of Lessee ID proof

ANNEXURE - A1 31 / W / 0004929

1. குடும்பத்தலைவரின் பெயர்/முகவரி	2. சிலிண்டரின் எண்ணிக்கை
கருணாகரன் எண் 164 தெரு எண் 5 ஜெகதேவி ஜெகதேவி 635203 கிருஷ்ணகிரி (வ) கிருஷ்ணகிரி	இல்லை
	3. குடும்பத்திலுள்ள நபர்கள் பெரியவர்கள் 4 சிறியவர்கள் 0

பெயர்	வயது	பெயர்	வயது
கருணாகரன்	43		
செந்தில்ராணி.K	38		
சௌத்தன்யா.K	15		
பிரதீஸ்.K	13		

H - H0043472P4 - - -October 2007

குடும்ப அட்டை Family Card

2005 - 2009

உணவுப்பொருள் வழங்கல் மற்றும் நுகர்வோர் பாதுகாப்புத்துறை

Civil Supplies and Consumer Protection Department

சர்க்கரை

கிருஷ்ணகிரி (வ)			
கோட்டம்/வார்டு	தெரு எண்	பழைய கதவு எண்	புதிய கதவு எண்
001	001	164	5
கடை எண்	கடையின் பெயர்		அடையாள எண்
HP073	ஜெகதேவி		1554

ANNEXURE - XII

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR resident of Old No.6, New No.8/3, Kullappan Street, Opp. Indian Bank Line, Omalur (P.O), Salem – 636 455, son of Shri R. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is RQP/MAS/225/2011/A

recognition is valid for a period of ten years ending 12.01.2021.

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 13.01.2011

IN THE HIGH COURT OF JUDICATURE AT MADRAS

DATED : 22-02-2012

CORAM

THE HONOURABLE MR. JUSTICE [illegible]

W.P. No. 22670 of 2007
and
M.P. No. 1 of 2007

Maruoei Granites (P) Ltd
rep. By its Managing Director
Mr. K. Karunakaran
2/145, Shanthi House
Chennai High Road
Krishnagiri - 635 001

... Petitioner

1. State of Tamil Nadu
   rep. By Secretary to Government
   Industries Department
   Fort St. George
   Chennai - 600 009

2. The District Collector
   Krishnagiri District
   Krishnagiri

... Respondents

Petition filed under Article 226 of The Constitution of India praying for a Writ of Mandamus to forbear the respondents from in any way interfering with the petitioner's right to continue mining operations and transport granite from patta lands totally measuring 3.15.5 Hectares, comprised in S.Nos. 299/2 (part) [illegible] 301/1 [illegible] situated in Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri district (formerly Dharmapuri District) [illegible] disposal of the petitioner's renewal application dated [illegible]

For Petitioner : Mr. [illegible]

For Respondents : Mr. [illegible]
Additional Government Pleader

ORDER

The petitioner was granted lease by the 1st respondent in respect of the patta lands measuring [illegible] hectares comprised in Survey No.299/2 (part) and 301/1 (part) situated in Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District for carrying out quarrying operations for a period of 10 years and agreement to this effect was entered into on 02.02.1995 which [illegible] that the lease was for the period from 02.02.1995 to 01.02.2005. According to the petitioner, the Government of India has Granite Conservation and Development Rules, 1999 with effect from 01.06.1999 by which

All Correspondence to Residence Address only

E-mail : kramakrishnareddy@hotmail.com

uniform policy was sought to be taken through out India in the matter of grant of lease. As per the said Rules, lease shall be granted for a minimum period of twenty years and the existing leases are entitled for one renewal of the equivalent period. According to the petitioner, the Conservation and Development Rules came into force during the currency of the lease in his favour. Therefore, the petitioner has submitted an application dated 21.01.2004 to the respondents seeking extension of lease, but the said application was not considered by the respondents. However, after expiry of the lease on 01.02.2005, the petitioner continued the quarrying operation. Since the application for renewal dated 21.01.2004 of the petitioner was not considered, he has come forward with the present writ petition.

2. The learned [illegible] Government Pleader appearing for the respondents, on instructions, submitted that the renewal application dated 21.01.2004 of the petitioner was forwarded to the first respondent by the second respondent, but till date no orders have been passed. It was also submitted that even after expiry of the lease, the petitioner is continuing the quarrying operation. When once the lease is expired, the petitioner has no right to continue the quarrying operation and he prayed for dismissal of the writ petition.

3. Heard the counsel for both sides. [illegible] circumstances, the Division Bench of this Court passed order in [illegible] No. 25401 of 2005 etc., batch dated [illegible] 09.2007 wherein it was held as follows:

"9. Learned Advocate General submitted that the applications for renewal will be considered and orders will be passed on the applications within a period of four months from today. [illegible] submitted that the petitioners have been allowed to continue the quarrying operation by virtue of the interim orders passed [illegible] and the State is entitled to fix rental/ charges for the period after the expiry of the lease under Rule 39 of the Mineral Concession Rules till fresh permission is granted. He submitted that the State Government will fix the rental/charges within [illegible] days from today. In reply, [illegible] submitted that the seigniorage fee [illegible] the quarry has been paid by the [illegible] date. But he fairly conceded that [illegible] has been fixed under Rule 39, which has been deleted and the State Government will be entitled to fix rental/charges for the period after the expiry of the lease. Accordingly [illegible] State Government cannot charge both [illegible] rent and the seigniorage fee [illegible] necessary for us to express [illegible] whether the State can charge either [illegible] seigniorage fee or both [illegible]. However [illegible] continuation after the expiry of the [illegible] Rule 39 cannot be treated as one under Rule 39 [illegible]

bf 00975[illegible]

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it is open for the State Government to fix the revised rental/ charges in accordance with law. We make it clear that only after the revised rental/charges are paid, as fixed by the Government, within a period of eight weeks from the applications for renewal will be considered by the State Government. The petitioners will be entitled to carry on the quarrying operations till their applications are considered and disposed of by the State Government.

4. Following the Division Bench decision, the learned single Judge of this Court in the order made in WP No. 1877 and 1874 of 2004 held as follows:

"3. Insofar as the relief sought for in the writ petitions are concerned, the learned counsel for the petitioner ... submitted that the learned Government Advocate submitted that similar cases were disposed of by the Division Bench of this Court in W.P.(MD) No. 2005 etc., batch by order dated 05.09.2007. The said order is followed by me in W.P. No. 25126 of 2006 dated 18.03.2008 and paragraphs 9 and 10 of the said order are extracted hereunder:-

9. I am not deciding the entitlement of the petitioner for renewal of licence. However, in the light of the orders passed by the Division Bench in the above batch of writ petitions, the petitioner is entitled to the similar order and Directions of the Division Bench are extracted hereunder:

"Learned Advocate General submitted that the applications for renewal will be considered and orders will be passed on the applications within a period of four months from today. ... that the petitioners have been continuing the quarrying operations in pursuance of the interim orders passed ... the State is entitled to ... for the period after the above ... under Rule 39 of the Minor ... Rules till fresh permission is granted. ... submitted that the State Government will fix the rental/charges within a period of 30 days from today. We make it clear that only after the revised rental/charges are paid, as fixed by the State Government, within a period of eight weeks from the applications for renewal will be considered by the State Government. It is needless to say that the petitioners will be entitled to carry on the quarrying operations till their applications for renewal are considered and disposed of.

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E-mail : kramakrishnareddy@hotmail.com

4. Following the above ... Judgment, there shall be a direction to the State Government to fix the revised rental/charges in accordance with law within a period of thirty days from today and after fixing the rental/charges, the petitioner shall pay the lease amount within eight weeks. The State Government shall consider the application for renewal within a period of eight weeks thereafter and all the above exercise shall be completed within four months from today. In the meantime, the petitioner is entitled to carry on quarrying operations till the applications for renewal is considered and disposed of by the State Government.

5. In view of the bench of this Court as well as the order passed by ... Judge, there shall be a direction to the State Government ... revised rental/charges in accordance with law ... thirty days from today and after ... petitioner shall pay the lease amount ... Government shall consider the ... petitioner within a period of ... above exercise shall be completed ... the meantime, the petitioner is ... operations till the application ... disposed of by the State Government.

6. Accordingly, the writ petition ... Consequently, connected miscellaneous ... is closed.

Sd/-
Asst. Registrar

/true copy/

Sub Asst. Registrar

rsh

Encl: As stated above.

All Correspondence to Residence Address only

To

1. The Secretary to Government
   State of Tamil Nadu
   Industries Department
   Fort St. George
   Chennai - 600 009

2. The District Collector
   Krishnagiri District
   Krishnagiri

cc to Mr. K. Somasekhara Reddy, Advocate Sr.No.2008

cc to Govt. Pleader Sr.No.12501

rcul(co)
gp/28.3

br 00975

00683

Yours faithfully,

All Correspondence

Collectorate,
Dept of Geology & Mining,
Krishnagiri.

Rc.No.1042/2018/C-51/Mines Dt: 17.07.2020.

Demand Notice

Sub: Mines & Minerals - Minor Minerals - Granites - Quarry lease for Colour granite granted to Tvl. Karunai Granites (p) Ltd Over an extent of 3.15.5 hect. in S.F.No.299/2(p), 301/1(p) of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District - Hon'ble Supreme court order 02.08.2017-Quarry Operated during violative period (without Environmental Clearance) - i.e. 15.01.2016 to 10.01.2017 - Cost of the mineral to be remitted - Demand Notice issued - reg.

Ref:
1. GO(2D) No. 09 Ind. Dept dt. 18.1.95 and the Hon'ble high court of Madras order WPMP.No.1/10 in W.P.No.3034/2010 Dt:16.02.2010.
2. Ministry of Environment, Forest and Climate Change, Govt. of India, Notification S.O.141 (E) dated 15.01.2016
3 Ministry of Environment, Forest and Climate Change, Govt. of India, Lr.No.Z-11013/24/2017-1A. II (M) dt:03.04.2017
4. Order of Hon'ble Supreme Court of India in W.P.(Civil) No.114/2014 dt: 02.08.2017.
5. Ministry of Environment, Forest and Climate Change, Govt. of India, office Memorandum No.03-50 /2017-1A. III (pt) dt: 30.05.2018.
6. Ministry of Environment, Forest and Climate Change, Govt.of India, office Memorandum No.Z- 11013/50/2018-1A. II (M) dt:04.07.2018.
7. The Commissioner of Geology and Mining, Guindy Chennai Lr.Rc.No.6731/LC/2016 dt: 08.01.2018.
8. Director of Geology and Mining, Guindy Chennai Lr.Rc.No.1375/LC/2016 dt:18.06.2008 & Rc.No.1375/MM3 / 2016, dated: 07.09.2019.
9. Recommendation letter of the committee constituted by the District Collector, Krishnagiri Dt: 12.02.2020 and connected records.

*****

A Quarry lease for colour granite granted to Tvl. Karunai Granites (p) Ltd, over an extent of 3.15.5 hect. in S.F.No.299/2(p), etc of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District for the period of 10 years from the date of execution of lease deed vide GO(2D) No. 09 Ind. Dept dt. 18.1.95. The lease deed executed on 03.02.1995 and lease period is 10 years from 03.02.1995 to 02.02.2005 and the quarrying operation was carried out as per the orders of the Hon'ble high court of Madras WPMP.No.1/10 in W.P.No.3034/2010 Dt:16.02.2010 and transport permit has been obtained.

In the meantime, in the reference 2nd cited, Ministry of Environment and forest Climate Change, Government of India had ordered that "No mining lease shall operate without prior EC and all such mines which were in operation before 15.01.2016 are required to stop their mining activity and apply to Central level / State level / District level for seeking EC. The Mine leases which continue to operate without obtaining EC after 15.01.2016 shall be considered as violation cases".

Based on the above said notification, on scrutiny of the official records and registers, it is construed that the lessee Tvl. Karunai Granites (p) Ltd had obtained dispatch slips from 02.02.2016 to 09.01.2017 for a total quantity of 6602.794 CBM from the quarry area on payment of seigniorage fee within the violative period i.e.15.01.2016 to 10.01.2017.

In the reference 8th cited, The Director of Geology and Mining, Chennai has requested the District Officer to comply the order of the Hon'ble supreme Court of India dated 02.08.2017, and Ministry of Environment Forest, and Climatic Change Government of India office memorandum dated 30.05.2018 and 04.07.2018 and further directed to collect the 100% cost of minerals for violation cases.

In order to arrive the cost of the mineral the District Collector, Krishnagiri has constituted a committee and requested to inform the cost of mineral at quarry site, for the colour Granite available in the subject quarry of Tvl. Karunai Granites (p) Ltd.

In this regard, the committee has recommended the following rates as cost of mineral at quarry site vide reference 9th cited and stated that the rates are calculated by considering the sale awards issued by M/s. TAMIN Ltd.

Size of the block	Gross Size - in cm (l x b) & volume in cbm			
	280x180 & above	240x120 above but below 280 x 180	180x60 above but below 240x120	180x 60 below
Average cost per cbm	22500	16868	16250	14805

As per the available records and registers Tvl. Karunai Granites (p) Ltd had quarried and transported 2089 Nos.of colour Granite Blocks during the violative period in the following specification and the cost of mineral worked out for the said quantity as per the cost of mineral furnished by the committee are as follows.

S. No.	Size	Volume	Cost of Mineral per CBM in Rs.	Total Cost in Rs.
1	280x180 & above	3189.768	22500	71769780
2	240x120 above but below 280 x 180	2013.295	16868	33960260
3	180x60 above but below 240x120	354.305	16250	5757456
4	180x 60 below	1045.426	14805	15477532
	Total	**6602.794**		**12,69,65,028**

Rs.**12,69,65,028/-** (Rupees Twelve crore sixty nine lakhs sixty five thousand and twenty eight only).

In view of the above, Tvl. Karunai Granites (p) Ltd is hereby directed to remit a sum of Rs. **12,69,65,028-** towards the cost of the mineral quarried and removed from the lease granted area over an extent 3.15.5 hect. in S.F.No.299/2(p) etc of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District in the following Head of Account and submit the original challan to this office within 15 days from the date of receipt of this notice.

Head of Account

0853 Non Ferrous Mining and Metallurgical Industries - 00 Non Ferrous Mining and Metallurgical Industries - 800 Miscellaneous receipts - AC Miscellaneous receipts - 29 97 - Fines and Penalties - Forfeiture, Seizure, confiscation, etc.,
D.P Code - 0853-00-800-AC-2997.

It is also informed that if the amount is not remitted within the prescribed time limit, action will be initiated to collect the amount by invoking the provisions of The Tamil Nadu Revenue Recovery Act 1864.

Sd/- Dr.S.Prabhakar
District Collector,
Krishnagiri.

// True Copy //By order//

15.7.23

For Collector,
Krishnagiri.

To
Tvl. Karunai Granites (p) Ltd,
No. 2/145 Shanthi House,
Byepass Road,
Krishnagiri

14/07/2023

--- By RPAD

Copy to:
The Director, Dept of Geology and Mining,
Guindy, Chennai -32.

Annexure of Karunai Granites

(Extent: 11.59.0 Ha)

THIRU. DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.5293/2020/Violation/TOR-1394/2023 Dated:21.03.2023.

To

M/s. Karunai Granites Private Ltd.
Jagadevipalayam
Krishnagiri
Krishnagiri - 635203

Sir,

Sub: SEIAA, Tamil Nadu – Application Seeking of Environmental Clearance (EC) for the Existing Grey Granite quarry over an Extent of 11.59.0Ha at S.F.Nos:294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, TamilNadu by M/s. Karunai Granites Private Limited under project category – "B1" and Schedule S.No.1(a) – ToR issued along with Public Hearing under Violation Category - preparation of EIA report -regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/53603/2016, Dated: 10.05.2016.
2. Your Application for Terms of Reference (ToR) dated: 13.05.2016.
3. Minutes of the 340th SEAC meeting held on 23.12.2022.
4. Minutes of the 585th SEIAA meeting held on 13.01.2023.
5. Minutes of the 357th SEAC meeting held on 23.02.2023.
6. Minutes of the 602nd SEIAA meeting held on 20.03.2023 & 21.03.2023.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

MEMBER SECRETARY
SEIAA-TN

The proponent, M/s. Karunai Granites Private Ltd has submitted application for Environmental Clearance vide reference 1st & 2nd cited in Form-I, Pre- Feasibility report for the existing Grey Granite quarry over an Extent of 11.59.0Ha at S.F.Nos:294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Existing Grey Granite quarry over an Extent of 11.59.0Ha at S.F.Nos:294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District, Tamilnadu by M/s. Karunai Granites Private Limited - for the Environmental Clearance "Under Violation". (SIA/TN/MIN/53603/2016Dated: 10.05.2016).

The proposal was earlier placed in the 340th SEAC meeting held on 23.12.2022. Based on the presentation and documents furnished by the project proponent, SEAC decided to grant of Terms of Reference (TOR) under Violation category, subject to the following TORs Stated therein, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants.

Subsequently, the proposal was placed in the 585th Authority meeting held on 13.01.2023. The Authority noted that this proposal seeking Terms of Reference (ToR) under violation lacks the following valid mandatory documents for considering issue of TOR

In view of the above, Authority after detailed discussion decided to refer back the proposal to SEAC to furnish remarks whether the issue of Terms of Reference (ToR) under violation is feasible without above said valid mandatory documents.

The proposal was again placed for appraisal in 357th meeting of SEAC held on 23.02.2023. During committee meeting the PP has presented the reply and submitted the same to SEAC in regard to queries raised by 585th Authority meeting held on 13.01.2023 as follows.

S.No.	Details sought by SEIAA	Reply furnished by PP
1.	Copy of valid mining lease approval obtained	

MEMBER SECRETARY
SEIAA-TN

	from the competent Authority.	Scheme of mining has been prepared and submitted to DGM for approval. It will be submitted along with EC application.
2.	Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.	
3.	Copy of approved review of scheme of mining plan by the competent authority i.e Dept of Geology and Mining.	The quarry is said to be working under court order.
4.	Copy of request letter submitted for renewal of mining plan.	Covering letter for submission of Scheme of Mining is enclosed.

Based on the presentation & documents furnished and the Committee carefully examined the points raised by SEIAA and the replies given by the PP and decided to reiterate its recommendation already made **340th SEAC Meeting held on 23.12.2022.** All other conditions stipulated in the earlier minutes will remain unaltered.

1. The Project Proponent, M/S. Karunai Granites Private Limited has applied for the Environmental Clearance under Violation for theExisting Grey Granite quarry over an Extent of 11.59.0Ha at S.F.Nos:294/4, 295/2A, 295/2B, 295/2C, 298/2, 298/1C2, 301/1(P), 301/2 & 301/3A, Jagadevipalayam Village , Krishnagiri Taluk, Krishnagiri District, Tamilnadu.
2. The proposed quarry/activity is covered under Category "B" – "Under Violation" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The project proponent has obtained Mining lease vide G.O.(3D).No.87 Industries (B.2) Department dated 2.11.1999.The lease deed was executed on 03.02.2000 and the lease will get expiry on 02.02.2010.

MEMBER SECRETARY
SEIAA-TN

4. The mining plan was approved vide letter No. 2245/MM9/2004 dated 24.08.2004.The lessee has preferred an application submitted on dated 22.01.2004 for renewal and the same is pending.
5. The High Court Order MP. Nos. 1& 1 of 2010 & WP. Nos. 3034 & 3035 of 2010.
6. The mining lease was issued for the period of 10 years. The approved mining plan is for the period of four years & production should not exceed 95649 cu.m of RoM including 23913cu.m of Grey Granite &71736cu.mof Granite Waste) along with 13794 cu.m of Weathered Granite, 1428 cu.m of Topsoil. The ultimate depth is 25 m BGL.
7. MoEF&CC notification vide S.O. 804 (E) Dt. 14.3.2017.
8. MoEF & CC Notification S.O.1030 (E) dated 08.03.2018.
9. MoEF&CC Office Memorandum No. F.No. Z-11013/22/2017-IA.II (M) dated 15.03.2018.
10. MoEF &CC OM F. No. 22-10/2019-1A.111 dated 09.09.2019.
11. Hon'ble NGT(SZ) order dated 30.06.2020 in O.A.No.136 of 2017.
12. MoEF&CC, Office Memorandum Dt:12.11.2020.

Based on the presentation and documents furnished by the project proponent, SEAC decided to grant of Terms of Reference (TOR) under Violation category, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants.

1. The PP shall furnish an Independent Chapter 13 as per the MoEF & CC Violation Notification – S.O. 804 (E), dated. 14.03.2017 prepared by the accredited consultants within a period of one year from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance.
2. The Project proponent shall conduct and furnish Minutes of Public hearing as per ToR issued Dt: 18.05.2018 & 30.07.2018. Accordingly, the PP shall submit revised EIA/EMP.
3. As a part of procedural formalities as per the MoEF & CC Violation Notification – S.O. 804 (E), dated. 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environment (Protection) Act, 1986 against violation.

MEMBER SECRETARY
SEIAA-TN

4. Copy of valid mining lease approval obtained from the competent Authority.
5. Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.
6. Copy of request letter submitted for renewal of mining plan.
7. Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
8. Copy of total penalty levied by the concerned AD/DD, Dept of Geology and Mining, and copy of remittance of total penalty by PP.
9. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
10. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
11. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
12. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
13. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
14. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
15. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
16. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
    i) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?

MEMBER SECRETARY
SEIAA-TN

j) Quantity of minerals mined out.

k) Highest production achieved in any one year

l) Detail of approved depth of mining.

m) Actual depth of the mining achieved earlier.

n) Name of the person already mined in that leases area.

o) If EC and CTO already obtained, the copy of the same shall be submitted.

p) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.

17. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
18. The PP shall carry out Drone video survey covering the cluster, Green belt , fencing etc.,
19. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
20. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
21. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
22. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.

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23. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.

24. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.

25. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.

26. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

27. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.

28. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.

29. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

30. Impact on local transport infrastructure due to the Project should be indicated.

31. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.

32. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.

33. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be

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submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.

34. The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.

35. The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.

36. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.

37. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.

38. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner

39. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.

40. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.

41. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

42. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

43. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local

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community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

44. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

45. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

46. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.

47. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.

48. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 603rd Authority meeting held on 20.03.2023. The authority noted that this proposal was placed for appraisal in this 357th meeting of SEAC held on 23.02.2023 and the SEAC Committee carefully examined the points raised by SEIAA and the replies given by the PP and decided to reiterate its recommendation already made 340th SEAC Meeting held on 23.12.2022. All other conditions stipulated in the earlier minutes will remain unaltered.

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

1. The PP shall furnish Copy of valid mining lease approval obtained from the competent Authority.

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2. The PP shall furnish Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
3. The PP shall furnish EMP for the project life including progressive mine closure plan and final mine closure plan with detailed budget plan.
4. The PP shall study in detail about CO_2 release and temperature rise and add to micro climate alternations and the same shall be included in the final EIA report.
5. The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.
6. The PP shall study in detail about Soil health, Climate change leading to Droughts, Floods etc.
7. The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
8. The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.
9. The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA report.
10. The PP shall study the impact on Invasive Alien Species (IAP).

In case the PP does not furnish Chapter 13 as directed by SEAC, MS, SEIAA may refer the file to SEAC for further action.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.

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4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
    a) Soil health & soil biological, physical land chemical features .
    b) Climate change leading to Droughts, Floods etc.
    c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
    d) Possibilities of water contamination and impact on aquatic ecosystem health.
    e) Agriculture, Forestry & Traditional practices.
    f) Hydrothermal/Geothermal effect due to destruction in the Environment.
    g) Bio-geochemical processes and its foot prints including environmental stress.
    h) Sediment geochemistry in the surface streams.

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Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.

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25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

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36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Additional TOR specified by the SEAC to deal with the violation aspects of the mining projects

SECTION A

As per the MoEF & CC Notification S.O. 1030 (E) dated: 08.03.2018,

1. "The cases of violations will be appraised by the Expert Appraisal Committee at the Central level or State or Union territory level Expert Appraisal Committee constituted

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under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 with a view to assess that the project has been constructed at a site which under prevailing laws is permissible and expansion has been done which can run sustainably under compliance of environmental norms with adequate environmental safeguards, and in case, where the findings of Expert Appraisal Committee for projects under category A or State or Union territory level Expert Appraisal Committee for projects under category B is negative, closure of the project will be recommended along with other actions under the law.

2. In case, where the findings of the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee on point at sub-paragraph (4) above are affirmative, the projects will be granted the appropriate Terms of Reference for undertaking Environment Impact Assessment and preparation of Environment Management Plan and the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee, will prescribe specific Terms of Reference for the project on assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter in the environment impact assessment report by the accredited consultants, and the collection and analysis of data for assessment of ecological damage, preparation of remediation plan and natural and community resource augmentation plan shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or a environmental laboratory accredited by the National Accreditation Board for Testing and Calibration Laboratories, or a laboratory of the Council of Scientific and Industrial Research institution working in the field of environment."

After the appraisal of the project, the SEAC decided that the Para No.2 stated above is applicable to the project. Hence, the proponent is directed to prepare appropriate reports as contained in the Para 2.

While complying with the specific aspects of the MoEF & CC directions as stated in the Para 2 above, the following steps should be followed:

Step 1: Enumerate the aspects of Violation:

a) The proponent should enumerate the violations as applicable to the project.
b) Furnish a description of each violation with quantitative and qualitative data.

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c) Violation categories are to be decided taking into consideration the stage at which the project execution stands.

Step 2: Ecological Damage Assessment:

a) For each aspect of violation enumerated in step (1), identify the resultant environmental damage that may have been caused.

b) Furnish a description of the environmental damages with quantitative and qualitative data.

Step 3: Remediation Plan:

a) For the Environmental damage(s) identified in the step (2) above, prepare the remediation plan for the each or combination of damages.

b) The remediation plan should essentially consists of problem statement, target to be achieved (quantity), standards, technology/ procedure for remediation, equipment and machinery to be used, time schedule and remediation cost(direct and indirect cost, capital as well as O&M costs).

SECTION B

1. Natural resource Augmentation:

a) The resources that should be considered for augmentation should essentially consist of land, biota, air, water and other resources as applicable.

b) Proponent may choose one or more of the resource augmentation as applicable and provide a description of the augmentation proposal in detail for each resource.

c) The proponent should also furnish the cost for each augmentation scheme.

2. Community resource Augmentation:

a) The proponent should prepare a plan of action for addressing the needs of the community in terms of resources in the sectors of education, health and sports primarily and other such resources as applicable to the community in the vicinity of the project.

b) The community resource augmentation plan should consist of rehabilitation of houses and people, budget allocation and time schedule for completing the activity.

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SECTION C

The proponent should prepare content for the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation separately in a chapter and include in the EIA / EMP report.

SECTION D

a) After the appraisal of the EIA / EMP report submitted by the proponent, the SEAC will make a judgement of the quality of the content in the EIA / EMP report specifically with reference to the chapter covering the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.

b) In the judgement of SEAC, if the quality of the content in the chapter is not satisfactory, the SEAC may direct the proponent to further revise the chapter and resubmit the EIA/EMP report.

c) If SEAC concludes that the technical part is satisfactory and the costing aspect is not satisfactory then the SEAC may revert to legal provisions, MoEF & CC guidelines and similar expert committee recommendations for finalizing the cost aspects or the SEAC may use its own expertise and experience in finalizing the cost.

SECTION E

The proponent is directed to furnish data as per the questionnaire appended in Annexure I. It will help the SEAC in arriving the ecological damage and the associated cost.

SECTION F

In compliance with the Supreme Court order stated in MoEF & CC letter F.No. 3-50/2017 IA.III-pt dated: 05th January 2018, the proponent is required to submit the No Objection Certificate obtained from the Department of Geology and Mining, Government of Tamil Nadu regarding payment of 100% cost of illegally mined mineral under section 21(5) of MMDR Act 1957 which would account for mining operations in violation of the following:

a) Without Environmental Clearance (EC), or in excess of the quantity approved in EC

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b) Without Consent to Operate (CTO) or in excess of the quantity approved in CTO and

c) Without mining plan/scheme of mining or in excess of the quantity approved in mining plan / scheme of mining

d) Without Forest Clearance

e) Any other violation

List out the details of reserve forest and wildlife sanctuary nearby the project site (the details should also include other districts which are nearby the project site) and also furnish the detail of distance between the project site and reserve forests/wildlife sanctuary.

Whether the project site attracts the HACA clearance? If so, also furnish the HACA clearance for the mining from the competent authority.

The proponent is instructed to fill in the form contained in Annexure 1to work out the details of the ecological damage during the violation period.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.

2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.

3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale

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indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the

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event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should

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be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per

CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the

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mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be

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provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

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37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by

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the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

<u>In addition to the above, the following shall be furnished:-</u>

<u>The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:</u>

1) Project name and location (Village, District, State, Industrial Estate (if applicable).
2) Products and capacities. If expansion proposal then existing products with capacities and reference to earlier EC.
3) Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
4) Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
5) Measures for mitigating the impact on the environment and mode of discharge or

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disposal.

6) Capital cost of the project, estimated time of completion.

7) Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)

8) Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population

9) Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.

10) Likely impact of the project on air, water, land, flora-fauna and nearby population

11) Emergency preparedness plan in case of natural or in plant emergencies

12) Issues raised during public hearing (if applicable) and response given

13) CER plan with proposed expenditure.

14) Occupational Health Measures

15) Post project monitoring plan

Besides the above, the below mentioned general points should also be followed:-

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.

b. All documents may be properly referenced with index, page numbers and continuous page numbering.

c. Copy of permission related to Port facility, Desalination plant, wind mill /solar power plant from competent Authority.

d. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.

e. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

f. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their

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status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009,18th March 2010, 28th May 2010 , 28th June 2010 ,31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above-mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance
- The TORs prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

The receipt of this letter may be acknowledged.

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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board,76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Tiruchirappalli District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. File Copy.

Annexure I

Additional information for considering EC for mining projects

S.No.	Details to be provided	Page no.
1)	Name of the project lease & owner	
2)	Lease Extent	
3)	Lease Validity	
4)	Approved Mining Plan/Scheme – Review a) Specify whether DSR is provided (applicable in case of minor minerals only)	
5)	Specify - Nature and type of violation	
	I. Without EC or in excess of quantity approved in EC	
	II. Without CTO or in excess of quantity approved in CTO	
	III. Without mining plan/Scheme of mining or in excess of quantity approved in Mining plan/Scheme of mining.	
	IV. Without forest Clearance	
	V. Any other violation	
6)	Violation period	
	I. Number of months	
	II. Number of Years	
7)	Exploitation/Excavation quantity- Reserves proved through exploration by drilling	
8)	Give details of production from the date of execution of the lease deed / since 1994	

Year and quantity	2010-11*		2011-12*		2012-13*	
	Planned	Actual	Planned	Actual	Planned	Actual
Ore/mineral/granite blocks (tonnes)						
Waste (tonnes/cu.m)						
* year of mining operation						

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9)	Quantity mined out during the violation period & if, yes indicate the violated quantity, in term of % of consented quantity.						
	Year and quantity mined out during the violation period	2010-11		2011-12		2012-13	
		Planned	Actual	Planned	Actual	Planned	Actual
	Ore/mineral/granite blocks* (tonnes)						
	Waste excavation (tonnes/cu.m)						
10)	State illegal mining/encroachments outside the lease boundary? Percentage of quantity mined out outside the lease boundary.						
11)	Method of working						
	I. Category type: (a) Mechanised (b) Semi – Mechanised (c) Manual						
	II. Construction and design of haul roads						
	a) Dimension as per the statutory requirements which were followed or otherwise						
	b) Number of vehicles plying on the main haul roads inside the mine and the approach road to the pit located outside the mine, if any.						
	c) Are any measures taken to minimise fugitive dust generated form mine haul roads? Does it comply with the CPCB/PCB Guidelines?						
	d) Is there a possibility that air pollutants emitted from the project area that do not comply with air quality standards as per CPCB/PCB?						
12)	Mechanized / Semi – Mechanized Method of Mining						
	(i) Number of loading / excavating equipments as per approved mining plan and capacity.						
	(ii) Number of loading / excavating equipments actually being deployed and capacity.						

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	(iii)	Type and number of transporting equipments.
	(iv)	Type of transporting system used – (a) trucks (b) Any other mode
	(v)	Capacity and Number of trucks used as per approved mining plan
	(vi)	Capacity and Number of trucks used actually in the mine.
	(vii)	Number and capacity of loading equipments and trucks used not in line with approved mining plan.

	Capacity (m^3)	Numbers
Excavator		
Trucks		

	(viii)	Impact of excess deployment of loading equipments (excavators) and transporting equipments on environment. (a) Air pollutants (b) Water Quality (c) Land Quality (d) Noise level
	(ix)	Does the deployment of loading equipments (excavators) and trucks fulfil the statutory requirements as per MMR 1961, with respect to the site conditions?
13)	Method of Rock Breaking/Material preparation for the excavation:	
	(i)	Methodology adopted –
		a) Drilling and blasting
		b) Rock breakers
		c) Rippers
		d) Surface miners
		e) Direct mucking by excavators
		f) Manual means
		g) Any other methods or combination of above
	(ii)	In case of drilling and blasting method:
		(a) Type of blasting: short hole or deep hole
		(b) Whether controlled blasting technique adopted? If yes, specify the technique with details of study, year of study
		(c) Impacts due to blasting defined as per the studies, if any carried out previously as indicated
		(d) Dust pollution

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	(e) Noise level (dB(A))
	(f) Ground vibration studies and Fly rock projection
	(iii) Impact of preparation of Ore and waste on environment-
	a) Air Pollution
	b) Noise Pollution
	c) Water Pollution
	d) Safety standards
	e) Traffic density
	f) Road Condition (vulnerability)
14)	Construction and Design of Dumps.
	a) Place/Location
	b) Approach to Dump form the mine distance and safety standards.
	c) Area of extent occupied
	d) Dimension of Dump and No. of terrace with heights (benches)
	e) Vegetation covered ; If yes, specify the details of plants
15)	Construction and Design of Waste Dumps
	(i) Numbers and Location of Dumps as per approved Mining Plan
	(ii) Specify whether reject dumps are located within or outside mining lease
	(iii) Area occupied in excess of the approval mining plan.
	(iv) Dimension of Terracing, Light, shapes, etc., Dump as per approved Mining Plan
	(v) Fresh/Existing Dimension Height, shape, width, etc., of Dumps in the mine.
	(vi) Volume/Quantity added to Waste/Dump during the violated period.
	(vii) Approach to the Dump-Dimension, distance.
	(viii) Number of and type of equipments deployed in Dump.
	(ix) Provision of Garland drains around the Dumps.
	(x) Any vegetation made on the slopes.
	(xi) Provision of safety standards.
	(xii) Impact of Waste/Dumps on environment.
	a) Air pollution
	b) Water pollution
	c) Dust pollution
	d) Noise pollution
	(xiii) Terracing
16)	Construction and Design of Ore and sub grade ore/mineral Stacks:-

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	(i) Number and Location of Ore stacks.	
	(ii) Dimension of Ore/sub grade Stacks as per the Approved Mining Plan	
	(iii) Volume/Quantity added during the violation period.	
	(iv) Any Screening plant or any other loading equipment engaged during the violated period.	
	(v) Approach to Ore / sub grade stack –Distance, hazards.	
	(vi) Safety standards adopted while operation.	
	(vii) Impact of ore/sub grade on environment	
	a. Air pollution	
	b. Water pollution	
	c. Dust pollution	
	d. Noise pollution	
17)	Mine Pit Water	
	(i) Intersection of Ground water table, specify the measures taken.	
	(ii) Ground water table as per hydro geological Studies (Pumping test).	
	(iii) Provision of Garland drains around pit and dumps	
	(iv) Water pollution	
	(v) Management of mine water.	
	(vi) Ultimate pit limit, w.r.t Ground water intersection and management of drainage of ground water.	
18)	Diversion of General Drainage/River/Nallah course for mining	
19)	Clearing of vegetation before the commencement of mining operation- Number of trees (species wise).	
20)	Man Power	
	(a) Statutory management	
	(b) Regular (Non –statutory) Manpower	
21)	Occupational Health and Safety.	
	(a) Periodical monitoring of health standards of persons employed as per Mine Act, 1952.	
	(b) Failure to inform statutory bodies periodically, if any	
22)	Population (Nearby Habitation)	

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	(i) Population/Significant Population/Dense Population within the buffer zone of 10 Kms.	
	(ii) People displacement due to mining activities	
	(iii) Location/ Existence of habitation near the river or any other historical/sensitive/ forest distance.	
	(iv) Impact of mining on Surrounding and habitation-Air, Water, Noise, Pollution.	
	(v) Socio Economic aspects of mining.	
23)	CSR	
	(a) Field ground Activities or studies. Actual amount spent towards CSR and the future proposal.	
24)	NOC from DMG for quantity clarification in respect of settlement of all the amount payable against identified violation.	
25)	For the Clearance of EC, Public Hearing is mandated as per MoEF & CC Notification.	
26)	Conceptual post mining land use/restoration	
27)	Litigation/court cases, if any pending	
28)	Disaster management plan for the mine	

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ANNEXURE - IV

ABSTRACT

MINES AND MINERALS -- Minor Mineral -- Dharmapuri District -- Krishnagiri Taluk -- Jagadevipalayam village -- Grant of lease to quarry colour granite over an extent of 11.5990 hectares in S.F.No.294/4, 295/2A, 2B, 2C etc., to Tvl.Karunai Granites Private Ltd.-- Orders -- Issued.

INDUSTRIES(E.2) DEPARTMENT

G.O.3D No. 87

Dated: 2.01.96

Read :-

1. Application from Tvl. Karunai Granites (P) Ltd., Krishnagiri, dated 18.7.95.
2. From the District Collector, Dharmapuri, Lr. Roc.No.1362/93/A.Mines, dated 23.1.95 and 22.7.95.
3. From the Commissioner of Geology and Mining, Lr.No. No.6885/MM2/95, dated 29.9.95.

ORDER:

Tvl. Karunai Granites (Private) Limited, Krishnagiri applied for grant of lease to quarry colour granite over an extent of 11.59.0 hectares in S.F.No.294/4, 295/2A, 2B, 2C etc., in Jagadevipalayam village, Krishnagiri Taluk, Dharmapuri District for a period of 10(ten) years.

2. The District Collector and the Commissioner of Geology and Mining have forwarded the application of Tvl.Karunai Granites(P)Ltd., Krishnagiri for passing suitable orders by the Government.

3. The Government, after careful examination, have decided to grant lease to Tvl.Karunai Granites(P)Ltd., Krishnagiri to quarry colour granite in patta lands.

4. In exercise of powers conferred under Rule 13 of Tamilnadu Minor Mineral Concession Rules, 1959, the Government of Tamilnadu hereby grants quarrying lease to Tvl.Karunai Granites(P)Ltd., Krishnagiri, for quarrying colour granite over an extent of 11.59.0 hectares (28.62 acres) in S.F.No.294/4, 295/2A, 295/2B, 295/2C, 298/2, 301/3(P), 301/2, 301/3A and 293/4C2 in Jagadevipalayam village, Krishnagiri Taluk, Dharmapuri District for a period of 10(ten) years, subject to conditions specified in the Annexure to this order and also subject to the following conditions:-

1) That the applicant firm should produce the extracts from the village accounts to show that the lands in S.Nos. 294/4, 301/3A and 298/4C2 are assigned/ryotwari patta in the name of firm, after having carried out [illegible] changes, before execution of lease deed.

ii) Safety distance should be maintained from the telephone lines passing at a distance of 30 metres from S.Nos 307/1

iii) The telephone line at a distance of 2.5 metres from S.No.301/1 and the telephone line in S.No.307/3A and S.No.294/4 should be got shifted beyond the safety distance before execution of lease deed.

iv) The check dam in S.No.245/1 which is at a distance of 10 metres from S.No. 5/4A should not be disturbed at the time of mining operations.

v) The applicant firm should not at any time encroach or resort quarrying in the adjacent poramboke land in S.No. 299/1.

vi) The applicant firm should vacate the encroachment [illegible] adjacent poramboke land in S.No.299/1 [illegible] execution of lease deed.

vii) Safety distance should be [illegible] metres from the adjacent poramboke land in S.No.299/1

viii) 7.5 metres safety distance to the boundaries has to be maintained.

ix) On grant of lease, the waste generated during the quarrying should be dumped [illegible] leasehold area.

x) The valid mining dues clearance certificates in respect of Dharmapuri and Salem districts and latest Solvency Certificate have to be submitted before the execution of lease deed.

5. The Collector of Dharmapuri District is requested to take necessary further action for the execution of agreement in the prescribed form and communicate the date of execution of agreement to the Government and Commissioner of Geology and Mining.

(BY ORDER OF THE GOVERNOR)

M.S.SRINIVASAN
SECRETARY TO GOVERNMENT.

To
Tvl.Karunai Granites(P)Ltd.,
2/149, Santhi House,
Madras Bye-Pass Road,
Krishnagiri 635 001
Dharmapuri District.

The Commissioner of Geology and Mining, Chennai-32
The District Collector, Dharmapuri District, Dharmapuri
Copy to: Industries(DP.II) Department, Chennai-9

// forwarded by order //

SECTION OFFICER

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ANNEXURE

1. The applicant shall execute an agreement within one month from the date of receipt of the Government Order.

2. The date of commencement of the period of lease shall be the date on which the agreement is executed.

3. The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rates prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules 1959.

4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.

5. The applicant should also allow any officer authorised by the District Collector or any Officer authorised by him in this behalf or any other officer authorised by the State Government in this behalf to inspect the area and verify records, any accounts and furnish such information under the terms as may be required by them.

6. The applicant shall carry out the quarrying operations in skillful, scientific systematic manner keeping in view the proper safety of the lessee conservation of minerals and preservation of environmental ecology.

7. The applicant shall allow any officer authorised by the District Collector and Commissioner of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 5 above and also carry out the directions issued by the satisfaction of the above said authorities.

8. No quarrying and activities connected there to shall be done before the execution of the agreement and its registration at the cost of the applicant.

9. No hindrance shall be caused to the adjoining pattadars or public.

10. The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.

11. The terms and conditions are also subject to such further modifications deletion and additions alteration as may be ordered by the Government to be included in the agreement to be executed for this purpose.

/pto/

-:-:-

12. The applicant should maintain at his cost proper [illegible] Survey numbers, years of the lease, name of the lease holder and the lease period at the entrance of the District Collector/ Commissioner of Geology and Mining, and maintain it at all times to the [illegible] use.

13. No quarrying [illegible] within a distance of 7.5 metres of the boundaries of the leased area.

14. The applicant should make his own arrangements to form the approach road from the public road to the place of his quarry.

15. The lessee shall strictly adhere to the statutory and safety requirements as per Act and Rules from time to time.

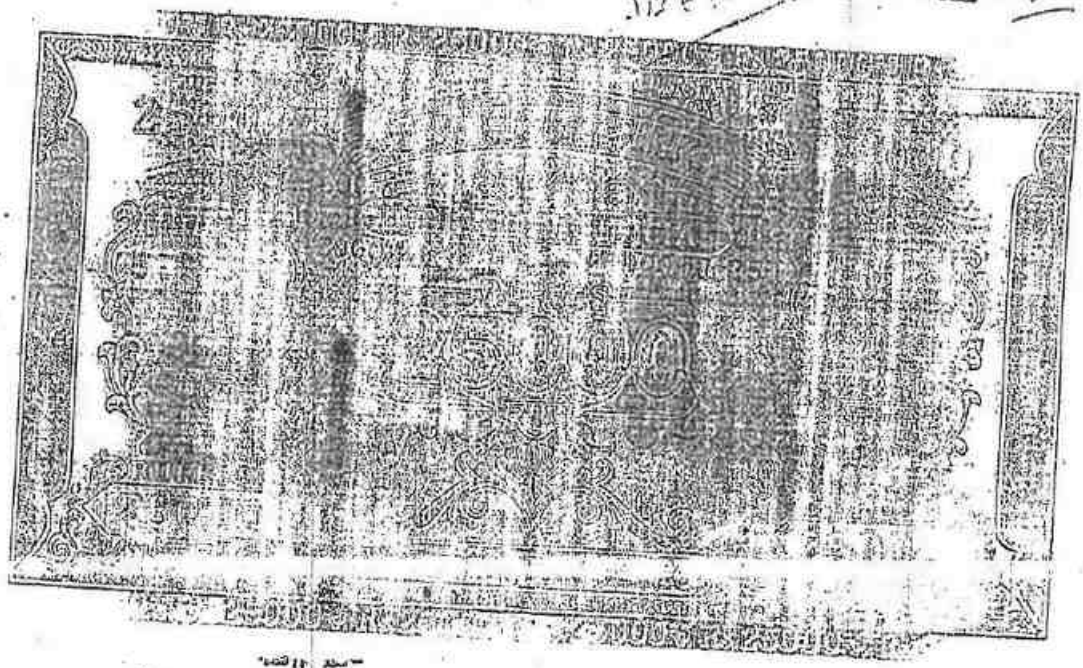
A.G. SRINIVASAN,
Secretary to Government.

// true copy //

SECTION OFFICER

S. DHANASEKAR
RQP/MAS/225/2011/A

ANNEXURE - V



APPENDIX - IV

(See Rule 22 of TNMMCR 1959 and Co. SD No. 87 Ind (E2) Dept dt 02.12.99 and Dharmapuri District Collector's Proc. Roc. No. 1362/98(A.Mines) dated -3-2000.

AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

AGREEMENT made this ..... between M/s. Karunai Granites (P) Ltd, 2/145 Santhi House, Madras Bye Pass Road, Krishnagiri, Dharmapuri Dt K. Karunakaran S/o P.P. Kaveri chetty, Managing Director. (hereinafter referred to as "the registered holder") which

.....2

COLLECTOR,
DHARMAPURI.

For

Contains 25 Sheets 1st Sheet

Sub-Registrar

2000
G - Rs 10 ...
1880.000
...
Rs 18750

Presented in the Office of the Sub-Registrar of Bargur and fee of Rs. 18750/- paid between the hours of ... on the 15th day of March 2000

Execution admitted by:

LEFT THUMB

S/o. P.P. Kuvenchetty
Managing Director for
Kannai Granites (P) Ltd.
2/142 Santhi Nagar
Madras Bye Pass Road
Krishnagiri.

IDENTIFIED BY

C.P. Karthik
S/o Chinnasamy
128/K, Ram Illam
Chennai Byepass road
Krishnagiri.

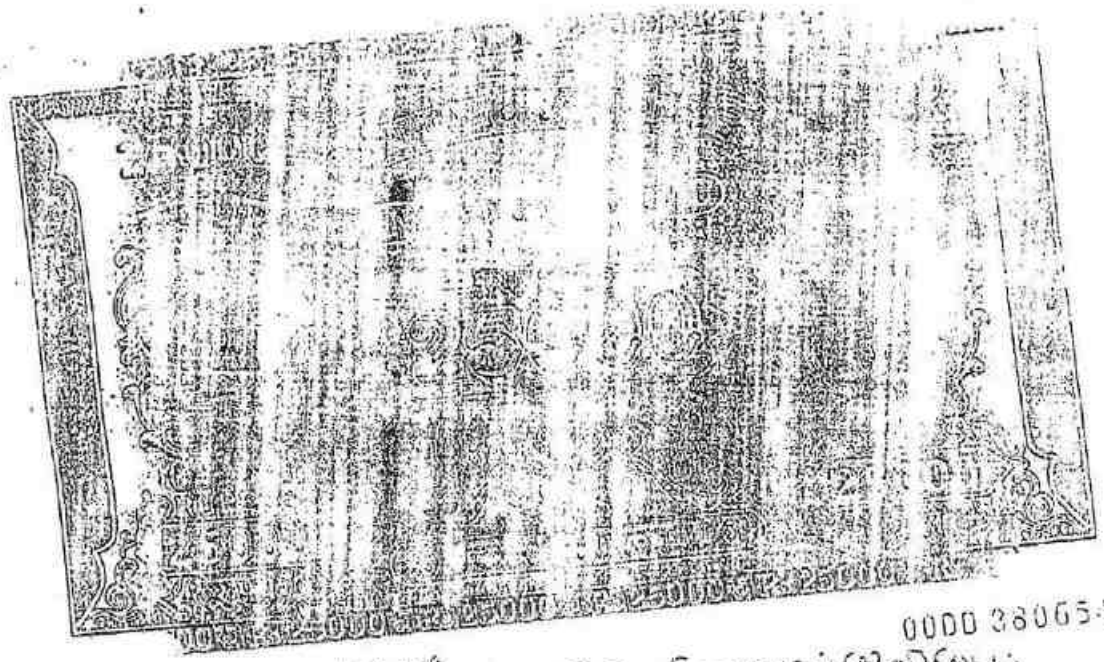
D. Devanesan, S/o S. Duraiswamy,
Bharathi Nagar, Bargur.

I have satisfied myself as to the Execution
of the instrument by ... who is exempted from Personal Appearance
under section 88 (1) of the Registration Act.

15th day of March 2000 Sub-Registrar.

282
2097
216

Registered as No. ... of 2000
of Book 1 Volume ...... Pages
2107 to 216
16th March 2000 Sub-Registrar.



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term shall include in this presents where the context so admits, include also his

executors, administrators, legal representatives and assigns) of the one part and the

Governor of Tamil Nadu (hereinafter called "the Government" which term shall where

the context so admits include also his successors in office and assigns) of the other

part.

WHEREAS the registered holder hold (amongst others) the lands described in the

schedule hereunder written (hereinafter referred to as the said lands) and

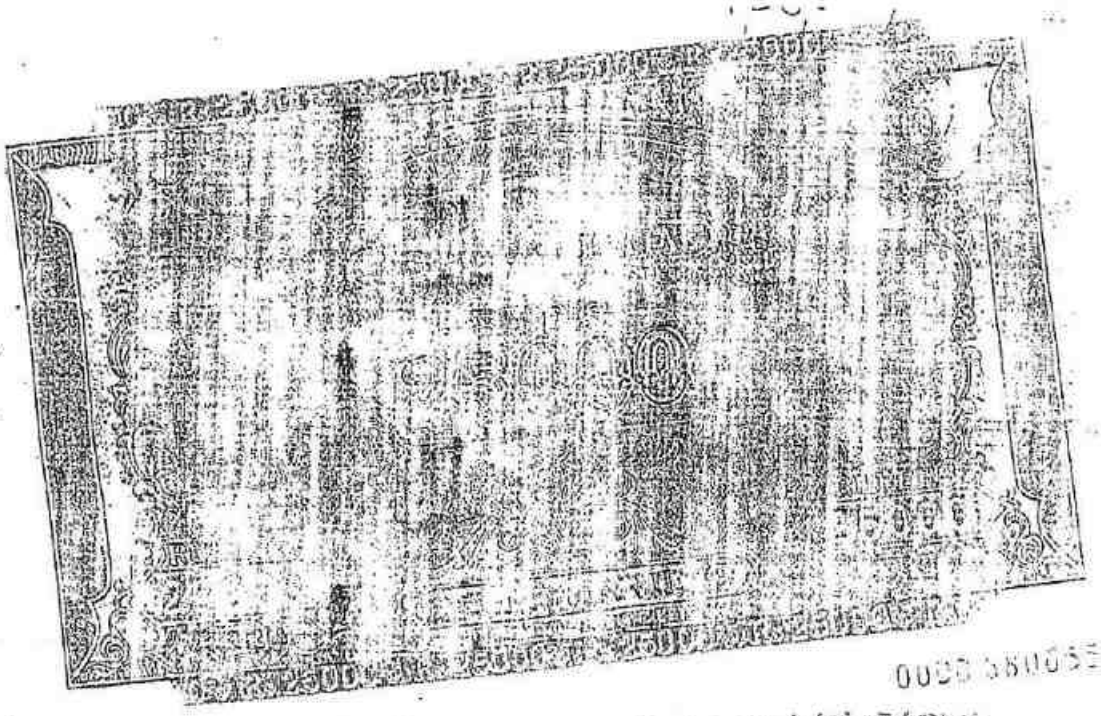
demarcated in the map enclosed and Coloured.

AND WHEREAS the registered holder have given notice to the Collector of

District of Dharmapuri (hereinafter referred to as " the Collector"), of the intention

COLLECTOR,
DHARMAPURI.

For

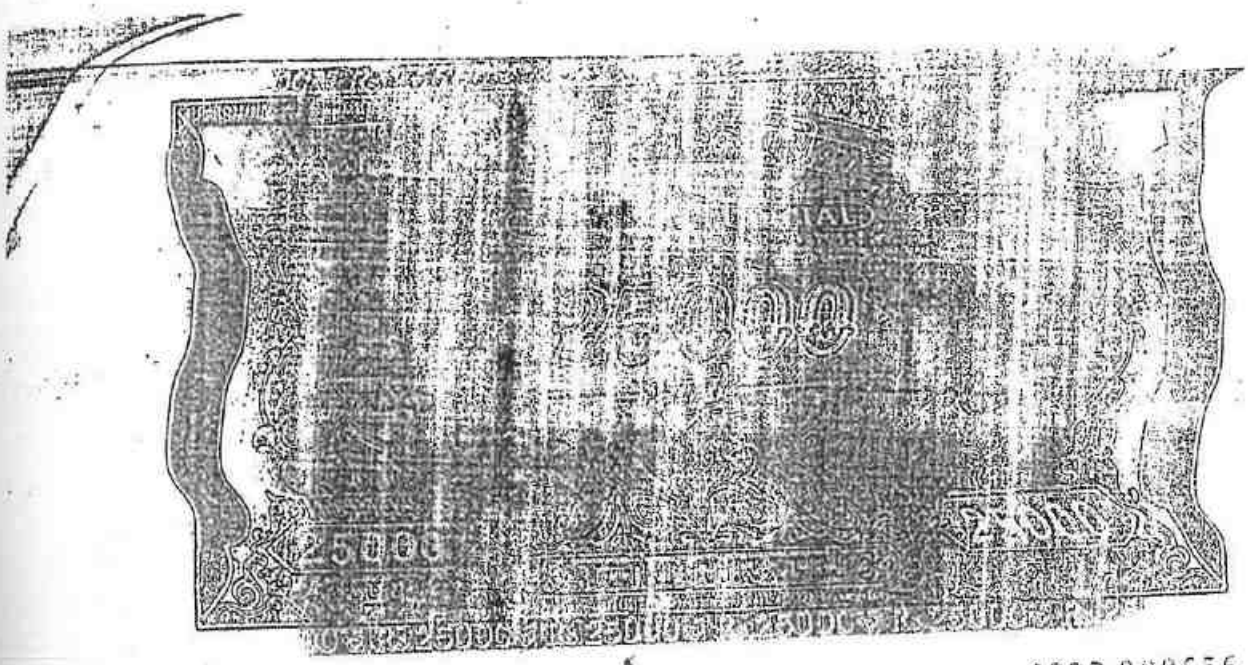


the registered holder to carry on the mining operations for Colour Granite in the said lands and to deposit mining waste in the said lands and has lodged with the collector an accurate map or sketch of the said lands.

AND WHEREAS the Collector acting for and on behalf of the Government has agreed to allow the registered holders to commence mining operations for Colour Granite on the said lands and to deposit mining waste thereon, upon the registered holder entering into such an agreement as is hereinafter contained.

AND WHEREAS the registered holder have deposited with the Collector a sum of Rs. 5000/- (Five thousand only) as security against any loss or damage which

COLLECTOR,
DHARMAPURI.



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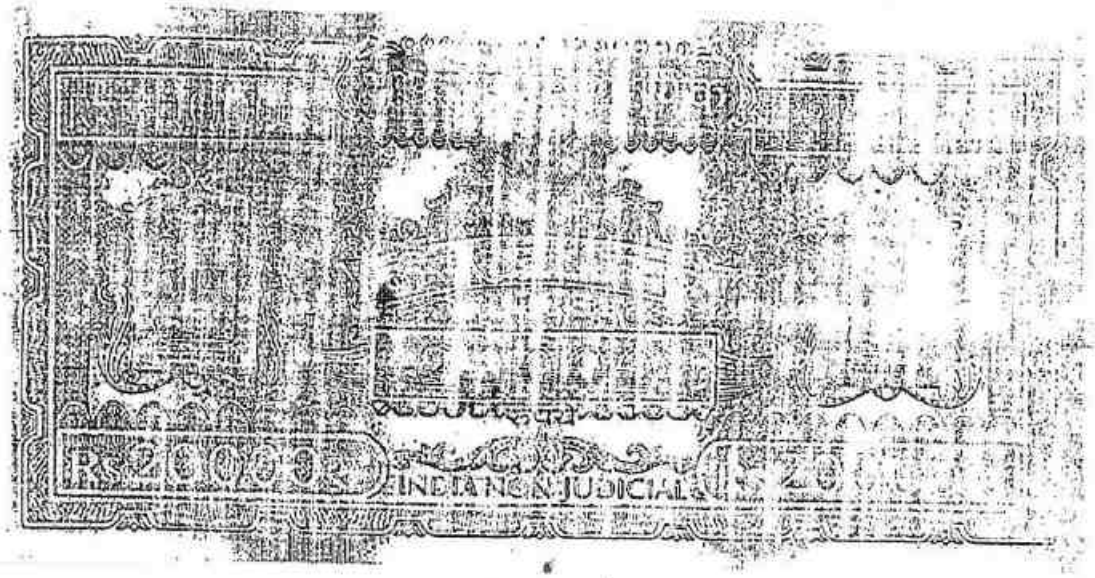
be incurred by the Government, by reason of any of the said lands rendered unfit for cultivation by any mining operations therein of the registered holder or by the deposit of mining waste thereon by the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder doth hereby agree with the Government in the manner following, that is to say -

1. The registered holder shall be at liberty at all times during the period of the lease from 5th day of February 2000 to 5th day of February 2010 carry on mining operations for Colour Granite in the said lands in a proper and workman like manner keeping in view the proper safety of the labourers, conservation of minerals and preservation of environment and ecology and to deposit mining waste

COLLECTOR,
DHARMAPURI.



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on the said lands and shall at all times be answerable and accountable to the Government for all acts and defaults by any of his nominees, servants or agents in carrying on such operations or in making such deposit.

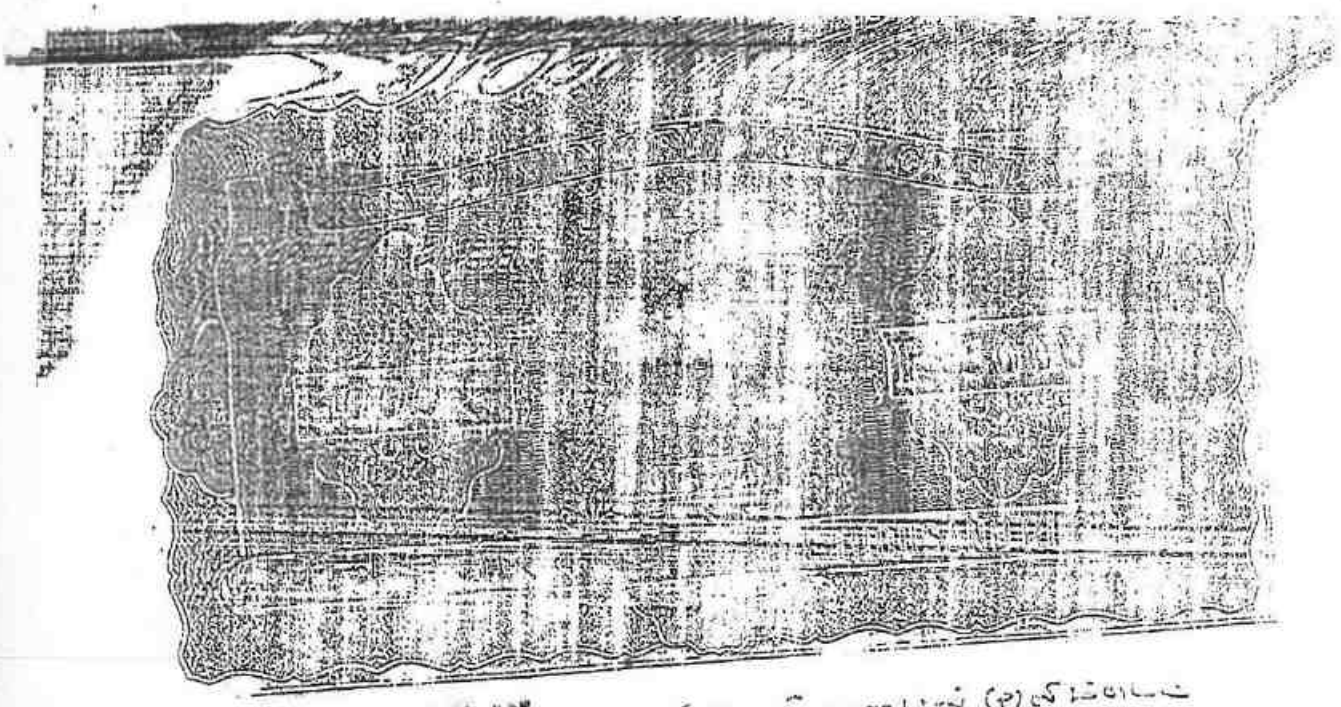
2. a) The registered holder shall and will during so long as he shall have carried on any such mining operations pay to the Government in advance the dead rent for the area leased out or as aforesaid pay at the time of request by the Lessee for authentication of despatch slip, to the Collector for and on behalf the Government, seigniorage on the minor minerals mined whichever is higher, and area assessment, at the rate specified from time to time in Appendix II to the Tamil Nadu Minor Minerals Concession Rule, 1959, hereinafter called "The Rules".

COLLECTOR,
DHARMAPURI.

For

.....6.

LESSEE



-6-

2. b) For the transport of quarried minerals the lessee shall produce despatch slips in the form prescribed in Appendix - XIII to The Rules, in duplicate, for authentication by the authority authorised by the Collector and should issue each slip duly filled in, to each transporting medium which carry away the minerals. Non compliance will be viewed as illicit transport of minerals and action will be pursued under the Rules and Acts.

3. The registered holder shall and will keep correct accounts in such form as the Collector shall, from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said land and also the number of persons employed in carrying on the said mining

for M/s. [illegible] LTD.

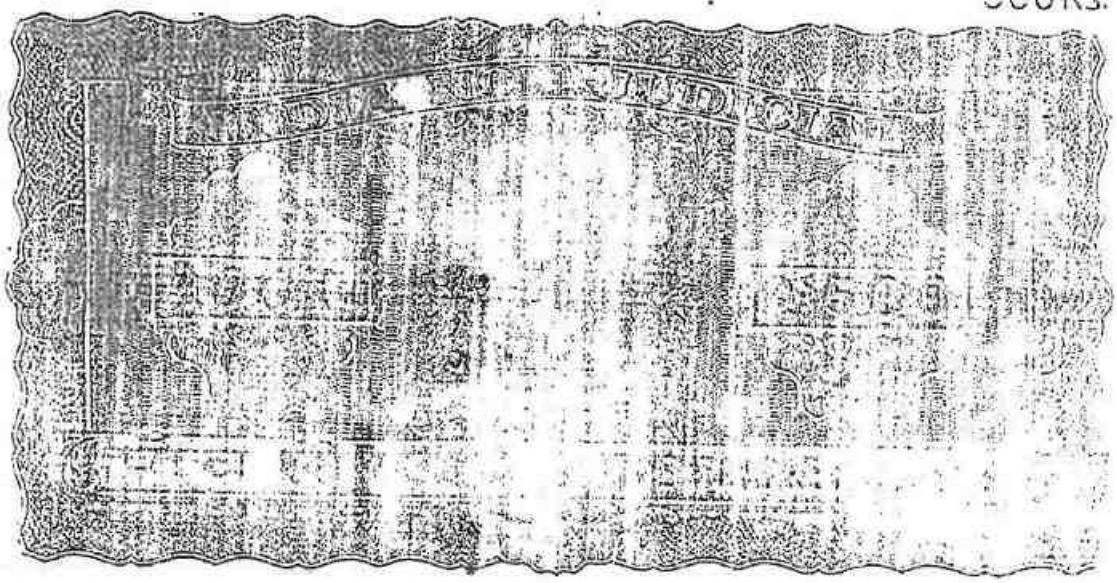
COLLECTOR,
DHARMAPURI.

operation therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorised by the Collector or Director of Geology and Mining, Tamil Nadu from time to time and at any time to examine such accounts and any such plans and shall furnish so required supply and furnish all such information, plans and returns regarding all or any of the matter aforesaid as "The Collector or the Director of Geology and Mining of Tamil Nadu" shall, from time to time, require and direct.

4. The registered holder shall and will at all times allow any officer authorized by the Collector or the Director of Geology and Mining, Tamil Nadu in that behalf

COLLECTOR,
DHARMAPURI.

500Rs.



to enter upon any part of the said lands where any mining operations may be carried on, for the purpose of inspecting the same.

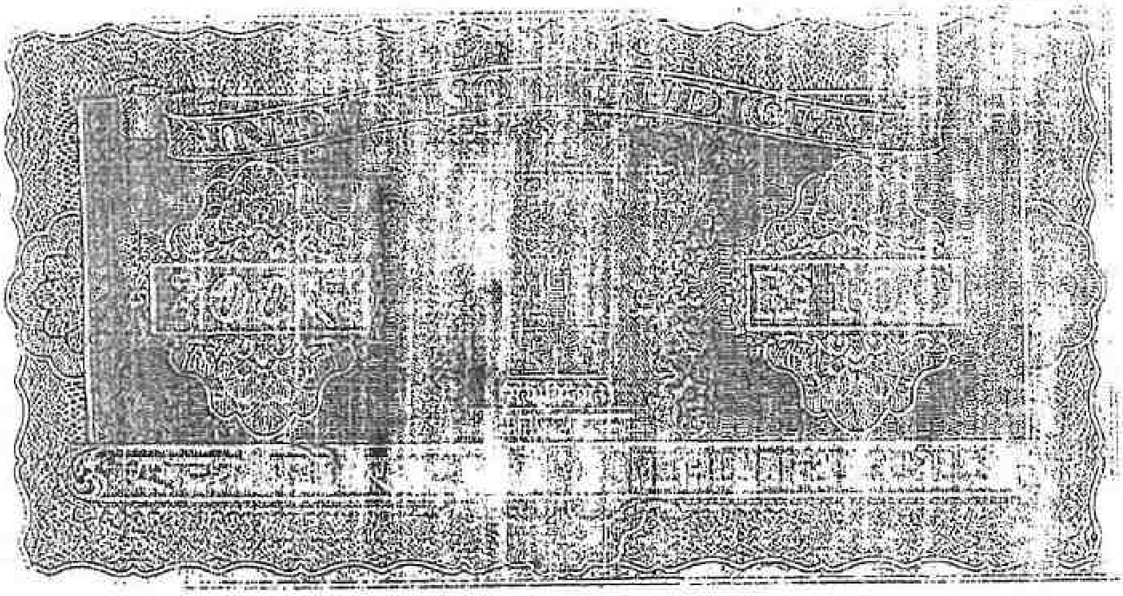
5. The registered holders shall forthwith send to the Collector a report of any accident which may occur at or in the said lands and also of the discovery therein of any mineral other than Colour Granite.

6. It shall be lawful for the registered holders at any time to cease mining operations under these presents provided he shall pay to the collector for and on behalf of the Government, land assessment, cess and seigniorage or the dead rent due to the Government and shall restore the said lands or fence or fill in

COLLECTOR,
DHARMAPURI.

LESSEE

100Rs.



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-9-

abandoned pits and excavations therein if required by the Collector and upon lessees so doing these presents shall cease and determine.

7. In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored, to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such lands which he shall be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit or excavation which he shall be required to so fence, or fill in

....10

COLLECTOR,
DHARMAPURI.

then and in any such case, it shall be lawful for the Collector to so restore any such lands, or as the case may be, to so fence or fill in any such pits or excavations at the expense of the registered holder and to apply the said sum of Rs. Five Thousand so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration on fencing or filling in or to meet thirty times the assessment on the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to civil court.

For KANDHARI GRANITES (I) P

COLLECTOR,
DHARMAPURI.

M. HANS DIRECTOR
LESSEE

8. The registered holders shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operations or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.

9. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous permission in writing by the Collector.

10. If the registered holder does not intend to carry on mining operations himself, but intends to leave out the right to do so to another person the registered holder and his lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulations herein contained which agreement shall be in the form set out in Appendix V to the Tamil Nadu Minor Mineral Concession Rules, 1959.

11. a) All assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, as if they were arrears of land revenue.

For KARUNAI GRANITES (P) LTD.

.....12

MANAGING DIRECTOR

LESSEE

COLLECTOR,
DHARMAPURI

11. b) Area Assessment payable apart from land assessment shall be paid at the beginning of every lease year. Interest for the belated payment will be payable at the rate specified in The Rules, from time to time.

11. C) Dead Rent shall be paid at the beginning of lease year, every year, in advance and will be adjustable for the seigniorage to be paid during the period. Interest shall be paid for the belated payment of Dead Rent at the rates specified, in The Rules, from time to time , and will not be adjusted towards the seigniorage to be paid subsequently.

12. In the event of any breach by the registered holder of any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector to give notice in writing to the registered holders of their intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the pattadar in respect of any antecedent claim on breach of covenant or condition.

13. Any notice to be given to the registered holder may be addressed to his last known place of above and where a notice has been so addressed it shall

For K[illegible] LTD.

Director

COLLECTOR,
DHARMAPURI.

LESSEE

be deemed to have been duly served for the purpose of these presents.

14. Should any question or dispute arise regarding this agreement executed in pursuance of Tamil Nadu Minor Mineral Concession Rules, 1959, or any matter or thing connected therewith or the powers of the registered holder thereunder, the amount or payment of the seigniorage fee or dead rent or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining Tamil Nadu. In case the registered holder cum lessee is not satisfied with the decision of the Director of Geology and Mining, the matter shall be referred to the State Government, for decision.

15. a. The registered holder shall abide by the conditions laid down in the Payment of Wages Act 1936 (Central Act IV of 1939), Minimum Wages Act 1948 and Rules 1950, Equal Remuneration Act and Central Rules 1976, the Mines Act, 1952 (Central ACT XXXV of 1952) and the Indian Explosives Act, 1884 (Central Act IV 1884) and the rules and regulations made thereunder.

15. b. The lessee shall comply with the provisions of the labour laws applicable to quarrying. Any contravention of the provisions shall attract legal proceedings of the appropriate Govt.

.....14

COLLECTOR,
DHARMAPURI.

For KARUNA [illegible] LTD

MANAGING DIRECTOR

LESSEE

17. a. The lessee should restrict his mining operations strictly within the permitted area as defined in the sketch.

17. b. No quarrying shall be made within a distance of 7.5m of the boundaries of the permitted area

18. The lessee should maintain at his cost proper sign boards indicating G.O.No. Survey numbers, years of lease, name of the lessee and Collector's permission, and maintain it at all times at the quarry site.

19. The lessee should make his own arrangement to form the approach road from the public road to the place of his quarry.

20. The lessee shall strictly adhere to the statutory and, safety requirements as per Act and Rules in force from time to time.

21. The lessee terms and conditions are also subject to such further modifications deletion and additions alterations as may be ordered by the Government to be included in the agreement to be executed for this purpose.

~~22.~~ The lessee should maintain at his cost proper signboards indicating the survey numberi years of the lease, name of the lease period to the satisfaction of the District Collector/Commissioner of Geology and Mining and Maintain it at all time at the quarry site.

22. Anticipated seigniorage for the minerals to be quarried from the demised land is Rs. 18,00,000/- (Rupees Eighteen Lakhs only) per annum along with Rs. 2318/- (Rupees Two thousand three hundred and eighteen only) as area assessment per year.

For KARUNA GRANITES (P) LTD.

MANAGING DIRECTOR

COLLECTOR,
DHARMAPURI.

LESSEE

.....15

Special conditions

The following Special Conditions to be adhered to and executed by the Lessee.

a) The lessee should be maintained safety distance from the telephone lines passing at a distance of 30 metres from S.No. 301/1

b) The lessee check dam in S.No. 245/1 which is at a distance of 10 metres from S.No. 295/2A should not be disturbed at the time of mining operation.

c) The lessee should not either encroach or resort quarrying in the adjacent poramboke land in S.No. 299/1

d) The lessee should vacate the encroachment by dumping of quarry wastages in the adjacent poramboke land in S.No. 299/1 within 2 years from the date of execution of lease deed vide Govt. Lr. 35605/E2/99-2 dt. 06.01.2000

e) The lessee safty distance should be maintained from the adjacent poramboke land in S.No 299/1.

f) The lessee On grant of lease, the waste generated during the quarrying should be dumped only with in the lease hold area.

g) The lessee valid mining dues clearance certificates in respect of Salem district is permitted to produce as soon as disposal of the second appeal pending with Government and for which the lessee has given an undertaking.(Govt. ref. 34500/E2/99-1, 12.11.99).

COLLECTOR,
DHARMAPURI.

Fo: KARUNA GRANITES (P) LTD.
MANAGING DIRECTOR.
LESSEE

.....16

THE SCHEDULE

Name of the Taluk : Krishnagiri, Krishnagiri Registration District. Sub Registration District.

Name of the Village : Jagadevipalayam

Sl. No	S.F.No.	Total Extent in Hect	Extent Leased in Hect	Boundaries
1	294/4	2.27.0	2.27.0	North by : SF No. 299 East by : SF No. 301 South by : SF No. 292 West by : SF No. 296,295,294/3
2	295/2A	0.81.0	0.81.0	North by : SF No. 298 East by : SF No. 295/2B South by : SF No.294 West by : SF No. 295/1

COLLECTOR,
DHARMAPURI.

.....17

For KARUN GRANITES (I) LTD.

MANAGING DIRECTOR

LESSEE

3	295/2B	0.78.0	0.78.0	North by : SF No. 298 East by : SF.No. 295/2C South by : SF No. 294 West by : SF No. 295/2A
4	295/2C	1.21.0	1.21.0	North by : SF NO. 298 East by : SF No. 294 South by : SF No. 294 West by : SF No. 295/2B
5	298/1C2	1.17.0	1.17.0	North by : Village No. 137 Kondappanayanapalli Village East by : SF No. 299 South by : SF No. 299, 298/1C1 West by : SF No. 298/1C1

COLLECTOR,
DHARMAPURI.

18

For KADUNAI GRANITES (P) LTD.

MANAGING DIRECTOR.
LESSEE

6	298/2	0.65.0	0.65.0	North by : SF No. 298/1B, 298/1C1, 299 East by : SF.No. 294 South by : SF No. 295 West by : SF No. 298/1A
7	301/1(p)	1.05.0	[illegible]	North by : SF NO. 301/3C East by : SF No. 301/3C South by : SF No. 301/3A, 299 West by : SF No. 299
8	301/2	0.10.0	0.10.0	North by : SF. No. ~~301/3C~~ 299 East by : SF No. 301/3A South by : SF No. 301/3A West by : SF No. ~~301/1(p),~~ 299
9	301/3A	3.95.5	3.95.0	North by : SF. No. 299, 301/2, 301/1, 301/3C East by : SF No. 301/3C South by : SF No. 301/3B, 301/3C West by : SF No. 294
	Total	11.99.5	11.59.0	

The Present Market value of this property is. Rs. 18,00,000/-

COLLECTOR,
DHARMAPURI.

For KADIYAM[illegible]1965 (P) LTD.

[illegible]

LESSEE

-8-

WITNESS where of Tvl. Karunai Granites (P) Ltd, 2/149 Santhi House, Madras Bye Pass Road, Krishnagiri, Dharmapuri Dt. the register holder and Thiru. M. Sai Kumar, I.A.S., Collector of Dharmapuri District acting for and on behalf of and by the order and direction of the Governor of Tamil Nadu have hereunto set their hands.

Collector of Dharmapuri

Signed by the above named in the presence of

1. (V. PARIMALASELVAN)
துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
தருமபுரி.

2. (R. ...)
துணை ஆட்சியர்
(...)
தருமபுரி.

For KARUNAI GRANITES (P) LTD.

MANAGING DIRECTOR.

Lessee

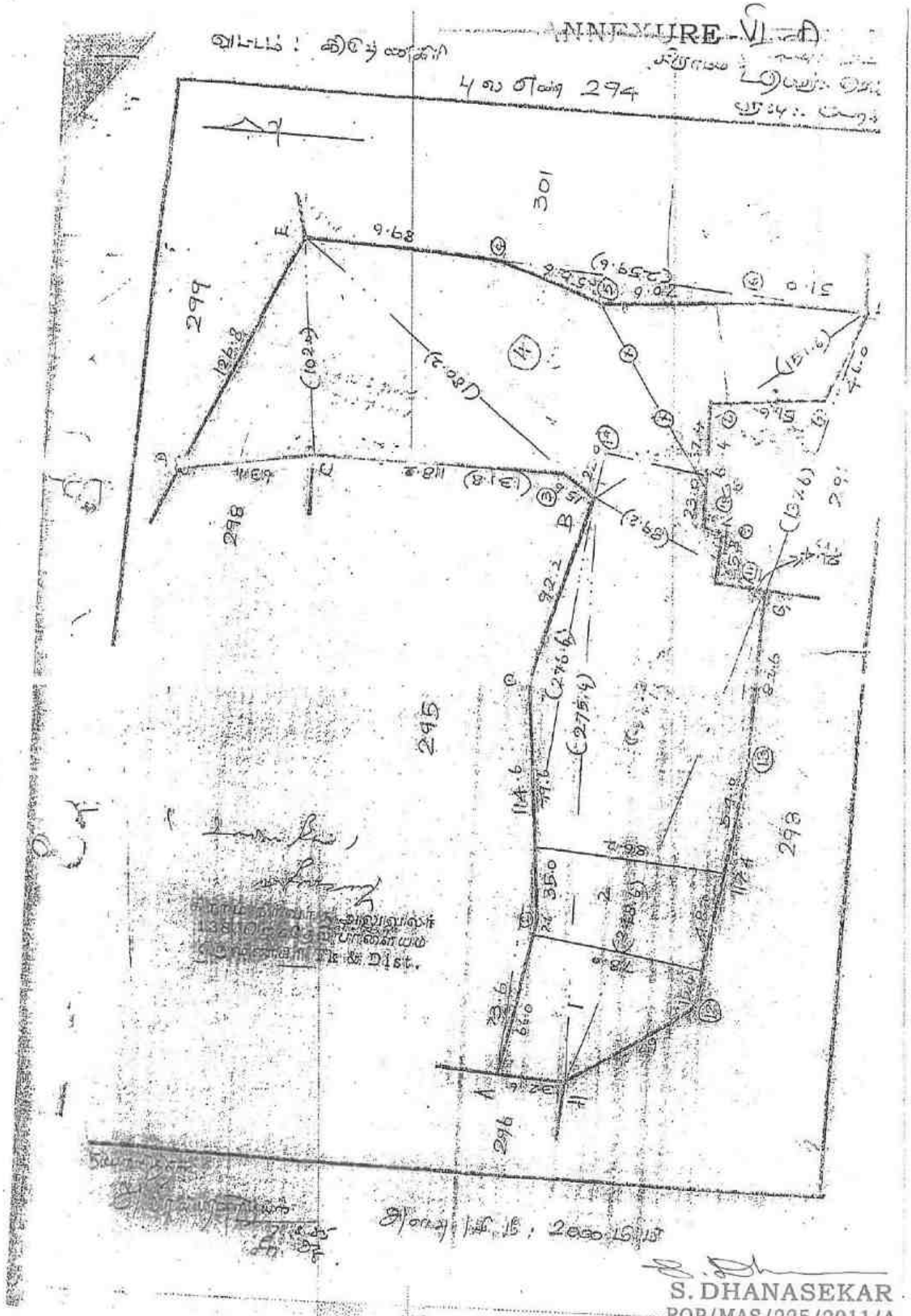
Signed by the above named in the presence of

1. M. Ponnusamy
S/o Mariappan
Gurugupatti, Perugopanapalli Po.
Krishnagiri Tk.

2. C. D. Kumar
S/o Chinnasamy,
128/B Rani Illam
Chennai By-pass Road,
Krishnagiri Post & Tk.

S. DHANASEKAR
RQP/MAS/225/2011/A

Annexure IV- Copy of FMB



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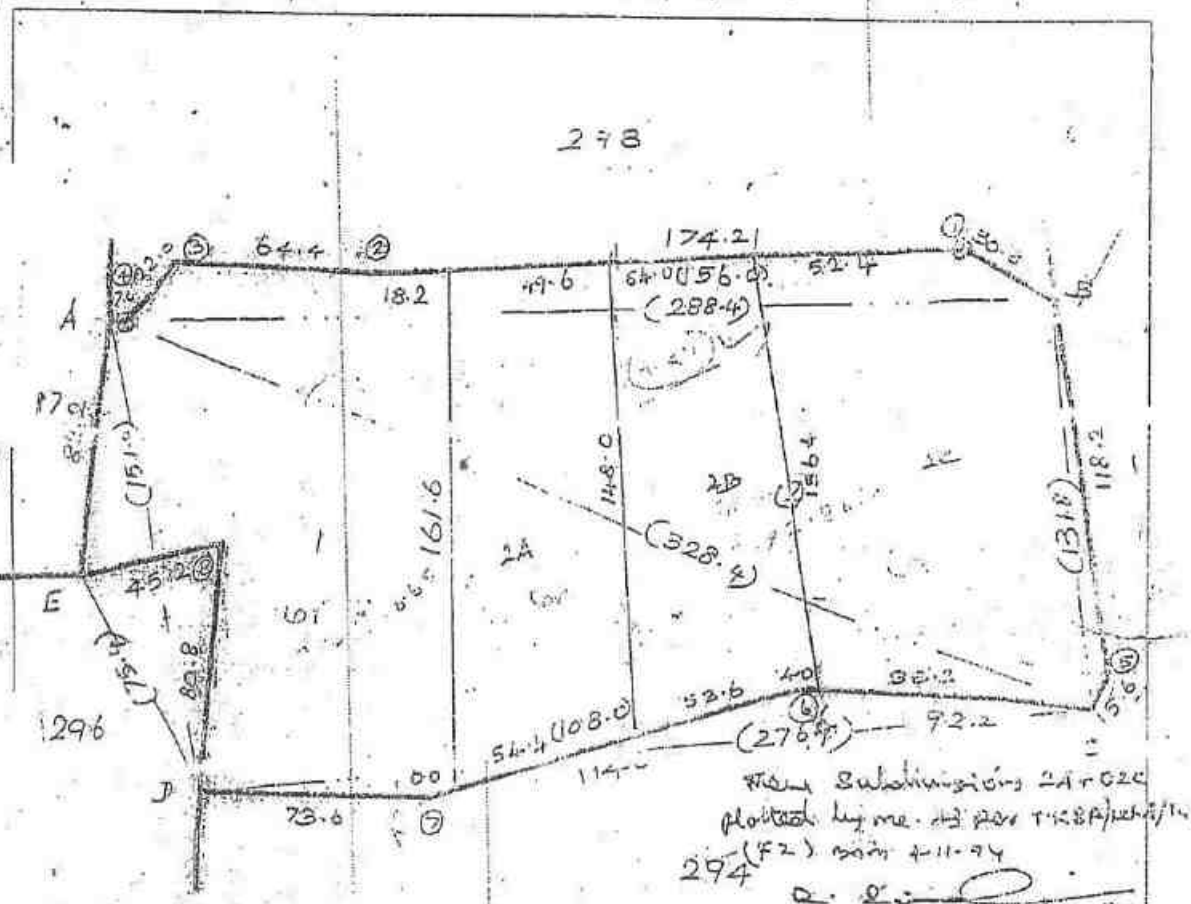
ANNEXURE - VI

கிராமம் { பெயர்: ஜகதேவி பாளையம்

வட்டம் கிருஷ்ணகிரி

புல எண். 295

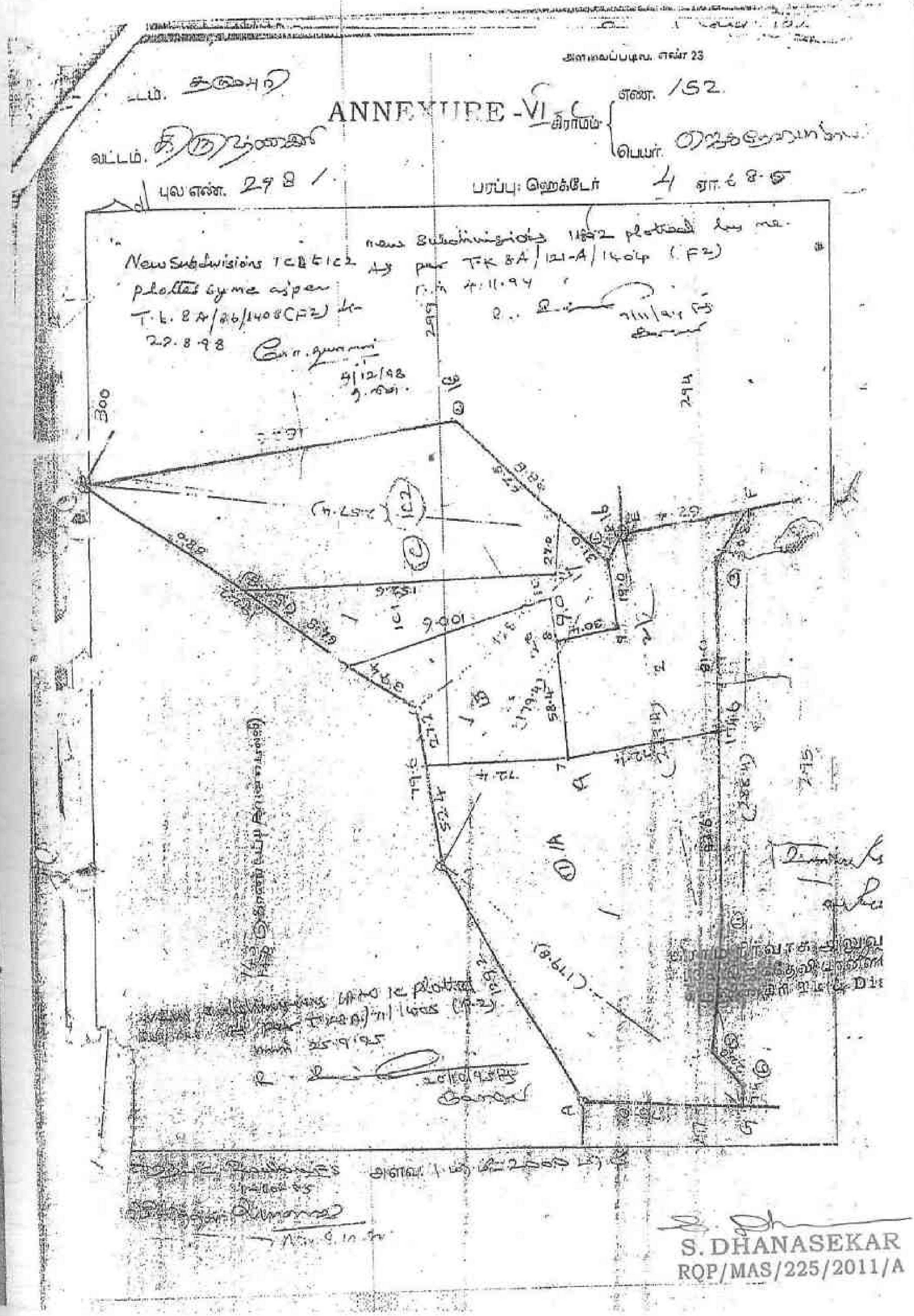
பரப்பு: ஹெக்டேர் 4 ஏ. 28.0



		A 157.0				B 131.8		
E	23.2	71.8				13.8	7.4	5
		D						
		B 75.4				C		
						A		
	வலச்	67.6	4.4	8		268.4		
		D						
		276.6				280.0	பிரை	4
						265.2	15.4	3
7	6.2	203.2				251.0	16.8	2
		90.8	15.4	6		27.0	14.8	1
		C				B		

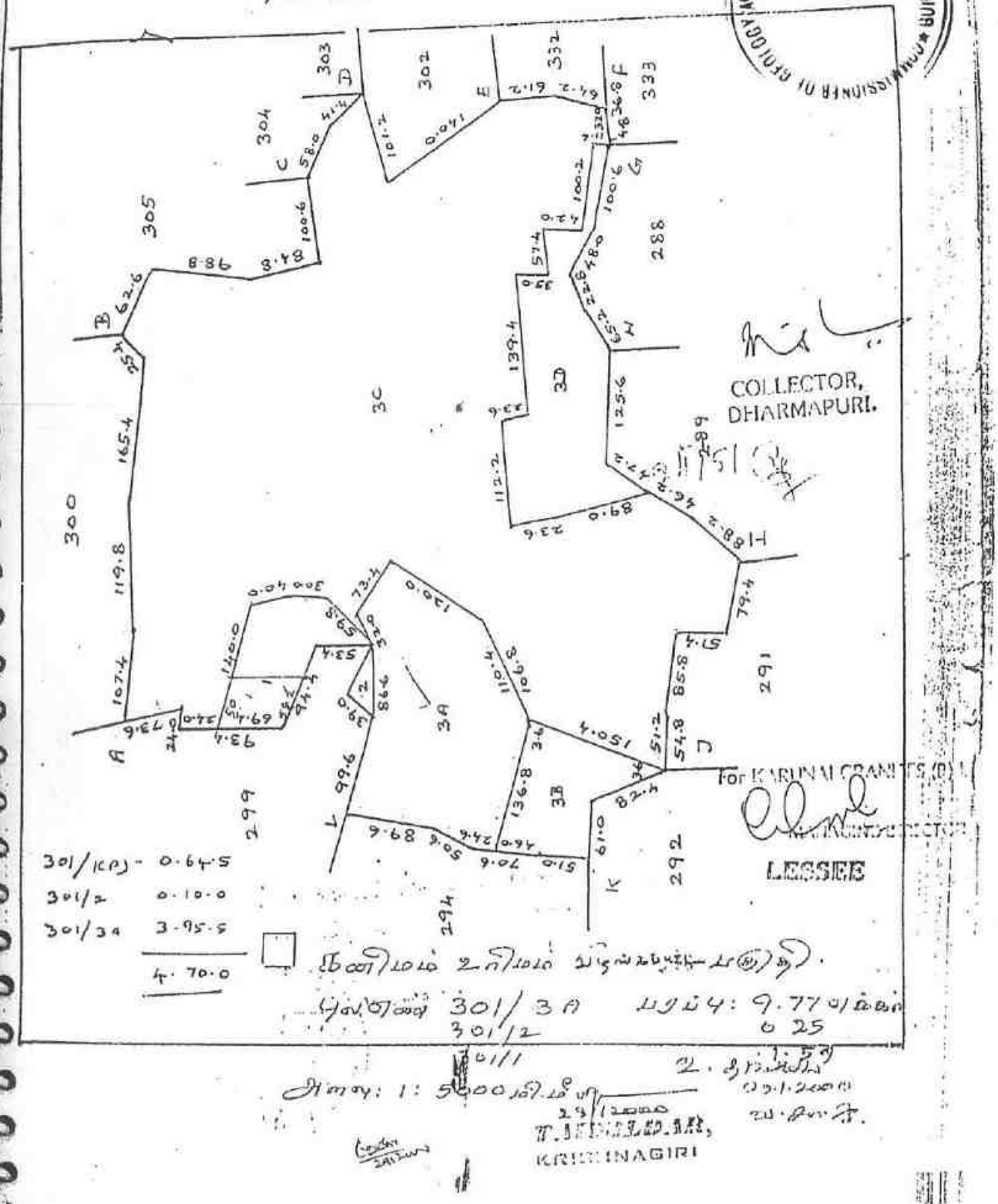
அளவு. 1செ.மீ = 200 அடி.

ANNEXURE - VI C

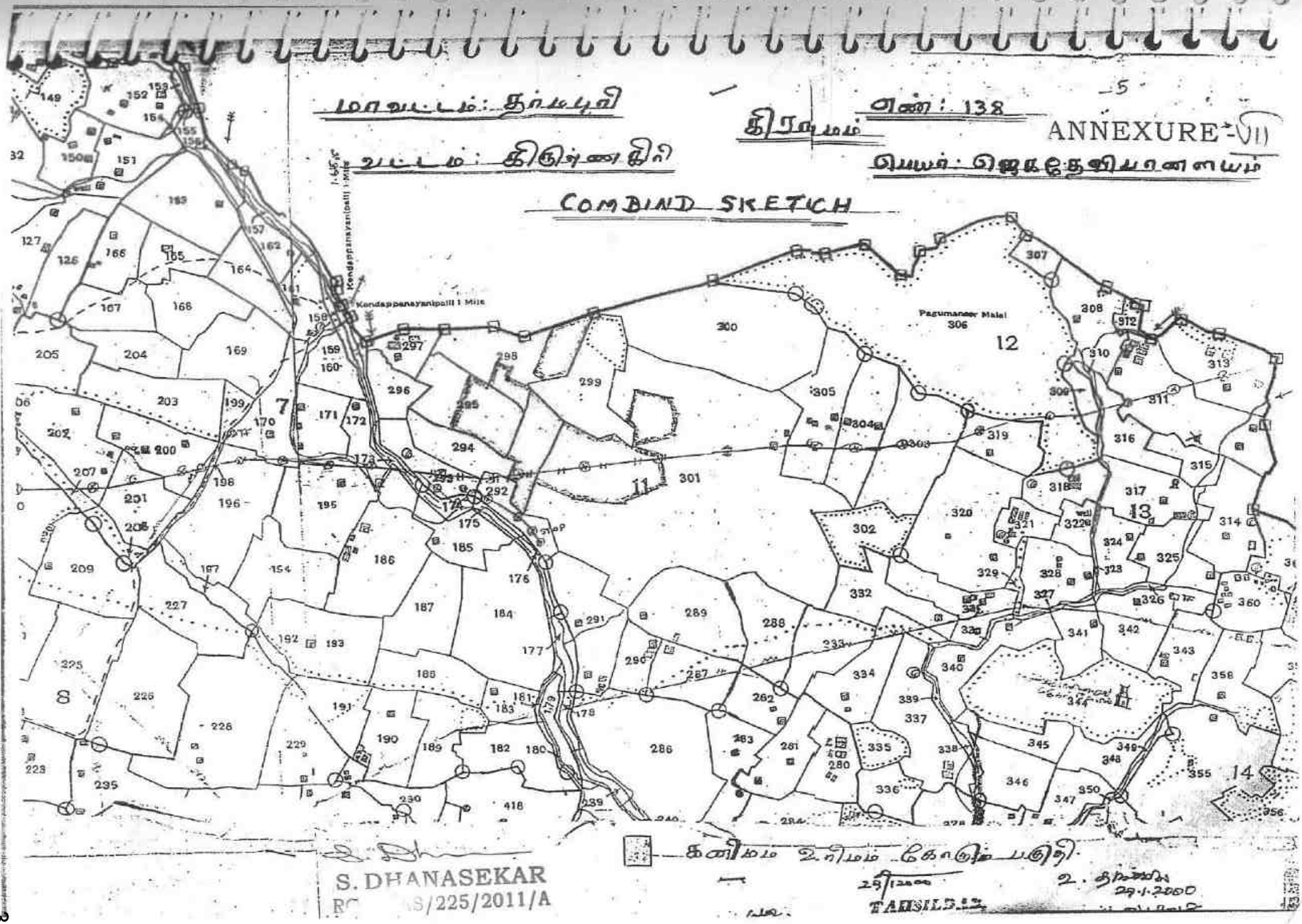


S. DHANASEKAR
ROP/MAS/225/2011/A

ANNEXURE - VII

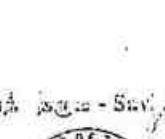


S. DHANASEKAR
RQP/MAS/225/2011/A



Annexure V- Copy of Combined Sketch

ANNEXURE - VIII



Remitter's Copy

KRISHNAGIRI இல் பணம் செலுத்துவதற்கு

For Payment of Money at KARUNA GRANITES (P) LTD.,

செலுத்துபவர் பெயரும் முகவரியும் 2/1-3E, SHANTHI HOUSE, CHENNAI BYE-PASS ROAD,

Name and address of Remitter KRISHNAGIRI-635 001.

க்கு பொருட்டு வரவு வைக்கப்பட செலுத்தப்படுகிறது.

Nature of Remittance Application for Quarry Lease

துறை அலுவலரின் குறிப்பு எண்.

தகவல் தொகுப்புக் குறியீடு Data Processing Code	ரூ Rs.	காசு P.
கணக்குத் தலைப்பு. Head of Account. 0853-ROCK PHOSPHATE MINING AND METALLURGICAL INDUSTRIES 102 MINERAL CONCESSION FEES RENT AND ROYALTIES A.A. QUARRIES AND MINERALS OF CODE: 0853-00-102-AA-0007.	5000	—
	Total 5000	—

ரூ Rs. Five Thousand only மட்டும்

செலுத்துச் சீட்டைச் சரிபார்க்கும் அலுவலரின் கையொப்பம் signature of the Official verifying the Challan

செலுத்துபவரின் கையொப்பம் Signature of the Remitter.

வங்கி/கருவூலப் பயன்பாட்டிற்கு For use of Bank/Treasury

ரூபாய் Received Rs.

காசாளர் Cashier

மேலாளர்/கணக்கர்/சார் கருவூல அலுவலர் Manager/Accountant/Sub-Treasury Officer.

துறைத் தலைவரால் கணக்குத் தலைப்பு நிரப்பப்படவேண்டும்.

Annexure VI- Copy of Renewal Application

APPENDIX – VII

(See Rules 8-C and 19 – A of TNMMCR – 1

APPLICATION FOR RENEWAL OF QUARRY

(to be submitted in triplicate)

To

The Secretary to the Government,
Industries Department,
Fort St, George, Secretariat,
Chennai – 600 009.

Through :

1. THE DISTRICT COLLECTOR,
   KRISHNAGIRI DISTRICT.
2. THE DIRECTOR OF GEOLOGY & MINING,
   GUINDY, CHENNAI – 32

Sir,

i. We request that a quarrying lease under rule 19 – A of the Tamil Nadu Minor Mineral Concession Rules, 1959 May be granted to us.

ii. A sum of Rs. 5,000/- (Rupees Five Thousand only) being non refundable application fee for fresh grant of quarrying lease has been remitted under the following Head of Account.

"0853 Non Ferrous Mining and Metallorgical Industries – 102, Mineral concession Fees, rent and royalties – A, Quarries and Minerals – D.P. Code No: 0853-102-AA-0007"

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III. The required Particulars are given below :

1.	Name of the applicant with Full address	:	Tvl. KARUNAI GRANITES (P) LTD, No. 2/45, Shanthi House, Chennai Bye-Pass Road, Krishnagiri.– 635 001.
2.	Is the applicant a Government Company / firm.	:	Private Limited Company
3.	Name of the Director	:	K.KARUNAKARAN Managing Director, K.SENTHILRANI, Director
	Members and their Nationality (Documentary evidence should be furnished)	:	INDIAN (Pass Port Copy enc (Memorandum of Association & Artic of association copy enclosed)
4.	Profession or nature of business of the applicant.	:	Granite Exporter
5.	Is the application for fresh grant or for renewal	:	RENEWAL
6.	Particulars of remittance of non refundable application fee.	:	Application fee Rs. 5000/- (Rupees Five thousand only) Remitted SBI, Krishnagiri on 22.01.0

...3

7.	Has the applicant filed an affidavit stating that the applicant	:	
a.	Has filed up to date income tax returns	:	Yes.
b.	Has paid the income tax assessek on him/her and	:	yes
c.	Has paid the income tax on the basis of self assessment as prescribed in the Income tax Act 1961.	:	Yes, Acknowledgement copy enclosed.
8.	Type of Granite which the applicant intends to quarry	:	Grey Granite
9.	Period for which quarrying lease permission is required.	:	20 years.
10.	Total extent of are applied for	:	11.59.0 Hectare.
11.	Details of the area for which the quarrying permission renewal of lease is required.	:	Yes.

...4

District	Taluk	Village	Survey No.	Area (Hectares)
1	2	3	4	5
Krishnagiri	Krishnagiri	Jagadevipalayam	294/4	2.270
			295/2A	0.810
			295/2B	0.780
			295/2C	1.210
			298/2	0.650
			298/1C2	1.170
			301/3	3.955
			301/2 P1	0.760
			Total	11.59.0

12. In case of Patta lands whether documents in proof of having surface rights or consent of the registered holder have been enclosed : Yes , Registered docume Enclosed, registered holder's letter enclosed & Chitta, A Register & Combined Sketch

12. a) Whether details of survey Numbers of the adjoining lands on all sides have been indicated in the FMB Sketch. : Yes, Enclosed.

13. Whether the FMB Sketch and the toposketch showing the area applied for have been enclosed. : Yes, Enclosed

14. Financial resources of the applicant (Enclosed a copy of solvency certificate) : Yes, Enclosed.

15. A sworn affidavit furnishing the particulars of areas already held under prospecting Licence and Quarrying lease for granite in each District of Tamil Nadu already applied for but not granted and being applied for simultaneously. : Affidavit enclosed

...5.

16.	(a) Latest Mining dues clearance certificate towards payment of quarrying dues if any	:	Latest Mining dues clearance c Enclosed.
16.	(b) if on the date of application, the application does not held any prospecting license and quarrying lease whether a sworn affidavit to this effect if furnished	:	Affidavit enclosed.
17.	If the applicant intends to supervise the works, his/her their previous experience of prospecting on mining should be explained. If, he/she/they intends to appoint a his qualifications and the nature of his previous experience should be specified and his consent letter should be furnished.	:	The applicant is expertised in quarrying and has got 20 experience in mining Operation company is raising expe Technical people to look after Operation.
18.	In case of renewal whether approved mining plan Scheme valued at the time of filing renewal application has been furnished.	:	Yes, enclosed
19.	Whether any penal action taken interacted against the leases for violation of lease condition if so, furnish details and enclose supporting documents.	:	NIL
20.	Any other particulars which the applicant wished to furnish	:	1) Authorization letter form the D of Karunai Granites (P) L enclosed

We do hereby declare that the particulars furnished above are correct a ready to furnish any other details and security deposit as may be required Government.

Yours faithfully,
For KARUNAI GRANITES (P) Ltd.,

(K.KARUNAKARAN)
MANAGING DIRECTOR

Place : Krishnagiri
Date : 28.01.2009.

S. DHANASEKAR
RQP/MAS/225/2011/A

Annexure VII- Copy of High Court Order

ANNEXURE - IX

IN THE HIGH COURT OF JUDICATURE AT MADRAS

(Special Original Jurisdiction)

Thursday, the Nineteenth day of January Two Thousand Twelve

PRESENT :

THE HON'BLE MR.JUSTICE K.VENKATARAMAN

MP.Nos.1 & 1 of 2010

IN WP.Nos.3034 & 3035 of 2010

M/S.KARUNAI GRANITE (P) LTD,
REP.BY ITS MANAGING DIRECTOR,
MR.K.KARUNAKARAN, 2/145, SHANTHI HOUSE,
CHENNAI HIGH ROAD, KRISHNAGIRI-635 001. ... PETITIONER IN BOTH THE PETITIONS

Vs

1 THE DISTRICT COLLECTOR,
KRISHNAGIRI DISTRICT, KRISHNAGIRI. ... RESPONDENTS IN BOTH THE PETITIONS

2 THE DEPUTY DIRECTOR OF GEOLOGY
AND MINING, KRISHNAGIRI DISTRICT,
KRISHNAGIRI.

Petitions praying that in the circumstances stated therein and in the respective affidavits filed therewith the High Court will be pleased to

(i) pass an order of INTERIM DIRECTION directing the respondents to issue transport permits to the petitioner transporting the quarried granite from the granite quarry measuring 3-15-5 Hectares comprised in S.No.299/2 (Part) and 301/1 (Part) situated in JAGADEVAPALAYAM Village, Krishnagiri Taluk, Krishnagiri District, pending the disposal of the WP.No.1 of 2010) WP.No.3034/2010 and

(ii) pass an order or direction directing the respondents herein to issue transport permits to the petitioner transporting the quarried granite from the granite quarry till the disposal of the petitions, 3-27-0 Hectares, comprised in Survey No.297/2, 0-80-0 Hectares in Survey No.299/2A, 0-78-0 Hectares, in Survey No.295/2B, 1-21-0 Hectares, in Survey No.295/2C, 0-55-0 Hectares, in Survey No.298/2, 1-10-0 Hectares, in Survey No.298/1C2, 0-64-5 Hectares in Survey No.300/1, 0-10-0 Hectares, in Survey No.301/2 and 2-05-0 Hectares in Survey No.301/1 totally measuring 11.57.0 Hectares situated in Jagadevapalayam Village, Krishnagiri Taluk, Krishnagiri District pending in (1 MP No.1 of 2010) IN WP.Nos.3034 & 3035 of 2010

All Correspondence to Residence Address only
E-mail : kramakrishnareddy@hotmail.com

Order : This petition coming on for orders upon perusing the petition and the affidavit filed in support thereof and upon hearing the arguments of M/S.K.RAMAKRISHNA REDDY, Advocate for the petitioner in both the petitions and of MR.V.SUNDAR, Special Government Pleader for the Respondents in both the petitions, the Court made the following order:-

Since the interim order passed by this Court in the above similar matters have been made absolutes, (WP.No.19139/2008) the interim orders passed by this Court in these petitions are also made absolute. Petitions closed.

-Sd/-
19/01/2012

/ TRUE COPY /

Sub Assistant Registrar (S) Statistical Cell
High Court, Madras - 600 104.

TO

1 THE DISTRICT COLLECTOR,
KRISHNAGIRI DISTRICT, KRISHNAGIRI.

2 THE DEPUTY DIRECTOR OF GEOLOGY
AND MINING, KRISHNAGIRI DISTRICT,
KRISHNAGIRI

C.C. to M/S.K.RAMAKRISHNA REDDY Advocate SR.No.877

Order

in

MP.Nos.1 & 1 of 2010

in WP.Nos.30334 & 30335 of 2010

Date: 19/01/2012

From 26.2.2001 the Registry is issuing certified copies of the Interim orders in this Court.
DVR (17/02/2010) DVR (23/01/2012)

be 006832

All Correspondence to Residence Address only

E-mail : kramakrishnareddy@hotmail

IN THE HIGH COURT OF JUDICATURE AT MADRAS

(Special Original Jurisdiction)

Tuesday, the Sixteenth day of February Two Thousand Ten

PRESENT

THE HON'BLE MR.JUSTICE P.JYOTHIMANI

MP.Nos.1 & 1 of 2010

IN WP.Nos.3034 & 3035 of 2010

M/S.KARUNAI GRANITE (P) LTD, [PETITIONER IN BOTH THE PETITIONS]
REP.BY ITS MANAGING DIRECTOR,.
MR.K.KARUNAKARAN, 2/145, SHANTHI HOUSE,
CHENNAI HIGH ROAD, KRISHNAGIRI-635 001.

Vs

1 THE DISTRICT COLLECTOR, [RESPONDENTS IN BOTH THE PETITIONS]
KRISHNAGIRI DISTRICT, KRISHNAGIRI.

2 THE DEPUTY DIRECTOR OF GEOLOGY
AND MINING, KRISHNAGIRI DISTRICT,
KRISHNAGIRI.

Petitions praying that in these circumstances stated therein and in the respective affidavits filed therewith the High Court will be pleased to

(i) pass an order of INTERIM DIRECTION, directing the respondents to issue transport permits to the petitioner transport the quarried granite from the granite quarry measuring 3-15-5 Hectares, comprised in S.No.299/2 (Part) and 301/1 (Part) situated in JAGADEVAPALAYAM Village, Krishnagiri Taluk, Krishnagiri District, pending in (In MP.No.1 of 2010) WP.No.3034/2010 and

(ii) pass an order of interim direction directing the respondant to issue transport permits to the petitioner to transport the quarried granite from the granite quarry till the disposal of the measuring 2-27-0 Hectares, comprised in Survey No.294/4, 0-81-0 Hectares in Survey No.295/2A, 0-78-0 Hectares, in Survey No.295/2B, 1-21-01 Hectares, in Survey No.295/2C, 0-65-0 Hectares, in Survey No.298/2, 1-17-0 Hectares, in Survey No.298/1C2, 0-64-5 Hectares, in Survey No.30/1 (p), 0-10-0 Hectares, in Survey No.301/2 and 3-95-5 Hectares, in Survey No.301/3A totally measuring 11-59-0 Hectares, situated in Jagadevipalayam Village, Krishnagiri Taluk, Krishnagiri District pending in (In MP.No.1 of 2010) WP.No.3035 of 2010.

TRUE COPY

P.N.GOPALAKRISHNAN,B.A.,LL.B.,
ADVOCATE & NOTARY
No.65/41A, Ist Cross, Madras Road
KRISHNAGIRI-635 001

Bb 0025841

Order : This petition coming on for orders upon perusing the petition and the affidavit filed in support thereof and upon hearing the arguments of M/S.K.RAMAKRISHNA REDDY, Advocate for the petitioner in both the petitions the court made the following order:-

In view of the order passed in MP.NO.1 of 2008 in WP.No.29218/2008 dated 11.12.2008, there will be an order of interim direction if the renewal applications of the petitioners are pending with the respondent or with the Government. Notice.

-sd/-
16/02/2010

/ TRUE COPY /

Sub Assistant Registrar (Statistics / C.S.)
High Court, Madras - 600 104.

TO

1 THE DISTRICT COLLECTOR,
KRISHNAGIRI DISTRICT, KRISHNAGIRI.

2 THE DEPUTY DIRECTOR OF GEOLOGY
AND MINING, KRISHNAGIRI DISTRICT,
KRISHNAGIRI

C.C. to M/S.K.RAMAKRISHNA REDDY Advocate SR.Nos.2556 & 2559.

Order

in

MP.Nos.1 & 1 of 2010

IN WP.Nos.3034 & 3035 of 2010

Date :16/02/2010

From 26.2.2001 the Registry is issuing certified copies of the Interim Orders in this format
DVR (17/02/2010)

/ TRUE COPY /

P.N.GOPALAKRISHNAN,B.A.,LL.B.,
ADVOCATE & NOTARY
No.65/41A, Ist Cross, Madras Road
KRISHNAGIRI-635 001
Cell.9443276067, 9944476082.

S. DHANASEKAR
RQP/MAS/225/2011/A

Bb 0025842

ANNEXURE - X

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி வட்டம் : கிருஷ்ணகிரி

வருவாய் கிராமம் : ஜெகதேவிபாளையம் பட்டா எண் : 1090

உரிமையாளர்கள் பெயர்

1. காவேரி செட்டி மகன் கா.கருணகரன்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
301	1	--	--	1 - 5.00	3.55	--	--
301	2	--	--	0 - 10.00	0.34	--	--
301	3D	--	--	2 - 62.00	8.98	--	--
		--	--	3 - 77.00	12.87	--	--

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **31/05/138/01090/20850** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 27-10-2015 வரை வட்டாட்சியர் அலுவலகத்தில் இருந்து பெறப்பட்டவை.
3. இத் தகவல்கள் 29-10-2015 அன்று 05:37:06 PM நேரத்தில் அச்சடிக்கப்பட்டது.
4. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

GEOLOGY AND MINING • CHENNAI-600 032 • GUINDY
RF III A-33

நம்பர் 13—12 -ம் பசலி மாதத்தில்

தினவாரி வசூல் சிட்டா (தண்டல் அல்லது ரோஜ்வாரி).

வரவு தேதி. (1)	பட்டாதாரரின் நம்பரும் பெயரும். (2)	செலுத்தினது இன்னார். (3)	இன்ன பசலிக் காக. (4)	(a), (b) குறிப்பு இதர பாபத்து போக மற்ற லாண்டு ரெவினியுவும் லாண்டு செஸ்ஸும். (5)	(a), (b) இதர [illegible] (6)	(7)
				ரூ. பை.	ரூ. பை.	
	பட்டா:	119/-				
	P. P. [illegible] மகன் K. [illegible]					
994/1	0.40.0	1.35	—	—		1.35
286/1B						
996/2A1			00 84	0 90		0.90
996/2A4			.0005	0 10		0.10
993/1A			0100	1 10		1.10
996/2A5			013	1.[illegible]		1.[illegible]
			C4[illegible]5	4.[illegible]		4.[illegible]
995/2A	0 4.0	2.76				2.76
	பட்டா: 1090					
	P. P. [illegible]					
-1	1.65.0	2.35				2.35
-2	0.10.0	0.34				0.34
-3D	2.62.0	8.90				8.90
	3.77.0	12.87				12.87
		29/12/2000				

கிராம நிர்வாக அலுவலர்
138, ஜெகதேவி பாளையம்

TAHSILDAR,
KRISHNAGIRI

கிராம நிர்வாக அலுவலர்,
138 ஜெகதேவி பாளையம்

மாவட்டம்: [illegible]

கிராமம் : 138. ஜெகதேவி பாளையம்

வட்டம்: [illegible] / [illegible] /

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	பட்டா எண் :	1040				
சர்வே	புன்செய்		நன்செய்		மொத்தம்	
எண்	விஸ்தீரணம்	தீர்வை	விஸ்தீரணம்	தீர்வை		
	P. P. [illegible]					
294-4	2.23.0	7.70	—	—		7.70
			[illegible]			
			கிராம நிர்வாக அலுவலா, 138, ஜெகதேவி பாளையம்,			
	பட்டா எண் : 1043					
	P. P. [illegible]					
295-2B	0.78.0	2.64	—	—		2.64
			கிராம நிர்வாக அலுவலா, 138, ஜெகதேவி பாளையம்,			
	பட்டா எண் : 1106					
	P. P. [illegible]					
[illegible]	1.21.0	4.12				4.12
[illegible]	0.[illegible]	1.[illegible]				1.[illegible]
	[illegible].0	5.90	[illegible]			5.90

கிராம நிர்வாக அலுவலா, 138, ஜெகதேவி பாளையம்

TAHSILDAR,

GEOLOGY AND MINING

404

1408

இ. நம்பர் 10. பிரிவு I—48 -ம் பசலியில், தர்மபுரி ஜில்லா, கிருஷ்ணகிரி தாலுகா R.F. HNA-27—11,50,000—

138. ஜெகதேவி பாளையம் நம்பர் கிராமத்தில் செட்டில்மெண்டு ஜமாபந்தி நம்பர்கள் பட்டா.

நம்பர், 1106

வருஷமும் விவரங்களும். (1)	புலத்தின் நம்பரும் உட்பிரிவும். (2)	புஞ்செய். விஸ்தீர்ணம். (3) ஹெக்டேர்.	ஏர்.	தீர்வை. (4) ரூ.	பை.	நஞ்செய். விஸ்தீர்ணம் (5) ஹெக்டேர்.	ஏர்.	தீர்வை. (6) ரூ.	பை.	மொத்த தீர்வை. (7) ரூ.	பை.	(8)
[illegible]												
[illegible]												
S/o P.P. [illegible]												
	295-2C	1.21	0	4	10	—		—		4	10	
	298-2	0.65	0	1	80	—		—		1	80	
		1.86	0	5	90							
										5	90	

([illegible])

[signature]
கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்,

[illegible]: [illegible]
[illegible]: [illegible] [illegible]: [illegible]

(1)	(2)	(3)	(4)	(5)		(6)		(7)
	1. [illegible]							
	பட்டா எண்: 1136							
	[illegible]							
38/1C	1.17.0	3.45		–	–			3.45
61/3A	3.95.5	13.72		–	–			13.72
	5.12.5	16.97						16.97

([illegible])

[signature] 28/1/2000
TAHSILDAR,
KRISHNAGIRI

[signature] 24.1.2000
கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்.

[illegible]

கிராமக் கணக்கு எண் 2.

1405 -ஆம் பசலி   [illegible] மாவட்டம்   [illegible] வட்டம்   [illegible] கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில அளவை எண். (1)	உட்பிரிவு எண். (2)	பரப்பு. (3)	தீர்வை. (4)	ஒரு போகம் அல்லது இரு போகம். (5)	கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர். (6)	சாகுபடி வகை (7)	முதல் போகம் (8)	(9)	(10)	(11)	(12)	இரண்டாம் போகம் (13)	(14)	(15)	(16)	(17)	(18)	(18அ)	(19)
224	1	0.50	1.35		1105 [illegible]												[illegible]		
226	10	0.35	0.90		1105 -do-														
234	24	0.05	0.10		1105 -do-														
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]														
	[illegible]	[illegible]			[illegible]														
		[illegible]																	

[illegible] / 2000

KRISHNAGIRI

[illegible] (stamp)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
294	4	2.27.0	7.70		1246 [illegible]		7	60	2100	6	
255	1E	0.74	2.44		1243 -do-		7	45	0600	6	
295	2C	1.31.0	4.71		1104 -do-		7	45	0800	6	
[illegible]	1	0.45	1.[illegible]		1106 -do-						
	[illegible]		1.30								
301	1	1.07	[illegible]		1056 -do-						
	[illegible]	0.100	[illegible]		1572 -do-						
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]						

B.P. III-A-14—Mon.

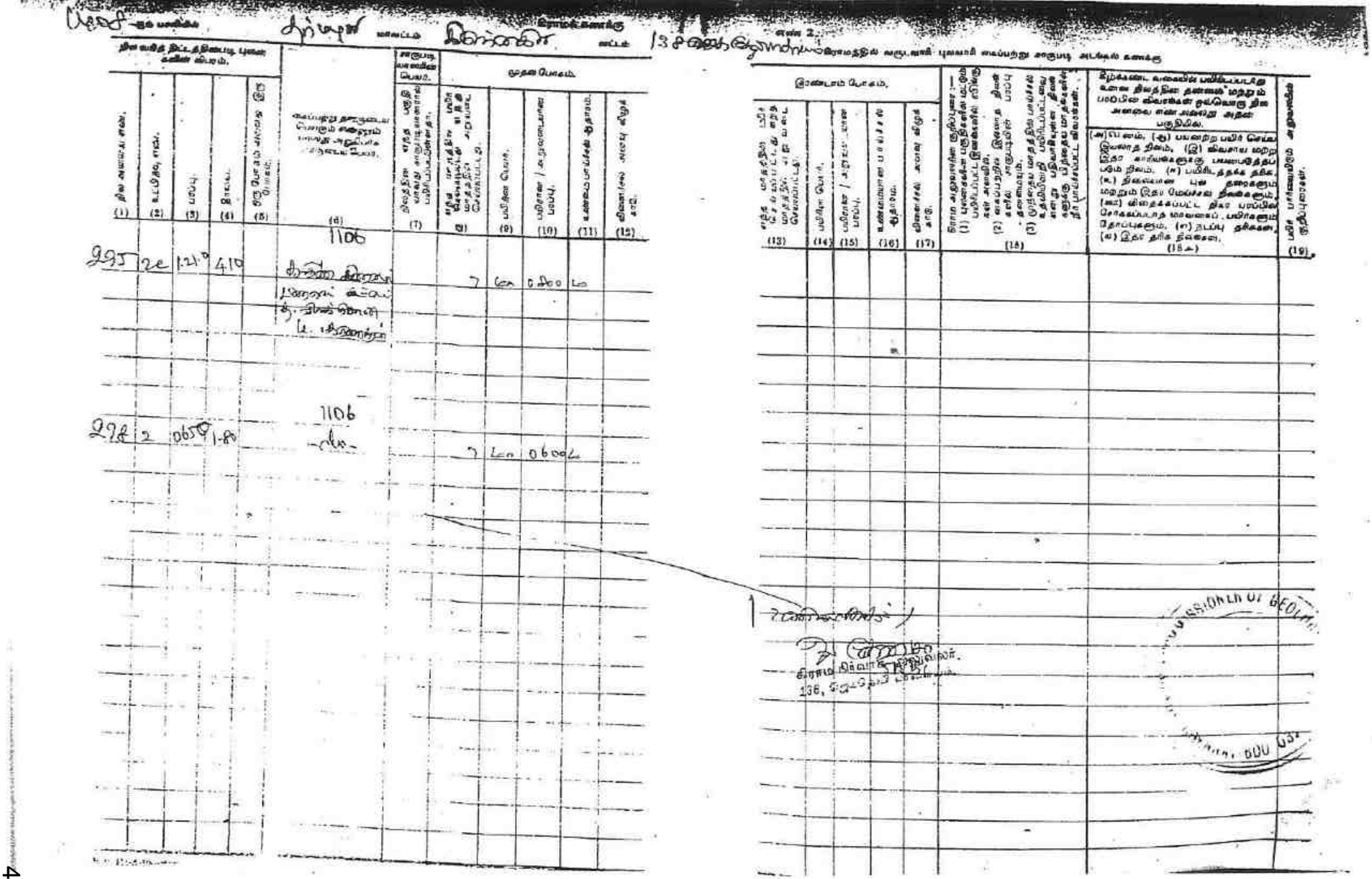
(13)	(14)	(15)	(16)	(17)	(18)	(18a)
					[illegible]	
					[illegible]	

28/12/2000

TAHSILDAR,
KRISHNAGIRI.

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032

138, [illegible]



409

1603 கிராமத்தில் சிப்பூர் வட்டம் கிருஷ்ணகிரி பசலிக் கணக்கு வட்டம் 13 ஜெகதேவி

கிராமத்தில் வருடவாரி புலவாரி சாகுபடி அடங்கல் கணக்கு

- II -

நில வரித் திட்டத்தின்படி புலன் விவரம் (1)	(2)	பரப்பு (3)	தீர்வை (4)	(5)	(6)	(7)	முதல் போகம் (8)	பயிரின் பெயர் (9)	(10)	(11)	(12)	இரண்டாம் போகம் (13)	பயிரின் பெயர் (14)	(15)	(16)	(17)	(18)	(18 அ)	(19)
258	1C2	112.9	3.75		1136 இ. [illegible]														
301	3A	3.955	1.37		1136 -do-														

[illegible] /

[illegible] 24/1/2000
கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாலையம்.

23/12/2000
TAHSILDAR,
KRISHNAGIRI

- 11 -

1408 ஆம் பசலி கிருஷ்ணகிரி வட்டம் [illegible] கிராமக் கணக்கு 138. ஜெகதேவி கிராமத்தில் வருடாந்திர புலா — கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில அளவை எண் (1)	உட்பிரிவு எண் (2)	பரப்பு (3)	தீர்வை (4)	ஒரு போகம் அல்லது இரு போகம் (5)	கைப்பற்றுதாரருடைய பெயர் (6)	சாகுபடி பாசன பெயர் (7)	முதல் போகம் (8)	(9)	(10)	(11)	(12)	இரண்டாம் போகம் (13)	(14)	(15)	(16)	(17)	(18)	(18அ)	(19)
958	1C2	1.12.5	3.25		1136 இ. [illegible]														
301	3A	3.955	13.72		1136 -do-														

[illegible] /

24/1/2000?

கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பரமாயம்.

28/12/00

TAHSILDAR,
KRISHNAGIRI

...OF GEOLOGY AND ... CHENNAI ...

மாவட்டம்: [illegible]
வட்டம்: கிருஷ்ணகிரி

- 6 -

(அ. பதிவேடு /)

கிராமம்: /30. [illegible]

1		2	3	4	5	6	7	8	9	10	11	12
294	1	294-m	[illegible]	4	...	8-2	3	3 38	0.40.0	1.35	187 [illegible]	
	2	-m	[illegible]	4	...	8-2	3	3 38	0.38.0	1.30	125. [illegible]	
	3	-m	[illegible]	4	...	8-2	3	3 38	1.60.5	5.45	449. [illegible]	
	4 ✓	-m	[illegible]	4	...	8-2	3	3 38	2.27.0	7.70 ✓	1040. [illegible]	
									4.65.5	15.80		
295	1	295-m	[illegible]	4	...	8-2	3	3 38	1.48.0	5.00	348. [illegible]	
	2A ✓	-m	[illegible]	4	...	8-2	3	3 38	0.21.0 ✓	2.36	1105 [illegible]	
	2B ✓	-m	[illegible]	4	...	8-2	3	3 38	0.78.0 ✓	2.64	1043. [illegible]	
	2C ✓	-m	[illegible]	4	...	8-2	3	3 38	1.21.0 ✓	4.10	116. [illegible]	
									4. [illegible]	14.50		

[illegible] /

[signature] 24.1.2000

[signature] 29/12000

TAHSILDAR,
KRISHNAGIRI

மாவட்டம் : தருமபுரி

வட்டம் : கிருஷ்ணகிரி (அ. பதிவேடு கிராமம்) கிராமம் : /38. ஜெகதேவி பாளையம்

	1	2	3	4	5	6	7	8	9	10	11	12
258	1A	288-m	[illegible]	4	...	8-3	4	2 77	1.81.5	5.05	762. [illegible]	
	1B	-m	[illegible]	4	...	8-3	4	77	0.54.0	1.52	1114. [illegible]	
258	1C1	-m	[illegible]	4	...	8-3	4	77	0.50.0	1.40	918. [illegible]	
	1C2	[illegible]			...	[illegible]	4	72	1.17.0	3.25	11 [illegible]	
	—	புதுசு	[illegible]	4	...	[illegible]	4	77	0.62.0	1.[illegible]	1121 [illegible]	
									4.65.5	12.[illegible]		

கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்.

TAHSILDAR,
KRISHNAGIRI

	1	2	3	4	5	6	7	8	9	10	11
301	1 ✓	301-ന	ந	4	...	8-2	3	3 38	1.05.0	3.55	1090. கா. கிவனகராஜ்
	-2 ✓	-ന	ந	4	...	8-2	3	3 38	0.10.0	0.34	1090 கா. கிவனகராஜ்
	-3A ✓	-ന	ந	4	...	8-2	3	3 38	.95.5	13.72	1136. தெ. [illegible]
	-3B	-ന	ந	4	...	8-2	3	3 38	1.41.5	5.00	1137. [illegible]
	-3C	-ന	ந	4	...	8-2	3	3.38	24.41.5	82.00	1005. கோ. மல்லன் க/ப கோ மற்றும் 4 பேர்கள்
	-3D	-ന	ந	4	...	8-2	3	3 38	2.61.0	8.58	1090. கா. கிவனகராஜ்
									33.55.5	113.60	

| [illegible] |

கிராம நிர்வாக அலுவலர்,
138, ஜெகதேவி பாளையம்.

S. DHANASEKAR
RQP/MAS/225/2011/A

KRISHNAGIRI

ANNEXURE-XI

DEPARTMENT OF GEOLOGY AND MINING

From
Thiru Hans Raj Verma, I.A.S.,
Commissioner of Geology and Mining,
Guindy Industrial Estate Post,
Chennai-32.

To
Tvl. Karunai Granites (Private) Limited
"Shanthi House"
2/149, Madras – Bypass Road
Krishnagiri 635 001.

Lr.No.2245 /MM9/2004 dated 24-08-2004.

Sir,

Sub: Approval of mining plan for existing quarry lease submitted under rule 17 of Granite Conservation and Development Rules, 1999 by Tvl. Karunai Granites (Private) Limited - for multi colour granite - over an extent of 11.59 hects. in S.F.No.294/4, 295/2A, 2B, 2C, 298/1C2, 2, 301/1 (Part), 2, 3A of Jagadevipalayam village, Krishnagiri Taluk and district - reg.

Ref: 1. Minutes, dt.4.9.2002 of Granite Development council Meeting held at Bangalore on 24.8.2002
2. Government Lr.No.19634/MMB2/2002-2 Industries Department dt.14.11.02
3. Lr.No.1362/98 (A-Mines) dt.18.02.2004 from the Assistant Director (G & M), Krishnagiri District

---

In exercise of the power conferred by Rules, 15 and 17 of Granite Conservation and Development Rules, 1999 read with G.O.Ms.No.87, Industries (MMC 1) Department Dated 22.2.2001, and pursuance of the letter under first cited, I hereby approve the above said mining plan. This approval is subject to the following conditions:

(i) That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
(ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made thereunder and the Tamil Nadu Minor Mineral Concession Rules, 1959.
(iii) That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
(iv) That the approval of mining plan does not confer any rights for the renewal of quarry lease.
(v) The approval is valid upto the subsistence of the lease period only.
(vi) This approval is subject to the condition that the applicant should obtain permission/ratification for the waste during yard outside the lease hold and
(vii) As per rule 18 of Granite Conservation and Development Rules, 1999 the lessee should also submit a scheme of mining for every five years after review of mining plans now approved.

Encl: Approved mining plan.

Sd. HANS RAJ VERMA,
COMMISSIONER OF GEOLOGY AND MINING

Forwarded / By order

Sd/ Subbiah 18/8/2004
(TLA. SUBBIAH)
ASSISTANT DIRECTOR

Copy to: 1) District Collector, Krishnagiri District. (with AMP) Sd/ 60 18/8/04
With a request to ensure that the quarrying operation is undertaken as per the approved mining plan.
2) The Secretary to Government, Industries Department, Chennai-9.
3) The Directorate of Mines Safety, Chennai 600 040.

S. DHANASEKAR
RQP/MAS/225/2011/A

ANNEXURE - XII

MEMORANDUM OF ASSOCIATION

and

ARTICLES OF ASSOCIATION

of

KARUNAI GRANITES PRIVATE LIMITED

Annexure X- Copy of Company Registration Certificate

FORM I R.

CERTIFICATE OF INCORPORATION

No 181-2725 of 1990.

I hereby certify that "KARUNAI GRANITES PRIVATE LIMITED" ** ** ** ** ** ** ** **

** ** ** ** ** ** ** ** ** **

is this day incorporated under the Companies Act, 1956 (No. 1 of 1956) and that Company is Limited.

Given under my hand at COIMBATORE

this TWENTY NINTH day of MAY
EIGHTH JYAISTHA

One thousand nine hundred and NINETY.
One thousand nine hundred and TWELVE(SAKA).

(B.M.PATHINASAMY)
Registrar of Companies
TAMIL NADU
COIMBATORE

Coimbatore

I.S.C.I.

NOTARY

/ TRUE COPY /

P.N. [illegible] ARIRENGAN, B.A.L.L.B.,
ADVOCATE & NOTARY
No. [illegible] Cross, [illegible] Road,
[illegible]

Annexure XI- Copy of Karunai Granites Memorandum

MEMORANDUM OF ASSOCIATION

OF

KARUNAI GRANITES PRIVATE LIMITED

I. The name of the company is KARUNAI GRANITES PRIVATE LIMITED.

II. The Registered office of the Company will be situated in the state of Tamil Nadu.

III. The objects for which the Company is established are:

(A) THE MAIN OBJECTS TO BE PURSUED BY THE COMPANY ON ITS INCORPORATION:

1. To manufacture, buy and sell rough blocks of Granites polished Granites, Granite Tiles, Granite Slabs, stone, marble, and other granite materials.

2. To carry on all or any of the business of manufacturers of dealers and workers in dealing of all types Granite materials, minerals chemicals, earth, conveniences of all kinds, and of engineers, ship, barge, lighter and truct owners, quarry owners, builders, general contracts, and carriers.

3. To establish, acquire, maintain and carry on the business of producers, refiners, buyers, sellers, exporters, importers of and dealers in all types of Granites in the forms of Rough Blocks, polished slab at various sizes and other products related to the granite.

4. To obtain license in India or elsewhere for prospecting all sorts of major and minor case, mining rights or mining claims in related to the Granite from the Government of India, any State Government, Jagiradars, Muafidars Istamrars, Zamindars landholder, or other persons, to crush, win, get quarry, smelt cladine refine, dress, amalgamate, manipulate and prepare for polished granite slabs, Granite Tiles, Mineral

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P.N. GOPALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

substances of all kinds and to carry on other metallurgical operations and to carry on business relating to the winning and working of deposits of minerals such as Rough Granite Blocks, stone, and other mineral ores and valuable metals and/or to crush, manufacture, purchase, sell, dispose of, export or otherwise deal with and to turn to account all such minerals or stones or their products and generall to carry on business of mining in all its branches.

5. To win, work, convert and dispose of any mineral property of the company.

(B) OBJECTS INCIDENTAL OR ANCILLARY TO THE ATTAINMENT OF THE MAIN OBJECTS:

1. To acquire from any person, firm or body corporate or unincorporate, whether in India or elsewhere, technical information, know-how, processes, engineering, manufacturing and operating data, plans, layout and blueprints, useful for the design, erection and operation of plant required for any of the businesses of the Company and to acquire any grant of licence and other rights and benefits in the foregoing matters and things.

2. To acquire by purchase, lease, concession, grant, licence or otherwise, such lands, buildings, minerals, waterworks, plant, machinery, stock-in-trade, stores, rights, privileges, easements and other property as may from time to time be deemed necessary for carrying on the business of the Company, and to build or erect upon any land of the Company howsoever acquired such manufactories, workshops, warehouses, offices, residences and other buildings, and to erect such machinery and construct such roads, ways, tramways, railway branches or sidings, bridges, reservoirs, water courses, hydraulic works.

3. To purchase, acquire and undertake all or any part of the business, property and liabilities of any person or Company carrying on or proposing to carry on any business which this Company is authorised to carry on or possessed of property suitable for the purposes of the Company or which can be carried on in conjunction therewith or which is capable of being conducted so as directly or indirectly to benefit the Company.

4. To sell, exchange, mortgage, let on lease royalty or tribute, grant licences, easements, options and other rights over and in any other manner deal with or dispose of the whole or any part of the undertaking, property, assets, rights, and effects of the Company for such consideration as may be thought fit and in

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ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

particular for stocks, shares, whether fully or partly paid up, or securities of any other Company.

5. To guarantee the performance of any contract or obligation of and the payment and repayment of money or of dividends and interest or premiums payable on any stocks, shares or securities of any Company, corporation, firm or person in any case in which such guarantee may be considered likely directly or indirectly to further the objects of the Company or the interests of its shareholders.

6. To insure with any other Company, firm or persons against losses, damages and risks of all kinds which may effect the Company, provided that nothing herein contained shall empower the Company to carry on the business of life assurance, accident assurance, fire assurance, employees' liability assurances, industrial assurance, motor assurance or any business of insurance or reinsurance within the meaning of the Insurance Act, 1938, or any act amending, extending or re-enacting the same.

7. To receive moneys, securities or valuables on deposit at interest or otherwise from persons having dealings with the Company or for custody on any terms whatsoever, provided the Company shall not carry on the business of banking, as defined under the Banking (Regulations) Act, 1949. Nor shall such transactions tantamount to carry on banking business.

8. To lend and advance money, either with or without security and give credit to such persons, firms, or body corporates (including government) and upon such terms and conditions as the Company may think fit.

9. To undertake financial and commercial obligations, transactions and operations of all kinds.

10. To invest any moneys of the Company in such investments (other than shares or stock in the Company) as may be thought proper and to hold, sell or otherwise deal with such investments.

11. To receive money on deposit or loan, borrow or raise money in such manner as the Company shall think fit, and in particular by the issue of debentures, or debenture stock (perpetual or otherwise) and to secure the repayment of any money borrowed, raised or owing by mortgage, charge or lien upon all or any of the property or assets of the Company (both present and future), including its uncalled capital, and also by a similar mortgage, charge or lien to secure and

/ TRUE COPY /

P. N. Gopalakrishnan

guarantee the performance by the Company or any other persons or Company of any obligation undertaken by the Company or any other persons or Company as the case may be.

12. To open any kind of account in any Bank and to draw, make accept, endorse, discount, negotiate, execute and issue bills of exchange, promissory notes, bills of landing, warrants, debentures, and other negotiable or transferable instruments or securities.

13. To engage, employ, suspend and dismiss executives, engineers, agents, managers, superintendents, assistants, clerks, coolies, and other servants and labourers and to remunerate any such person at such rate as shall be thought fit, to grant bonus, compensation, pension or gratuity to any such person or to his widow or children and generally to provide for the welfare of all employees.

14. To subscribe, contribute or otherwise to assist or guarantee money for any national, charitable, benevolent, public, general or useful object or for any exhibitions or subject to provision of the Companies Act, 1956 for political purposes.

15. Subject to the provisions of Section 78 of the Companies Act, 1956 to place, to reserve or to distribute as dividend or bonus or bonus shares among the members on otherwise to apply as the Company may from time to time think fit any moneys belonging to the Company including those received by way of premium on shares or debentures issued by the Company at a premium and any moneys received in respect of dividends accrued on forfeited shares and moneys arising from the re-issue by the Company of forfeited shares or by appropriation of unclaimed dividends.

16. To distribute among the members in specie and property of the Company, any proceeds of sale or disposal of any property of the Company, but so that no distribution amounting to a reduction of capital be made except with the sanction (if any) for the time being required by law.

17. To manage lands, buildings, houses and any other property belonging to the Company and to collect rents and income and supply to tenants and occupiers of all kinds of conveniences and advantages.

18. To institute and to defend any suit, appeal, application for review or revision or any other application of any nature whatsoever, to take out

/ TRUE COPY /

P. M. GOPALAKRISHNAN, B.A.L.L.B.,
ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

executions, to enter into agreements of reference to arbitration and to enforce and where need be to contest any awards and for all such purposes to engage or retain counsels, attorneys and agents and when necessary to remove them.

19. To do all such other things in any part of the world as may be deemed incidental or conducive to the attainment of the above main objects or any of them.

(C) OTHER OBJECTS:

1. To carry on business as manufacturers of and dealers in, or as stockists, importers and exporters of packing materials, cartons, containers, boxes and cases made of paper, boards, wood glass, plastic, pulp, cellulose films, polyethelene, rubber, tube metals, metal foils, gelatine, tin, flexible, treated, laminated or other materials.

2. To manufacture machinery intended for use in process industries and in energy producing industries.

3. To undertake or promote scientific research in products which the Company manufacture or intends to manufacture or acts as deals thereof.

4. To design, construct own housing, shopping, hotels and industrial complexes, for providing group facilities.

IV. The liability of the members is limited.

Amended vide E.G.M. held on 10.02.1994

V. The Share Capital of the Company has been increased to Rs. 50,00,000/- divided into 50000 Equity Shares of Rs. 100/- each.....

Subjects to the provisions of the Act, the company has the power from time to time to increase or reduce its capital and to issue any shares in the original of new capital as equity or preference shares and to attach to any class or classes of such shares any preference rights, privileges or priorities in payment of dividends or distribution of assets or otherwise over any other shares or to subject the same to any restrictions or limitations of conditions and to vary the regulation of the company as far as necessary to give effect to the same and upon the sub-division of a share, to apportion the rights to participate in profits in any manner.

/ TRUE COPY /

P. N. Gopalakrishnan

P.N. GOPALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, Bat Cross, Madras Road,
KRISHNAGIRI-635001

We, the several person whose names and addresses are hereunder subscribed are desirous of being formed into a company in pursuance of this Memorandum of Association and we respectively, agree to take the number of shares in the capital of the company set opposite to our respective names.

Sl. No.	Signature, Name, Addresses Occupation and Description of the Subscribers	No. of Equity Shares taken by each Subscribers	Signature, Name Address, Occupation and Description of the Witness
1.	Sd/- K. KARUNAKARAN S/o P.P. KAVERI CHETTY 2/149 SHANTHI HOUSE MADRAS MAIN ROAD KRISHNAGIRI 635 001		
2.	Sd/- K.MADHAIYAN S/o P.P. KAVERI CHETTY THEERTHAGIRIPATTI BATALAPALLI POST KRISHNAGIRI TALUK PINCODE 635 104		Sd/- K. MADHAIYAN S/o KRISHNAPPA NAIDU BAYANUR VILLAGE VENKATASAMUDRAM POST KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635 104
3.	Sd/- P.P. RAMAIYAN S/o V. PEDDAPPA CHETTY PERUGOPANAPALLI KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635 203		
4.	Sd/- L. THIRUGNANAM S/o P.P. LAKSHMANAN PERUGOPANAPALLI KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635.203		

PLACE : MADRAS

DATE : 29TH MAY 1990

/ TRUE COPY /

P.M. GOPALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, Ist Cross, Madras Road,
KRISHNAGIRI-635001

Registration No. of Company 181-2725 of 19.. to THE C PANIES ACT, 1956 Filing Fee Rs.....

Nominal Capital Rs.....

FORM NO. 32

Particulars of appointment of Directors and Manager and changes among them

[Pursuant to Section 303 (2)]

Name of Company KARUNAI GRANITES PRIVATE LIMITED

Presented by Mr. K. KARUNAKARAN, Managing Director,

NOTE: If a Company has no Particular to be included to one or two of the headings "A", "B" and "C" the parts containing those headings (in respect of which the Company has no particulars to be indicated) need not be filed.

A. Appointed of and changes among Directors

Name or names and surname in full (1)	Father's/Husband's name (2)	Usual residential address (3)	Nationality (4)	Date of appointment or change (5)	Brief particulars of changes (6)
1 Mr K MADHAIYAN	S/o Sr P P Kaveri Chetty	Theerthagiripatti Batlagundu Post Kodaikanal Taluk 624 601	Indian	17.9.1991	Resigned
2 Mrs. K. SENTHIL RANI	W/o Mr K. Kumara Karan	370, 18th 'E' Main Road 6th Block, KORAMANGALA BANGALORE - 560 034	Indian	17.9.1991	Appointed ~~as Director~~ as additional director

NOTES:— (1) A note of changes should be made in Column 6, e.g. by inserting against the name new director etc., the words "in place of....." and by indicating against the name of the former director, the cause for the change, e.g., by death, resignation, retirement, rotation, disqualification, etc.

(2) In case of Managing Director, his designation should be stated with his name in Column (1)

C. Appointment of and changes in, managership and secretaryship

Name or names and surname in full (1)	Father's/Husband's name (2)	Usual residential address (3)	Nationality (4)	Date of appointment or change (5)	Brief particulars of changes (6)

NIL

TRUE COPY

P.N. GOPALAKRISHNAN
ADVOCATE & NOTARY
No. 65/1A, 1st Cross, Madras Road, [illegible]-635001

Signature

Dated the 14th day of September 1991

MANAGING DIRECTOR
Designation

NOTES :— (1) For the purpose of this form, particulars of a person appointed as Manager within the meaning of Section 2(24) of the Companies Act, 1956, need be given.
(2). A note of change as also the cause of change e.g., by death, resignation, removal, disqualification etc., should be stated Column (6)

Forms Available at : Industrial & Commercial Prints, No. 1 [illegible] nd Cross, (Opp. Dhondusa Building), Gandhi [illegible] ar, Bangalore-560 009 Phone : 266513, 342888

Annexure XII - Copy of Karunai Granites - Articles of Association

ARTICLES OF ASSOCIATION

OF

KARUNAI GRANITES PRIVATE LIMITED

PRELIMINARY

1. Regulations contained in Table 'A' of Schedule I to the companies Act, 1956 shall apply to this company in so far as applicable to a private company except to the extent that they are modified or suplimented as hereunder. In the absence of any provision in these articles or in Table 'A' the relevant section of the Act, shall apply.

INTERPRETATION

2. In the interpretation of these Articles, the following words and expressions shall have the following meaning unless repugnant to the subject or context thereof.

a. "The Company" or "This Company" means "KARUNAI GRANITES PRIVATE LIMITED"

b. "Office" means Registerd Office of the Company.

c. "Directors" means Directors for the time being of the Company or the Directors assembled at Board.

d. "The Board" or "Board of Directors" means a meeting of Directors duly called and constituted as the case may be, the Directors assembled at Board on the requisite number of Directors entitled to pass a circular, resolution or the Directors of the Company collectively.

e. The 'Article' or "Articles" or the company's regulations means the Articles of Association of this company includes Memorandum of Articles where the context so requires.

f. "Persons" includes firms, corporations as well as individuals.

/ TRUE COPY /

P.M. GOPALAKRISHNAN, B.A.L.L.B.,
ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

g. "Seal" means the Common seal of the Company.

h. "Writing shall include typewriting, printing, lithography and any other mode of representation or reproducing words in a visible form.

i. Words imparting the plural number also includes where the context requires or admits the singular number and vice versa. Words imparting the masculine gender also includes where the context requires or admits the feminine gender.

j. Subject to the foregoing any words or expressions defined in the Act, shall except where the subject or context forbids, have the same meaning in these articles.

PRIVATE COMPANY

3. The company is a private limited company within the meaning of section 3(1) (iii) of the Companies Act, 1956 and accordingly.

i. the number of Members of the Company shall not exceed fifty excluding the persons who having been formerly in the employment of the company, were members of the company while in that employment and have continued to be members after employment ceased. For the purpose of this Article where two or more persons hold one or more shares in the company jointly, they shall be considered as a single member.

ii. Any invitation to the public to subscribe for any shares in or debentures of the company is prohibited.

iii. The right to transfer its shares shall be restricted as herein after provided.

SHARES

4. Amended vide E.G.M. held on 10.02.1994
The Authorised Share Capital of the Company has been increased to Rs.50,00,000/- divided into 50000 Equity Shares of Rs. 100/- each. Powers to increase or decrease or reduce the capital subject to the provision of the Act.

5. The share shall be under the control of the Directors who may allot or refuse to allot or otherwise dispose of the same without assigning any reason whatsoever.

TRANSFER AND TRANSMISSION OF SHARES

6. The right of members to transfer the shares shall be subject to the following.

/ TRUE COPY /

P. M. Gopalakrishnan

P.M. GOPALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

Particulars of appointment of Directors and Manager and changes among them

[Pursuant to Section 303 (2)]

Name of Company KARUNAI GRANITES PRIVATE LIMITED

Presented by MR. K. KARUNAKARAN, Managing Director

NOTE: If a Company has no Particular to be included in one or two of the headings "A", "B" and "C" the parts containing those headings (in respect of which the Company has no particulars to be indicated) need not be filed.

A. Appointed of and changes among Directors

Name or names and surname in full (1)	Father's/Husband's name (2)	Usual residential address (3)	Nationality (4)	Date of appointment or change (5)	Brief particulars of changes (6)
1. M.K. MADHAIYAN	S/o Sri P P Kavari Chetty	Theerthagiripatti Batalapalli Post Krishnagiri Taluk - 635 114	Indian	02.9.1991	Resigned
2. Mrs K. SENTHIL RANI	W/o Mr. K. Kaswa-Karan	370, 15th 'E' Main Road 6th Block, KORAMANGALA BANGALORE - 560 034	Indian	02.9.1991	Appointed ~~as~~ as additional Director

NOTES:— (1) A note of changes should be made in Column 6, e. g. by inserting against the name new director etc., the words "in place of ....." and by indicating against the name of the former director, the cause for the change, e.g., by death, resignation, retirement, rotation, disqualification, etc.

(2) In case of Managing Director, his designation should be stated with his name in Column (1)

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for K. KARUNAKARAN LTD.

NIL

Signature

MANAGING DIRECTOR
Designation

Dated the 19th day of September 1991

NOTES :— (1) For the purpose of this form, particulars of a person appointed as Manager within the meaning of Section 2(24) of the Companies Act, 1956, need be given.
(2) A note of change as also the cause of change (e.g., by death, resignation, removal, disqualification etc., should be stated Column (6)

Forms Available at : Industrial & Commercial Printers, No. 11, 2nd Cross, (Opp. Dhondusa Building), Gandhinagar, Bangalore-560 009 Phone : 266513, 342888

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P.K. COPALAKRISHNAN, B.A.,B.L.,
ADVOCATE & NOTARY
No. 65/41A, 1st Cross, Hosur Road,
KRISHNAGIRI-635001

i. No transfer of shares shall be made or registered without the previous sanction of Directors, except when the transfer is made by a member of the company to the 'Members' wife or husband or child or children or by transmission, the director may decline to give such sanction without assigning any reasons whatsoever.

ii. A member who desires to transfer or sell any of his or her shares to a member or any other persons shall give notice to the empany of his or her desire to transfer. Also by such notice, he or she may request the Board of Directors of the Company to fix a fair value of the share. The Board shall suggest transferee or buyer within 45 days of the receipt of such notice failing which, the seller shall be free to transfer or dispose the shares to a person of his or his choice.

iii. No shares shall be transferable to a person who is not approved as desirable by the directors, in the interest of the company, to be admitted as a members of the Company.

DIRECTORS

7. The number of Directors shall not be less than two or more than six.

8. The first Directors of the Company shall be

1. Mr. K. KARUNAKARAN 2. K. MADHAIYAN

9. The qualification shares for holding the office of the Directors shall be 100 numbers of equity shares in their own name.

10. So long as any moneys are payable by the company to any Financial Institutions or Banks in respect of any loan or loan advanced by them or so long as any moneys payable by the company to such financial institutions or Banks. Then such Financial Institutions or Banks shall be entitled to appoint one or more nominee Directors on the Board of the Company as may be agreed upon between the company and the financial institutions or Banks.

11. All Directors other than the Nominee Director shall retire every year.

POWERS OF DIRECTORS

12. The Company may, from time to time in General Meeting, increase or reduce the Number of Directors subject to Article 8 of the Articles of Association and determine the period for which they will hold office.

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P.N. GOPALAKRISHNAN B.A.L. B.,
ADVOCATE & NOT
No. 65/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

13. The Board of Directors shall have power to appoint additional Directors subject to the provisions of Article 8. Such additional Directors shall hold office till the next annual General Meeting and are eligible for reappointment. Any casual vacancy arising in the Board of Directors may be filled up by the remaining Directors, but any person so appointed shall retain his office only until the next following Annual General Meeting of the Company and shall be eligible for re-election.

14. Alternative Directors may be appointed by the Board and their term of office regulated in accordance with Section 313.

15. The Board shall have powers to appoint from amongst themselves or otherwise a Chairman or a Managing Director and the term of office of such Chairman or Managing Director shall be determined by the Board.

16. The Management of the affairs of the company shall vest with the Managing Director and the Board of Directors who may exercise all such powers and do all things as the company is authorised by its Memorandum of association or by statute.

17. The Managing Director shall, subject to the superintendence and direction of the Board of Directors' shall have the power to do all such acts and things within the purview of the companies act, 1956.

18. Every Director who is interested in a contract which the Company has entered into shall disclose, the nature and detail of his interest in the Board Meeting held next after such a contract is entered into.

19. A Director may not vote in respect of any contract or agreement in which he is interested unless he has already disclosed his interest therein.

20. The Board of Directors shall have powers to raise or borrow any sums of money from time to time on behalf of the company from the Members or other persons, companies, Financial Institutions or Banks on such terms and conditions as may be stipulated and approved by the Board.

21. The Board of Director may from time to time raise or borrow any sums of money in such manner and upon such terms and conditions as they may deem fit and in particular by the issue of debentures or bonds of the company orby mortgage or charge of all or any part of the assets of the company and of its uncalled capital if any.

22. Any debentures, bonds or securities may be issued at discount, premium or otherwise and with special privileges

4

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P. V. Gopalakrishnan

P. V. GOPALAKRISHNAN, B.A., LL.B.,
ADVOCATE & NOTARY
No. 65/41A, Ist Cross, Madras Road,
KRISHNAGIRI-635001

as to the redemption, surrender, drawing, allotment of shares thereto at the discretion of the Board.

23. The Board of Directors shall have powers to create and maintain reserves and reserve funds out of the profits to strengthen the financial structure of the company. The quantum and nature of reserve shall be decided by the Board subject to the provisions of the Companies Act, 1956.

24. The powers and responsibilities of the Directors shall be in accordance with the Companies Act and table 'A' thereof except in so far as they stand modified by the provisions of these articles.

REMUNERATION OF DIRECTORS

5. The remuneration of the Managing Director and/or whole time Directors shall be fixed by the Board. The remuneration so determined shall be payable every month or otherwise as may be determined by the Board subject to the provisions of the Companies Act, 1956.

6. Every Director including the Managing Director shall be paid Rs.250/- as sitting fees for every Meeting of the Board/or committee of directors attended by him. In addition every director including the Managing Director shall be entitled to reimbursement of such amount as the Board may consider as compensation for travelling, boarding, lodging and other expenses incurred for attending the meeting.

7. The Directors including the Managing Director may waive their sitting fees and/or remuneration if they so desire in the interests of the Company for any specific period.

PROCEDURE OF BOARD MEETINGS

3. Subject to the provisions of Section 287 of the Companies Act, 1956, the quorum necessary for the transaction of business of the Board shall be two directors present.

1. At every meeting of the Board the chairman of the company or the Managing Director shall take the chair. In the event of his absence, other Directors present in the meeting shall elect one of them as Chairman for that meeting.

1. In case of an equality of votes, the chairman of the meeting shall have a second or casting vote.

GENERAL MEETINGS

Not withstanding anything contained in Sec.171 the notice given for General Meeting shall be seven days. The provision of Sec.171 to 186 except 173 (2A) shall apply to all General

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P. [illegible]

[illegible]N,B.A.L.L.B.,
ADVOCATE & NOTARY
No. 66/41A, 1st Cross, Madras Road,
KRISHNAGIRI-635001

Meeting. Twenty-one days notion shall be given for the Annual General Meeting.

VOTING RIGHTS

32. Every memeber of company, shall have the right to vote on every resolution placed before the company and shall be entitled to vote in proportion to his share of the paid up equity share capital of the company.

COMMON SEAL

33. The Company shall have a common seal and the Maneging Director shall provide for the safe custody thereof, the Seal shall not be applied to any instrument except by the authority of a Resolution of the Board of Directors and in the presence of atleast two Directors and such Directors shall sign every instrument to which the seal is fixed and such signatures shall be conclusive evidence of the seal having been properly affixed.

SECRECY

34. No member shall be entitled to visit or inspect the company or access to the company's book without the written permission of the Managing Director or to require any informations respecting any details of the company's trading or any matters as secret processes which is in the opinion of the Managing Director will be inexpedient or determental to the interests of the company.

35. Every Director, Managing Director, officer and employee of the Company shall be bound to observe strict secrecy respecting the dealings and transactions of the company and state of affairs of the company including its accounts and in matters relating there to and shall if and when so required by the Director sign a declaration to this effect in such form as the Managing Director may prescribe, and shall be such declaration pledge himself not to reveal any of the matter which may come to his knowledge in the discharge of duties except when required to do so by the Board or by a court of law.

INDEMNITY

36. Every Officer or agent of the company shall be indemnified out of the assets of the company against any liability incurred by him in defending any legal proceedings, whether civil, or criminal, in which judgement is given in his favour or in which he is acquited in connection with any appreciation under Sec.633 of the Act under which relief is granted to him.

/ TRUE COPY /

P. [illegible] ALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, Ist Cross, Madras Road,
KRISHNAGIRI-635001

Sl. No.	Signature, Name, Address Occupation and Description of the Subscribers	Signature, Name, Address, Occupation and Description of the Witness
1.	Sd/- K. KARUNAKARAN S/o P.P. KAVERI CHETTY 2/149 SHANTHI HOUSE MADRAS MAIN ROAD KRISHNAGIRI 635 001	
2.	Sd/- K.MADHAIYAN S/o P.P. KAVERI CHETTY THEERTHAGIRIPATTI BATALAPALLI POST KRISHNAGIRI TALUK PINCODE 635 104	Sd/- K. MADHAIYAN S/o KRISHNAPPA NAIDU BAYANUR VILLAGE VENKATASAMUDRAM POST KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635 104
3.	Sd/- P.P. RAMAIYAN S/o V. PEDDAPPA CHETTY PERUGOPANAPALLI KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635 203	
4.	Sd/- L. THIRUGNANAM S/o P.P. LAKSHMANAN PERUGOPANAPALLI KRISHNAGIRI TALUK DHARMAPURI DISTRICT PINCODE 635 203	

PLACE : MADRAS

DATE : 29TH MAY 1990

/ TRUE COPY /

P.N. GOPALAKRISHNAN, B.A.LL.B.,
ADVOCATE & NOTARY
No. 65/41A, Ist Cross, Madras Road,
KRISHNAGIRI-635001

S. DHANASEKAR
RQP/MAS/225/2011/A

ANNEXURE - XIII

GOVERNMENT OF TAMIL NADU

COMMERCIAL TAXES DEPARTMENT

TAMIL NADU VALUE ADDED TAX ACT, 2006

FORM D

CERTIFICATE OF REGISTRATION

[See ... (3)]

This is to certify that *Tvl. KARUNAI GRAINTES.*
whose principal Place of business is situated at:

Street Name : 2/145,CHENNAIMAINROAD
Location : KRISHNAGIRI
Town/City : KRISHNAGIRI
District : KRISHNAGIRI
Pin : 635001

Additional place of business is situated at :-

-- Nil---

is registered as a dealer under the Tamil Nadu Value Added Tax Act, 2006 ...
Tax Payer's Identification Number (TIN): 33443301002
with effect from 1 day of January 2007

Given Under my hand on the 18 day of January 2007

18/1/07

Place KRISHNAGIRI

(Signature of Registering Authority)

Date :18/1/2007

Name R. RADHA KRISHNAN
Commercial Tax Officer (FAC)
KRISHNAGIRI.

Designation

18/1/07

(Office Seal)

S. DHANASEKAR
RQP/MAS/225/2011/A

Annexure XIV- Copy of Lessee ID Proof

ANNEXURE - XIV

S. DHANASEKAR
RQP/MAS/225/2011/A

Annexure XV- Copy of RQP

ANNEXURE - XV

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR resident of Old No.6, New No.8/3, Kullappan Street, Opp. Indian Bank Line, Omalur (P.O), Salem – 636 455, son of Shri R. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is RQP/MAS/225/2011/A

recognition is valid for a period of ten years ending 12.01.2021.

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 13.01.2011

S. DHANASEKAR
RQP/MAS/225/2011/A

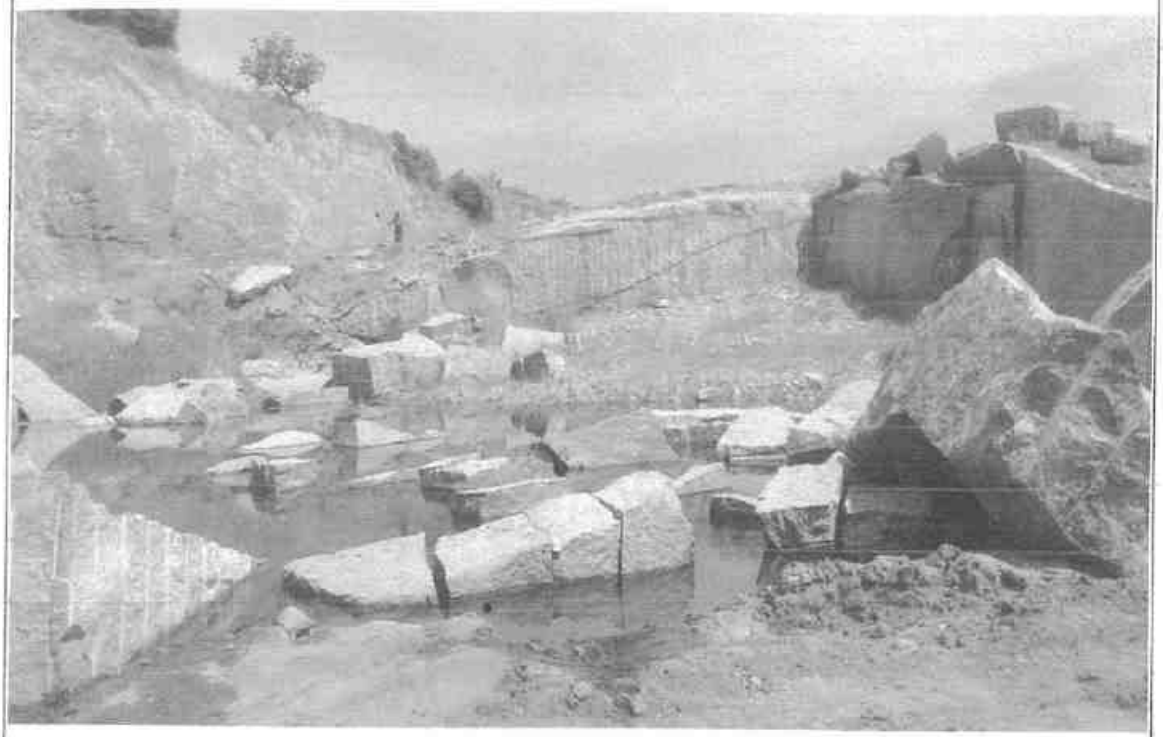
ANNEXURE-XVI-A

WORKING PIT VIEW-1

WORKING PIT VIEW-2

S. DHANASEKAR
RQP/MAS/225/2011/A

WORKING PIT VIEW-3



WORKING PIT VIEW-4

S. DHANASEKAR
RQP/MAS/225/2011/A

Collectorate,
Dept of Geology & Mining,
Krishnagiri.

Rc.No.1042/2018/C- 52/Mines Dt: 17.07.2020.

Demand Notice

Sub: Mines & Minerals - Minor Minerals - Granites - Quarry lease for Colour granite granted to Tvl. Karunai Granites (p) Ltd Over an extent of 7.55.0hect. in S.F.No.294/4 etc of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District - Hon'ble Supreme court order 02.08.2017-Quarry Operated during violative period (without Environmental Clearance) - i.e. 15.01.2016 to 10.01.2017 - Cost of the mineral to be remitted - Demand Notice issued - reg.

Ref:
1. GO (2D) No. 87 Ind. (E2) Dept dt.02.11.99 and the Hon'ble high court of Madras order WPMP.No.1/10 in W.P.No.3035/2010 Dt:16.02.2010.
2. Ministry of Environment, Forest and Climate Change, Govt. of India, Notification S.O.141 (E) dated 15.01.2016
3. Ministry of Environment, Forest and Climate Change, Govt. of India, Lr.No.Z-11013/24/2017-1A. II (M) dt:03.04.2017
4. Order of Hon'ble Supreme Court of India in W.P.(Civil) No.114/2014 dt: 02.08.2017.
5. Ministry of Environment, Forest and Climate Change, Govt. of India, office Memorandum No.03-50 /2017-1A. III (pt) dt: 30.05.2018.
6. Ministry of Environment, Forest and Climate Change, Govt.of India, office Memorandum No.Z- 11013/50/2018-1A. II (M) dt:04.07.2018.
7. The Commissioner of Geology and Mining, Guindy Chennai Lr.Rc.No.6731/LC/2016 dt: 08.01.2018.
8. Director of Geology and Mining, Guindy Chennai Lr.Rc.No.1375/LC/2016 dt:18.06.2008 & Rc.No.1375/MM3 / 2016, dated: 07.09.2019.
9. Recommendation letter of the committee constituted by the District Collector, Krishnagiri Dt: 12.02.2020 and connected records.

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A Quarry lease for colour granite granted to Tvl. Karunai Granites (p) Ltd, over an extent of 7.55.0 hect. in S.F.No.294/4 etc of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District for the period of 10 years from the date of execution of lease deed vide GO.(2D) No. 87 Ind. (E2) Dept dt.02.11.99. The lease deed executed on 03.02.2000 and lease period is 10 years from 03.02.2000 to 02.02.2010 and the quarrying operation was carried out as per the orders of the Hon'ble high court of Madras WPMP.No.1/10 in W.P.No.3035/2010 Dt:16.02.2010 and transport permit has been obtained.

In the meantime, in the reference 2nd cited, Ministry of Environment and forest Climate Change, Government of India had ordered that "No mining lease shall operate without prior EC and all such mines which were in operation before 15.01.2016 are required to stop their mining activity and apply to Central level / State level / District level for seeking EC. The Mine leases which continue to operate without obtaining EC after 15.01.2016 shall be considered as violation cases".

Based on the above said notification, on scrutiny of the official records and registers, it is construed that the lessee Tvl. Karunai Granites (p) Ltd had obtained dispatch slips from 02.02.2016 to 09.01.2017 for a total quantity of 4325.267CBM from the quarry area on payment of seigniorage fee within the violative period i.e.15.01.2016 to 10.01.2017.

In the reference 8th cited, The Director of Geology and Mining, Chennai has requested the District Officer to comply the order of the Hon'ble supreme Court of India dated 02.08.2017, and Ministry of Environment Forest, and Climatic Change Government of India office memorandum dated 30.05.2018 and 04.07.2018 and further directed to collect the 100% cost of minerals for violation cases.

In order to arrive the cost of the mineral the District Collector, Krishnagiri has constituted a committee and requested to inform the cost of mineral at quarry site, for the colour Granite available in the subject quarry of Tvl. Karunai Granites (p) Ltd.

In this regard, the committee has already recommended the following rates as cost of mineral at quarry site vide reference 9th cited and stated that the rates are calculated by considering the sale awards issued by M/s. TAMIN Ltd.

Size of the block	Gross Size - in cm (l x b) & volume in cbm			
	280x180 & above	240x120 above but below 280 x 180	180x60 above but below 240x120	180x 60 below
Average cost per cbm	22500	16868	16250	14805

As per the available records and registers Tvl. Karunai Granites (p) Ltd had quarried and transported 1574 Nos.of colour Granite Blocks during the violative period in the following specification and the cost of mineral worked out for the said quantity as per the cost of mineral furnished by the committee are as follows.

S. No.	Size	Volume	Cost of Mineral per CBM in Rs.	Total Cost in Rs.
1	280x180 & above	2038.771	22500	45872347
2	240x120 above but below 280 x 180	1438.059	16868	24257179
3	180x60 above but below 240x120	212.712	16250	3456570
4	180x 60 below	635.725	14805	9411909
	Total	**4325.267**		**8,29,98,005**

Rs.**8,29,98,005/-** (Rupees Eight crore twenty nine lakhs ninety eight thousand and five only).

In view of the above, Tvl.Karunai Granites (p) Ltd is hereby directed to remit a sum of Rs.**8,29,98,005-** towards the cost of the mineral quarried and removed from the lease granted area over an extent 7.55.0 hect. in S.F.No.294/4 etc of Jagadevipalayam-Village, Bargur-Taluk, Krishnagiri District in the following Head of Account and submit the original challan to this office within 15 days from the date of receipt of this notice.

Head of Account

0853 Non Ferrous Mining and Metallurgical Industries - 00 Non Ferrous Mining and Metallurgical Industries - 800 Miscellaneous receipts - AC Miscellaneous receipts - 29 97 - Fines and Penalties - Forfeiture, Seizure, confiscation, etc.,
D.P Code - 0853-00-800-AC-2997.

It is also informed that if the amount is not remitted within the prescribed time limit, action will be initiated to collect the amount by invoking the provisions of The Tamil Nadu Revenue Recovery Act 1864.

Sd/- Dr.S.Prabhakar
District Collector,
Krishnagiri.

// True Copy //By order//

For Collector,
Krishnagiri.

To
Tvl. Karunai Granites (p) Ltd,
No. 2/145 Shanthi House,
Bypass Road,
Krishnagiri --- By RPAD

Copy to:
The Director
Dept of Geology and Mining,
Guindy, Chennai -32.