

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENT MANAGEMENT PLAN
FOR OBTAINING**

Environmental Clearance under EIA Notification – 2006

Schedule Sl. No. 1 (a) (i): Mining Project

“B1” CATEGORY – MINOR MINERAL – CLUSTER – NON- FOREST LAND

CLUSTER EXTENT = 07.79.51 hectares

GREY GRANITE QUARRY

At

**Jagadevipalayam Village, Bargur Taluk, Krishnagiri District,
Tamil Nadu State**

TOR File No. 12115

TOR Letter No. TO25B0108TN5937243N, Dated:17.06.2025

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and address	Extent & S.F.No.	Production
M/s. Sri Vinayaga Granites 01/504E, Maruthi Nagar, Jagadevipalayam Village & Post, Bargur Taluk, Krishnagiri District – 635 203.	3.38.0 ha & 331/1A (P), 332/1,332/2,332/3,332/4,332/5 (P), and 332/6	Grey Granite 40% Recovery 1,77,628 (Tons)

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS



No: 1/213-B, Ground Floor, Natesan Complex

Oddapatti, Collectorate Post office,

Dharmapuri-636705. Tamil Nadu.

E-mail: info.gtmsdpi@gmail.com,

NABET ACC. NO: NABET/EIA/23-26/RA 0319

Valid till: 31.12.2026

ENVIRONMENTAL LAB

EXCELLENCE LABORATORY	GREEN LINK ANALYTICAL & RESERCH LAB
No.23/93, 5th Street Ram Nagar, S.S.Colony, Madurai, Tamil Nadu NABL Certificate Number: TC-13674, Valid Until: 12.05.2026	S.F.No,414/1, Tex Park Road, Opp.Good Luck Syndicate, Civil Aerodrome Post, Covai-641 014, NABL Certificate Number: TC-6144, Valid Until: 18.05.2029

Baseline Study Period – October 2023 through December 2023

TERMS OF REFERENCE (ToR) COMPLIANCE

ToR File No.12115

ToR Identification No. TO25B0108TN5937243N, dated. 17/06/2025,

Sri Vinayaga Granites

Specific Terms of Reference for (Mining of Minerals)

1. SEIAA Specific Conditions:

S.No	Terms of Reference
1.1	The authority noted that the subject was placed in the 564th SEAC-I meeting held on 13.05.2025. After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing for the RoM of 2,18,110m³ of Grey Granite which includes recovery of 64,592m³ @ 40% and 96,888m³ of Rejects @ 60% for an ultimate depth of mining of 35m BGL as per the approved mining plan, 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-I & normal conditions & the conditions mentioned below.

2. Seac Conditions - Site Specific

S.No	Terms of Reference		Remarks
2.1	1	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting methodology, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:	
	(i)	Copy of the agreement forming CMC.	The Cluster Management Committee (CMC) regarding following these conditions and same documents will be submitted during the EIA appraisal meeting.
	(ii)	The Organisation chart of the Committee with defining the role of the members	

	(iii)	The 'Standard Operating Procedures' (SoP) executing the planned activities	
	2	The Geo referenced Boundary pillars to be erected on the field as per the mine rules and the evidence should be submitted along with the EIA report	The evidence of the boundary pillars photo will be submitted in final EIA report.
	3	Since water bodies are situated nearby, the PP shall carry out the hydrological study including the details of water flow pattern to determine the impacts of the mining operation in the water bodies	The hydrogeological study is discussed in the Section 3.3.3 under Chapter III in the EIA report page 45-54
	4	The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report.	The details of enumeration of structures will be submitted in final EIA report.
	5	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations	The structures within the radius of (i) 50m, (ii) 100m, (iii) 200m, (iv) 300m and up to 1km radius details such as dwelling houses, places of worship, industries, factories, sheds, etc will be submitted in final EIA report.
	6	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries &	The greenbelt and garland drain photographs will be submitted in the final EIA report.

		water bodies nearby provided as per the approved mining plan.	
	7	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	The detailed biodiversity report is discussed in section 3.6 under chapter III page no.71-65
	8	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	A detailed environment management plan has been prepared following the suggestion made by SEAC, as shown in Chapter X in the EIA report page 147-154. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted in final EIA report.
	9	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall	It is a fresh quarry lease, so slope stability is not required.
	10	The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/video graphic evidence along with the EIA report	The Photocopy of CCTV installation will be submitted in final EIA report.

3. Seac Standard Conditions

S.No	Terms of Reference		Remarks
3.1	1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:	It is a fresh quarry lease.
		(i) Original pit dimension	
		(ii) Quantity achieved vs EC Approved Quantity	

		(iii)	Balance Quantity as per Mineable Reserve calculated.	
		(iv)	Mined out Depth as on date Vs EC Permitted depth	
		(v)	Details of illegal/illicit mining	
		(vi)	Violation in the quarry during the past working.	
		(vii)	Quantity of material mined out outside the mine lease area	
		(viii)	Condition of Safety zone/ benches	
		(ix)	Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	
	2	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 VAO certificate is attached in Annexure IV.
	3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc		The map showing the details of structures within the radius of 500m will be submitted in final EIA report.
	4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies		Detailed hydrological study will be submitted in the final EIA report.

		like lake, water tanks, etc are located within 1 km of the proposed quarry.	
	5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	The details of Bio diversity from the reputed institution will be submitted in the final EIA report.
	6	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.	The DFO letter will be submitted in the final EIA report.
	7	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 the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	As it is a fresh lease area, the Slope Stability report is not required.
	8	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while	As it is a fresh lease area, the Slope Stability report is not required.

		obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	
	9	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.	The affidavit for blasting will be enclosed in the final EIA report.
	10	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.	A conceptual design of blasting has been given in Section 2.6.4 under Chapter II in the EIA report page 21-22.
	11	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 proponent has no other quarries.
	12	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,	
	13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	As it is a new quarry, the conditions are not applicable.
	14	Quantity of minerals mined out.	
		- Highest production achieved in any one year. - Detail of approved depth of mining.	

		Actual depth of the mining achieved earlier.	
		Name of the person already mined in that leases area.	
		If EC and CTO already obtained, the copy of the same shall be submitted.	
		Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
	15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, 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).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.3 under Chapter II in the EIA report page 12.
	16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.	The drone video will be submitted during final presentation.
	17	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.	Photographs of adequate fencing, green belt along the periphery of the project area and the photographs showing nearby water bodies will be included in final EIA report.
	18	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 Resources and Reserves of Rough Stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the

		the mining operations on the surrounding environment, and the remedial measures for the same.	proposed project. The details reserve estimation has been shown in Table 2.3 under Chapter II in the EIA report page 17.
	19	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 the 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.	Details of manpower required for this project have been given in Table 2.14 under Chapter II in the EIA report page 24.
	20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater 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.	The hydrogeological study is discussed in the Section 3.3.3 under Chapter III in the EIA report page 45-54.
	21	The proponent shall furnish the baseline data for the environmental and ecological	The baseline data were collected for the environmental

		parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	components including land, soil, water, air, noise, biology, socio-economy, and traffic and the results have been discussed under Chapter III in the EIA report page 26-110.
	22	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.	Results of cumulative impact study due to mining operations are given in Section 7.4 under Chapter VII in the EIA report page 138-141.
	23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks. The detailed rain water harvesting report will be submitted in the final EIA report.
	24	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	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 has been discussed in Section 3.1

		post operational phases and submitted. Impact, if any, of change of land use should be given.	under Chapter III in the EIA report page 28-33. The details of surrounding sensitive ecological features have been provided in Table 3.42 under Chapter III in the EIA report page 107. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.7 under Chapter II in the EIA report page 21.
	25	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.	This condition is not applicable to this project because no dumps have been proposed outside the lease area.
	26	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.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
	27	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.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams

			after treating the water in settling tanks.
	28	Impact on local transport infrastructure due to the Project should be indicated.	Details regarding the impact of the project on traffic are given in Section 3.8 under Chapter III in the EIA report page 104-106.
	29	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.	A detailed tree survey was carried out within 300 m radius and the results have been discussed in Section 3.6 under Chapter III in the EIA report page 71-95.
	30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.8 under Chapter II in the EIA report page 22.
	31	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.	The EIA coordinator and the FAE for ecology and biodiversity visited the study area and educated the local students about the importance of protecting the biological environment.
	32	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	A detailed greenbelt development plan has been provided in Section 4.6 under Chapter IV in the EIA report page 119-122.

		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.	
	33	Taller/one year old Saplings raised in appropriate size of bags; preferably ecofriendly 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.	The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the eco-friendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist.
	34	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.	A disaster management plan for the project has been provided in Section 7.3 under Chapter VII in the EIA report page 136-138.
	35	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.	A risk assessment plan for the project has been provided in Section 7.2 under Chapter VII in the EIA report page 133-136.
	36	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	Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.8 under Chapter IV in the EIA report 123-125.

		incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
	37	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.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 144-145.
	38	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.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 23 people directly as discussed in Section 8.1 under Chapter VIII in the EIA report page 143
	39	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 is pending in any court against this project.
	40	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 project are discussed in the Chapter VIII in the EIA report page 143-145.
	41	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	It is fresh lease area and the condition is not applicable.

		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.	
	42	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.	A detailed environment management plan has been prepared following the suggestion made by SEAC, as shown in Chapter X in the EIA report page 147-154. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted during final EIA report.
	43	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.	The EIA report has been prepared keeping in mind the fact that concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may lead to withdrawal of this terms of reference besides attracting penal provisions in the Environment (Protection) Act, 1986.

4.SEIAA Standard Conditions:

S.No	Terms of Reference		Remarks
	Cluster Management Committee		
4.1	1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members	A cluster management committee including all the proponents of the rough stone quarrying projects within

		including the existing as well as proposed quarry.	the cluster of 500 m radius will be constituted for the effective implementation of green belt development plan, water sprinkling, blasting, etc.
	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.	The members of the cluster management committee will be instructed to carry out EMP in coordination.
	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.	The list of members of the committee formed will be submitted to AD/Mines before the execution of mining lease.
	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.	All the information has been discussed in Section 2.6 under Chapter II in the EIA report page 17-25.
	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.	It will be informed to the committee.
	6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a	It will be advised to the cluster management committee to practice sustainable mining in a scientific and

		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.	systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised will 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.	A proper action plan regarding the restoration will be followed by the committee.
	8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	The information on the health of the workers and the local people will be updated periodically.
	Agriculture & Agro-Biodiversity		
	9	Impact on surrounding agricultural fields around the proposed mining Area.	There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly, as shown in Section 4.6 under Chapter IV in the EIA report page 119-122.
	10	Impact on soil flora & vegetation around the project site.	The details on flora have been provided in Section 3.6 under Chapter III in the EIA report page 71-95. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

11	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.	Details of vegetation in the lease area have been provided in Section 3.6 under Chapter III in the EIA report page 71-95. Details about transplantation of plants have been provided in Section 4.6 under Chapter IV in the EIA report page 119-122.
12	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 ecological details have been provided in Section 3.7 under Chapter III in the EIA report page 81-100 and measures have been provided in Section 4.6 under Chapter IV in the EIA report page 119-122.
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV in the EIA report page 111-126.
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Section 4.1 under Chapter IV in the EIA report page 111.
Forests		
15	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	The project proponent shall do barbed wire fencing work and develop a green belt around the lease area to prevent wildlife from entering the site.
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The impacts of the project on ecology and biodiversity have been discussed in Section 4.6 under Chapter IV in the EIA report page 119-122.

	17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	The impacts of the project on standing trees and the existing trees have been discussed in Section 4.6 under Chapter IV in the EIA report page 119-122.
	18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	The protected areas, National Parks, Corridors and Wildlife pathways near project site within 10 km radius has been provided in Table 3.42 under Chapter III in the EIA report page 114-107.
	Water Environment		
	19	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.	The detailed hydro-geology will be submitted in the final EIA report.
	20	Erosion Control measures.	Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.3 under Chapter IV in the EIA report page 112-113.

21	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 matter has been discussed under Chapter IV in the EIA report page 111-126.
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	An analysis for food chain in aquatic ecosystem has been discussed in Section 3.6 under Chapter III in the EIA report page 71-95
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The impacts of the proposed project on the surrounding environment have discussed in Chapter IV in the EIA report page 71-95
24	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.	The impact of the proposed project on aquatic plants and animals in water bodies has been discussed in Section 4.6 under Chapter IV in the EIA report page 119-122.
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in Section 4.2 under Chapter IV in the EIA report page 112.
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The impacts on water bodies, streams, lakes have been discussed in Section 4.3 under Chapter IV in the EIA report page 112-113.
27	The EIA shall include the impact of mining activity on the following:	

		a. Hydrothermal / Geothermal effect due to destruction in the Environment.	a. The average geothermal gradient of earth is 25 ⁰ C/km. As the proposed depth of mining is 40m below the local ground level, the temperature will increase by 1 ⁰ C at the depth of mining.
		b. Bio-geochemical processes and its foot prints including environmental stress.	b. No, Bio-geochemical processes and its foot prints including environmental stress are anticipated and at the end of life of mine the proposed quarry shall be left as an artificial reservoir structure and allowed to collect rain water and shall enrich the ecosystem.
		c. Sediment geochemistry in the surface streams	c. The details of sediment geochemistry are discussed in the Table 3.4 under Chapter III in the EIA report page 37.
	Energy		
	28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	The measures taken to control noise, air, water, and dust have been given under Chapter IV in the EIA report page 111-126.
	Climate Change		
	29	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 and the measures to mitigate carbon emission have been discussed in Section 4.6 under Chapter IV in the EIA report page 119-122.

	30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.	The matter has been discussed in Chapter IV in the EIA report page 111-126.
	31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	There is no emission impact to local livelihood from this quarry project. All the vehicles used for transportation of the quarry materials will be maintained regularly to keep the GHGs emissions within statutory limits.
	Mine Closure Plan		
	32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.8 under Chapter II in the EIA report page 22.
	EMP		
	33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	A detailed Environment Management plan has been given under Chapter X in the EIA report page 147-154.
	34	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	A detailed Environment Management plan has been given in Tables 10.1 & 10.2 under Chapter X in the EIA report page 148-154.
	Risk Assessment		

	35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	The risk assessment and management plan for this project has been provided in Section 7.2 under Chapter VII in the EIA report pae 133-136.
	Disaster Management Plan		
	36	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.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII in the EIA report page 136-138.
	Others		
	37	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 VAO certificate is attached in the attached in the Annexure IV.
	38	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.	The concerns raised during the public consultation will be submitted in the final EIA report.

	39	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.	The plastic waste management has been given in Section 7.5 under Chapter VII in the EIA report page 141-142.
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Standard Terms of Reference for (Mining of minerals)

1.

S.No	Terms of Reference	Remarks
1.1	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	Not applicable. This is not a violation category project. This proposal falls under B1 category.
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	The proposed site for quarrying is a patta land. The land documents are attached in Annexure III.
1.3	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	All the documents are in the name of the lessee.
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet,	All corner coordinates of the mine lease area have been superimposed on a high- resolution Google Earth Image,

	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)	as shown in Figure 2.3 under Chapter II, p.12.
1.5	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	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III.
1.6	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 lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
1.7	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	The proponent has framed Environmental Policy and the same has been discussed in Section 10.1 under Chapter X, pp.148-154.

	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	
1.8	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	It is an opencast quarrying operation proposed to operate in Manual method. The Rough Stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
1.9	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 considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / Lease period.
1.10	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	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 has been discussed in Section 3.1 under Chapter III,

	encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	pp.28-33. The details of surrounding sensitive ecological features have been provided in Table 3.42 under Chapter III, p.107. Land use plan of the project area showing pre- operational, operational and post- operational phases are discussed in Table 2.7 under Chapter II, p.21.
1.11	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	It is not applicable as no dumps have been proposed outside the lease area.
1.12	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 State Expert Appraisal Committees	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.42 under Chapter III, p.107.
1.13	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	It is not applicable as the proposed project area does not involve any forest land.

	copy of the forestry clearance should also be furnished	
1.14	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. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest is found within the study area. The details of reserve forest within 10km have been discussed Table 3.42 under Chapter III, p.107. Flora and Fauna vegetation details are given in section 3.6 under chapter III, p.71-95
1.16	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	There is no any wildlife/protected area from the periphery of the project area. Information regarding wildlife /protected area within 10km has been given in Table 3.42 under Chapter III, p.107. Flora and Fauna vegetation details are given in section 3.3 and 3.7.2 under chapter III, p.71-95
1.17	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	The details of National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km radius from the periphery of the project area has been

	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	given in Table 3.42 under Chapter III, p.107.
1.18	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.	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.6 under Chapter III, pp.71-95.
1.19	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 Dept. Should be secured and	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.

	furnished to the effect that the proposed mining activities could be considered	
1.20	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)	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
1.21	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	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-	Baseline data were collected for the period of October 2023 - December 2023 as per CPCB notification and

	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	MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.9 under Chapter III, pp. 28-110.
1.23	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 modelling for prediction of incremental GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.4 under the Chapter IV, pp.113-117.

1.24	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, its availability and source have been provided in Table 2.11 under Chapter II, p.24.
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
1.26	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	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
1.27	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	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV, pp. 112-113.
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and	Not Applicable. The ground water table is found at the depth of 60 m below ground level. The

	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 State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished	ultimate depth of quarry is 35 m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.3 under Chapter III, pp.38-54.
1.29	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	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated.
1.30	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.	The highest elevation of the project area is 495 m AMSL. Ultimate depth of the mine is 35m BGL. Depth to the water level in the area is 60 m BGL
1.31	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	Greenbelt development plan has been given in Section 4.6 under Chapter IV, pp.119-123.

	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	
1.32	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	Traffic density survey was carried out to analyze the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Section 3.9 under Chapter III, p.104-106
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.6.7.4 under Chapter II, p.24.
1.34	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	Progressive mine closure plan has been prepared for this project and is given in Table 2.8 under Section 2.6.5 under Chapter II, p.22.

1.35	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 and preventive measures have been explained in detail in Section 4.8 under Chapter IV, pp.123-125.
1.36	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	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII, pp.144-145.
1.37	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	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 22 people directly as discussed in Section 8.1 under Chapter VIII, p.143.
1.38	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	A detailed Environment Management Plan has been prepared and provided in Tables 10.1 & 10.2 under Chapter X, pp.148-154.
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan	The outcome of public hearing will be submitted during the final EIA report.

	with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project	
1.40	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 is pending in any court against this project.
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out	Project Cost is Rs.60,50,000/- CER Cost is Rs. 10,00,000/- In order to implement the environmental protection measures, an amount of Rs.22831594 as capital cost and Rs.1256620 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the total recurring cost over 5 years is Rs.6943619 and the overall EMP cost for 5 years will be Rs.29775212, as shown in Table 10.2 under Chapter X, pp.148-154.
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII, pp.136-138.
1.43	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.	Benefits of the project details have been given under Chapter VIII, pp.143-145.
1.44	Besides the above, the below mentioned general points are also to be followed	

a)	All documents to be properly referenced with index and continuous page numbering	All the documents have been properly referenced with index and continuous page numbering
b)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated	List of tables and source of the data collected have been mentioned.
c)	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.	Original Baseline monitoring report will be submitted in final EIA report.
d)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
e)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The questionnaire will be submitted in final EIA report.
f)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing the EIA report.
g)	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	No changes are made in the basic scope and the project parameters.

	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.	
h)	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.	It is a new lease area, the condition is not applicable.
i)	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 the plans including surface & geological plans, and progressive closure plan have been included in Annexure III.

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.	Not applicable. This is not a violation category project. This proposal falls under B1 category.
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2.	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a patta land. The land documents have attached 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.	All the documents are in the name of the lessee.
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 proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.3 under Chapter II in the EIA report page 12.
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.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III in the EIA report page 26-110.
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 lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.

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	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 147-148.
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	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90° bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9.	The study area will comprise of 10 km zone around the mine lease from lease	The study area considered for this study is of 5 km radius for air, soil, water, and

	periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is 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.	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 has been discussed in Section 3.1 under Chapter III in the EIA report page 28-33. The details of surrounding sensitive ecological features have been provided in Table 3.42 under Chapter III in the EIA report page 107. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.7 under Chapter II in the EIA report page 21.
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.	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out granite rejects are dumped on west side.
12.	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,	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.42 under Chapter III in the EIA report page 107.

	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.	It is not applicable as the proposed project area does not involve any forest land.
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. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no any reserve forest in the study area. The details of reserve forest is discussed in the Table 3.42 under Chapter III in the EIA report page 107.
16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished.	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding

	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.	the same has been given in Table 3.42 under Chapter III in the EIA report page 107.
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 are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.42 under Chapter III in the EIA report page 107.
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	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.6 under Chapter III in the EIA report page 71-95.

	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 'Aravalli 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.	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.
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).	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
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	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.

	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 aspect 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.	Baseline data were collected for the period of October - December 2024 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.9 under Chapter III in the EIA report page 28-110.

23.	Air quality modelling 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 modelling 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 modelling for prediction of incremental GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.4 under the Chapter IV in the EIA report page 113-117.
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, its availability and source have been provided in Table 2.9 under Chapter II in the EIA report page 23.
25.	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
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.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the

		excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
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.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV in the EIA report page 112-113.
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 ground water table is found at the depth of 60m below ground level. The ultimate depth of quarry is 35m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.3 under Chapter III in the EIA report page 38-54.
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	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated
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.	The highest elevation of the project area is 495m AMSL. Ultimate depth of the mine is 35m BGL. Depth to the water level in the area is 60m below the ground level.

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.	Greenbelt development plan has been given in Section 4.6 under Chapter IV in the EIA report page 119-123.
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	Traffic density survey was carried out to analyses the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Section 3.8 under Chapter III in the EIA report page 104-106.

	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.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.6.7.4 under Chapter II in the EIA report page 24.
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.	It is discussed in chapter II in the EIA report page 20-22.
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 and preventive measures detail have been explained in Section 4.8 under Chapter IV in the EIA report page 144-145.
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.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 144-145.
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	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 22 people

	given with time frames for implementation.	directly as discussed in Section 8.1 under Chapter VIII 143.
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.	A detailed Environment Management Plan has been prepared and provided in Table 10.1 & 10.2 under Chapter X in the EIA report page 148-154.
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.	The outcome of public hearing will be submitted during the final EIA report.
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 is pending in any court against this project.
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.	Project Cost is Rs.60,50,000/- CER Cost is Rs. 10,00,000/- In order to implement the environmental protection measures, an amount of Rs.22831594 as capital cost and Rs.1256620 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the total recurring cost over 5 years is Rs.6943619 and the overall EMP cost for

		5 years will be Rs.29775212, as shown in Table 10.2 under Chapter X, pp.148-154.
42.	A disaster management plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII in the EIA report page 136-138.
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.	Benefits of the project details have been given under Chapter VIII in the EIA report page 143-145.
44	Besides the above, the below mentioned general points are also to be followed:	
a)	Executive Summary of the EIA/EMP Report.	Executive summary has been enclosed as a separate booklet.
b)	All documents to be properly referenced with index and continuous page numbering.	All the documents have been 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.	List of tables and source of the data collected have been mentioned.
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.	Original Baseline monitoring reports will be submitted in the final EIA report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
f)	The Questionnaire for environmental appraisal of mining projects as devised	The questionnaire will be submitted in the final EIA report.

	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.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing the 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 are made in the basic scope and the project parameters.
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.	As it is a new lease area, the condition is not 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.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexure III.

TABLE OF CONTENTS

S No.	TITLE	PAGE No.
I	INTRODUCTION	1-7
1.0	Preamble	1
1.1	Purpose of the Report	2
1.2	Environmental Clearance	2
1.3	Terms of Reference (ToR)	4
1.4	Post Environment Clearance Monitoring	5
1.5	Transferability of Environmental Clearance	5
1.6	Identification of the Project Proponent	5
1.7	Brief Description of the Project	5
1.8	Scope of the Study	7
1.9	Legislation Applicable to Mining of Mineral Sector	7
II	PROJECT DESCRIPTION	8-25
2.0	General Introduction	8
2.1	Description of the Project	8
2.2	Location and Accessibility	9
2.3	Leasehold Area	11
2.3.1	Corner Coordinates	11
2.4	Geology	11
2.5	Quantity of Reserves	17
2.6	Mining Method	17
2.6.1	Magnitude of Operation	20
2.6.2	Extent of Mechanization	20
2.6.3	Progressive Quarry Closure Plan	20
2.6.4	Conceptual Mining Plan	21
2.6.5	Progressive Quarry Closure Budget	22
2.6.6	Infrastructures	23
2.6.6.1	Other Infrastructure Requirement	23
2.6.7	Project Requirement	23
2.6.7.1	Water Requirement	23
2.6.7.2	Energy Requirement	23
2.6.10	Capital Requirement	23
2.6.7.3	Employment Requirement	24
2.6.7.4	Infrastructure Requirement	24
2.6.7.5	Capital Requirement	25
2.7	Project Implementation Schedule	25

III	DESCRIPTION OF THE ENVIRONMENT	26-110
3.0	General	26
3.1	Land Environment	28
3.1.1	Geology and Geomorphology	28
3.1.2	Land Use/Land Cover	28
3.1.3	Topography	28
3.1.4	Drainage Pattern	29
3.1.5	Seismic Sensitivity	29
3.2	Soil Environment	34
3.3	Water Environment	38
3.3.1	Ground Water Quality Result	38
3.3.1.1	Physical Parameter of ground water	38
3.3.1.2	Chemical Parameters of Water	39
3.3.2	Surface Water	40
3.3.3	Hydrogeological Studies	45
3.3.3.1	Rainfall	45
3.3.3.2	Groundwater Levels and Flow Direction	46
3.3.3.3	Electrical Resistivity Investigation	53
3.4	Air Environment	55
3.4.1	Meteorology	55
3.4.1.1	Climatic Variables	55
3.4.1.2	Wind Pattern	56
3.4.4	Site Specific Meteorological Data - 2025	60
3.4.2	Ambient Air Quality Study	62
3.4.2.1	Methodology	63
3.4.2.2	Results	63
3.5	Noise Environment	68
3.6	Biological Environment	71
3.7.1	Flora	71
3.7.1.1	Objectives of the Study	71
3.7.1.2	Study Approach & Methodology	71
3.7.1.3	Survey Methodology	72
3.7.1.4	Important Calue Index (IVI)	72
3.7.1.5	Floral Diversity Analysis	73
3.7.2	Fauna	88
3.7.2.1	Methodology	89

3.7	Socio Economic Environment	95
3.7.1	Objectives of the Study	95
3.7.2	Methodology	96
3.7.3	Demographic Details of Krishnagiri District	98
3.7.4	Profile of Study Area - Jagadevipalayam Village, Bargur Taluk	98
3.7.5	Details of Working Population - Jagadevipalayam Village, Bargur Taluk	99
3.7.10	Recommendation and Suggestions	103
3.7.11	Conclusion	104
3.8	Traffic Density	104
3.9	Site Specific Features	107
IV	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	111-126
4.0	General	111
4.1	Land Environment	111
4.1.1	Anticipated Impact	111
4.1.2	Common Mitigation Measures from Proposed Project	111
4.2	Soil Environment	112
4.2.1	Anticipated Impact on Soil Environment	112
4.2.2	Common Mitigation Measures from Proposed Project	112
4.3	Water Environment	112
4.3.1	Anticipated Impact	112
4.3.2	Common Mitigation Measures from Proposed Project	112
4.4	Air Environment	113
4.4.1	Anticipated impact from Proposed Project	113
4.4.2	Emission Estimation	113
4.4.2.1	Modelling of Incremental Concentration	114
4.4.2.2	Model Results	114
4.5	Noise Environment	117
4.5.1	Anticipated Impact	117
4.5.2	Common Mitigation Measures	118
4.5.3	Ground Vibrations	119
4.6	Ecology And Biodiversity	119
4.6.1	Impact on Ecology and Biodiversity	119
4.6.2	Mitigation Measures on Flora	120
4.6.3	Anticipated Impact on Fauna	122

4.6.4	Impact on agriculture and horticulture crops in 1km Radius	122
4.6.5	Mitigation Measures on agriculture and horticulture crops.	122
4.7	Socio Economic Environment	123
4.7.1	Anticipated Impact	123
4.7.2	Mitigation Measures	123
4.8	Occupational Health and Safety	123
4.8.1	Respiratory Hazards	124
4.8.2	Noise	124
4.8.3	Physical Hazards	124
4.8.4	Occupational Health Survey	125
4.9	Mine Waste Management	125
4.10	Mine Closure	125
4.10.1	Mine Closure Criteria	125
4.10.1.1	Physical Stability	125
4.10.1.2	Chemical Stability	126
4.10.1.3	Biological Stabilitys	126
V	ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)	127
5.0	Introduction	127
5.1	Factors behind the Selection of Project Site	127
5.2	Analysis of Alternative Site	127
5.3	Factors behind Selection of Proposed Technology	127
5.4	Analysis of Alternative Technology	127
VI	ENVIRONMENTAL MONITORING PROGRAM	128-132
6.0	General	128
6.1	Methodology of Monitoring Mechanism	128
6.2	Implementation Schedule of Mitigation Measures	130
6.3	Monitoring Schedule and Frequency	130
6.4	Budgetary provision for Environment Monitoring Program	132
6.5	Reporting schedules of monitored data	132
VII	ADDITIONAL STUDIES	133-142
7.0	General	133
7.1	Public Consultation for Proposed Project	133
7.2	Risk Assessment for Proposed Project	133
7.3	Disaster Management Plan for Proposed Project	136

7.3.1	Emergency Control Procedure	137
7.4	Cumulative Impact Study	138
7.4.1	Air Environment	139
7.4.1.1	Cumulative Impact of Air Pollutants	139
7.4.2	Noise Environment	140
7.4.3	Socio Economic Environment	140
7.4.4	Ecological Environment	141
7.4.5	Traffic Density	141
7.5	Plastic Waste management Plan for Proposed Project	141
7.5.1	Objective	141
VIII	PROJECTS BENEFITS	143-146
8.0	General	143
8.1	Employment Potential	143
8.2	Socio-Economic Welfare Measures Proposed	143
8.3	Improvement in Physical Infrastructure	143
8.4	Improvement in Social Infrastructure	144
8.5	Other Tangible Benefits	144
8.6	Corporate Social Responsibility	144
8.7	Corporate Environment Responsibility	145
IX	ENVIRONMENTAL COST BENEFIT ANALYSIS	146
X	ENVIRONMENTAL MANAGEMENT PLAN	147-154
10.0	General	147
10.1	Environmental Policy	147
10.1.1	Description of the Administration and Technical setup	147
10.2	Budgetary Provision for Environmental Management	148
10.3	Conclusion	154
XI	SUMMARY AND CONCLUSION	155-165
11.1	Introduction	155
11.2	Project Description	155
11.3	Description of the Environment	155
11.3.1	Land Environments	155
11.3.2	Soil Environment	156
11.3.3	Water Environment	157
11.3.4	Air Environment	159
11.3.5	Noise Environment	159
11.3.6	Biological Environment	159
11.3.7	Socio-Economic Environment	159

11.4	Anticipated Environmental Impacts And Mitigation Measures	159
11.4.1	Land Environment	159
11.4.2	Water Environment	160
11.4.3	Air Environment	160
11.4.4	Noise Environment	161
11.4.5	Biological Environment	162
11.4.6	Socio Economic Environment	162
11.4.7	Occupational Health	163
11.5	Environment Monitoring Program	164
11.6	Additional Studies	164
11.6.1	Risk Assessment	164
11.6.2	Disaster Management Plan	164
11.6.3	Cumulative Impact Study	165
11.7	Project Benefits	165
11.8	Environment Management Plan	165
XII	DISCLOSURE OF CONSULTANT	

LIST OF TABLES

TABLE No.	CONTENTS	PAGE No.
1.1	Details of Quarries within the cluster area of 500 m radius	2
1.2	Details of project proponent	5
1.3	Details of the Project	6
2.1	Site connectivity to the project area	10
2.2	Corner coordinates of proposed project	11
2.3	Estimated resources and reserves of the project	17
2.4	Year-wise production details	17
2.5	Operational details for proposed project	20
2.6	Machinery details	20
2.7	Land use data at present, during scheme of mining, and at the end of mine life	21
2.8	Progressive Mine Closure Budget	22
2.9	Water Requirement for the Project	23

2.10	Fuel Requirement Details	23
2.11	Employment Potential for the proposed project	24
2.12	Capital requirement details	25
2.13	Expected time schedule	25
3.1	Monitoring attributes and frequency of monitoring	27
3.2	LULC Statistics of the Study Area	28
3.3	Soil Sampling Locations	34
3.4	Soil Quality of the Study Area	37
3.5	Water Sampling Locations	38
3.6	Surface Water Quality Result	42
3.6a	Ground Water Quality Results	43
3.7	Water Quality Results	44
3.8	Weighted Arithmetic Water Quality Index (WAWQI) Method for ground water (Brown et al., 1972)	44
3.8a	Weighted Arithmetic Water Quality Index as per WAWQI Method for surface water (Brown et al., 1972)	45
3.9	Pre-monsoon water level of Open wells within 2 km radius	47
3.10	Post-monsoon water level of Open wells within 2 km radius	47
3.11	Pre-monsoon water level of bore wells within 2 km radius	47
3.12	Post-monsoon water level of bore wells within 2 km radius	48
3.13	Vertical electrical sounding data	53
3.14	Onsite Meteorological Data 2023	55
3.15	Onsite Meteorological Data -2025(March-May)	60
3.16	Methodology and Instrument used for AAQ analysis	62
3.17	National Ambient Air Quality Standards	62
3.18	Ambient Air Quality (AAQ) Monitoring Locations	63
3.19	Summary of AAQ Result	65
3.20	Noise Monitoring Locations	68
3.21	Ambient Noise Quality Result	68
3.22	Flora in Mine Lease Area	74
3.23	Flora in 300-Meter Radius	75
3.24	Calculation of Species Diversity in 300-meter radius	77

3.25	Species Richness (Index) in 300-meter radius	78
3.26	Flora in 10km radius	79
3.27	Calculation of Species Diversity in buffer zone	83
3.28	Species Richness(Index) in Buffer Zone	85
3.29	Methodology applied during survey of fauna	88
3.30	Fauna in Core Zone	89
3.31	Fauna in Buffer Zone	90
3.32	Aquatic Fauna and Flora	93
3.33	Major Crops in 1km radius	94
3.34	Major Field Crops & Horticulture cultivation in 1km radius	94
3.35	Demographic Details of Jagadevipalayam Village	99
3.36	Demographic Details and Literacy Level of Study Area	100
3.37	Workers Profile of Study Area	102
3.38	Traffic Survey Locations	105
3.39	Existing Traffic Volume	105
3.40	Multi Colour Granite Transportation Requirement	105
3.41	Summary of Traffic Volume	105
3.42	Details of Environmentally Sensitive Ecological Features in the Study Area	107
4.1	Empirical formula for emission rate from overall mine	113
4.2	Estimated Emission Rate	114
4.3	Incremental & Resultant GLC of PM2.5	114
4.4	Incremental & Resultant GLC of PM10	114
4.5	Activity and noise level produced by machinery	117
4.6	Predicted noise incremental values	118
4.7	Carbon Released During Five Years of Colour Granite Production	119
4.8	CO ₂ Sequestration	120
4.9	Recommended Species for Greenbelt Development Plan	121
4.10	Greenbelt development plan	121
4.11	Budget for greenbelt development plan	121
6.1	Implementation Schedule for Proposed Project	130

6.2	Proposed monitoring schedule post EC for the proposed quarry	131
6.3	Environment monitoring budget	132
7.1	Risk assessment& control measures for proposed project	134
7.2	Salient Features of Proposed Project Site “E1”	138
7.3	Cumulative Production Load of Granite	139
7.4	Incremental and Resultant Ground Level Concentration from the Cluster	140
7.5	Predicted Noise Incremental Values from Cluster	140
7.6	Socio Economic Benefits from Cluster	141
7.7	Employment Benefits from Cluster	141
7.8	Greenbelt Development Benefits	141
7.9	Action Plan to Manage Plastic Waste	142
8.1	CER – action plan	145
8.2	Project Benefits to the state Government	145
10.1	EMP budget for proposed project	148
10.2	Estimation of overall EMP budget after adjusting 5% annual inflation	154
11.1	LULC Statistics of the Study Area	155
11.2	Environment Monitoring Program	164

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE NO.
1.1	Location of the proposed and existing rough stone quarries in the cluster of 500m radius	3
2.1	Overall view of proposed project site	9
2.2	Key map showing location of the project site	10
2.3	Google Earth Image Showing Lease Area with Pillars	12
2.4	Mine Lease Plan	13
2.5	Surface Plan and Sections	14
2.5A	Geological Plan & Section	15

2.5B	Geological Plan & Section	16
2.6	Year-Wise Production Plan	18
2.6A	Year wise Production Plan & Sections	19
2.7	Conceptual Plan	21
2.7A	Conceptual Plan & Sections	22
3.1	Geology Map of 5Km Radius from proposed project site	30
3.2	Geomorphology Map of 5Km Radius from proposed project site	31
3.3	LULC map of 5km radius from the proposed project site	32
3.4	Drainage map of 5 km radius from the proposed project site	33
3.5	Toposheet Showing Soil Sampling Locations within 5 km Radius around Proposed Project Site	36
3.6	Map Showing Water Sampling Locations within 5 km Radius around Proposed Project Site	41
3.7	Long-Term Monthly Average Rainfall Vs Monthly Rainfall	46
3.8	Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre- Monsoon Season	49
3.9	Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season	50
3.10	Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season	51
3.11	Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season	52
3.12	Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 80m Below Ground Level in Proposed Project	54
3.13	Windrose Diagram for 2019 and 2020 (October to December)	57

3.13a	Windrose Diagram for 2021 and 2022 (October to December)	58
3.14	Onsite Rose Diagram (2023)	59
3.15	Onsite Rose Diagram (2025)	61
3.16	Toposheet Showing Ambient Air Quality Monitoring Station Locations Around 5 km Radius from Proposed Project Site	64
3.17	Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM2.5 Measured from 9 Air Quality Monitoring Stations within 5 km Radius	65
3.18	Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM10 Measured from 9 Air Quality Monitoring Stations within 5 km Radius	66
3.19	Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO2 Measured from 9 Air Quality Monitoring Stations within 5 km Radius.	66
3.20	Bar Chart Showing Maximum, Minimum, and Average Concentrations of Nox Measured from 9 Air Quality Monitoring Stations within 5 km Radius	67
3.21	Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius	67
3.22	Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones	69
3.23	Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones	69
3.24	Toposheet Showing Noise Level Monitoring Station around 5km Radius from the peoposed project Site	70
3.25	Quadrates Sampling Methods of Flora	72
3.26	Species Richness paten in 300m Radius	78
3.27	Species Richness (Index)in 10km Radius	85
3.28	Flora on core and Buffer Area	88
3.29	Socio Economic Village Boundary Map	97
3.30	Demographic Profile of Surrounding Villages of the Proposed Project — SC, ST Population and Literacy Status	101
3.31	Details on the No. of Workers of the Surrounding Villages	103
3.32	Traffic Density Map	106

3.33	Field Photographs Showing Baseline Data Collection	110
4.1	Predicted incremental concentration of PM _{2.5}	115
4.2	Predicted incremental concentration of PM ₁₀	116
6.1	Proposed Environmental Monitoring Chart	129

LIST OF ANNEXURES

Annexure No.	Contents	Page No.
I	Copy of ToR letter	171-192
II	Copy of 500 m radius letter	193-194
III	Approved mining plan along with mining plan AD/DD letter/original mining plan plates	195-302
IV	VAO 300m radius letter	303
IV	NABET certificate of EIA consultant	304

CHAPTER I

INTRODUCTION

1.0 PREAMBLE

Environmental Impact Assessment (EIA) study is a process used to identify the environmental, social and economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing. According to the Ministry of Environment and Forests, Govt.of India, EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, all the mining projects are broadly classified into two categories, i.e., category A and category B, based on the spatial extent of the projects. The category B projects are further divided in to B1 and B2 on the basis of the guidelines issued of the Ministry of Environment and Forests. All mining projects included in category B1 require an EIA report for obtaining environmental clearance from the State Environment Impact Assessment Authority (SEIAA). As the proposed project falls within the cluster of quarries of overall extent of greater than 5 ha and less than 100 ha, the proposed project falls under the category B1 and the project requires preparation and submission of an EIA report after public consultation to SEIAA for obtaining environmental clearance.

In compliance with ToR obtained vide Tor identification No. TO25B0108TN5937243N, file No.12115 dated 17.06.2025. This EIA report is prepared for the project proponent, M/s.Sri Vinayaga Granites applied for Grey Granite quarry lease in the Patta land falling in S.F.No's. 331/1A (P), 332/1,332/2,332/3,332/4,332/5 (P), and 332/6 over an extent of 3.38.0 ha in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District and Tamil Nadu. Considering cumulative load of all the Grey granite quarry projects including One proposed quarries and One existing quarries falling in the cluster of 500 m radius from the periphery of the proposed project. The total extent of all the quarries in the cluster is 7.79.51 ha. All the quarries in the cluster are shown in Figure 1.1.

1.1 PURPOSE OF THE REPORT

The purpose of the report is to study baseline environmental conditions in and around the proposed project area for the period of **October-December 2023** according to the provisions of MoEF & CC Office Memorandum dated 29.08.2017 and MoEF & CC Notification, S.O. 996 (E) dated 10.04.2015.

Table 1.1 Details of quarries within the cluster area of 500 m radius

Proposed Quarries					
Code	Name of the Lease	S.F. No	Taluk & Village	Extent (ha)	Lease Period
P1	M/s.Vinayaga Granites	331/1A (P), 332/1,332/2,332/3,332/4,332/5 (P), and 332/6	Bargur Taluk & Jagadevipalayam	3.38.0	Proposed Area
Existing Quarry					
E1	AGA Enterprises	301/3C1	Bargur Taluk & Jagadevipalayam	4.41.51	04.03.2022 to 03.03.2042
Expired Quarry					

Total Cluster Extent				7.79.51	---

Source:*DD Letter – Rc.No.1043/2020/Mines dated 07.06.2023****Note:** Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016.***1.2 ENVIRONMENTAL CLEARANCE**

The Environmental Clearance process for the project will comprise of four stages.

These stages are given below:

- ❖ Screening
- ❖ Scoping
- ❖ Public consultation &
- ❖ Appraisal

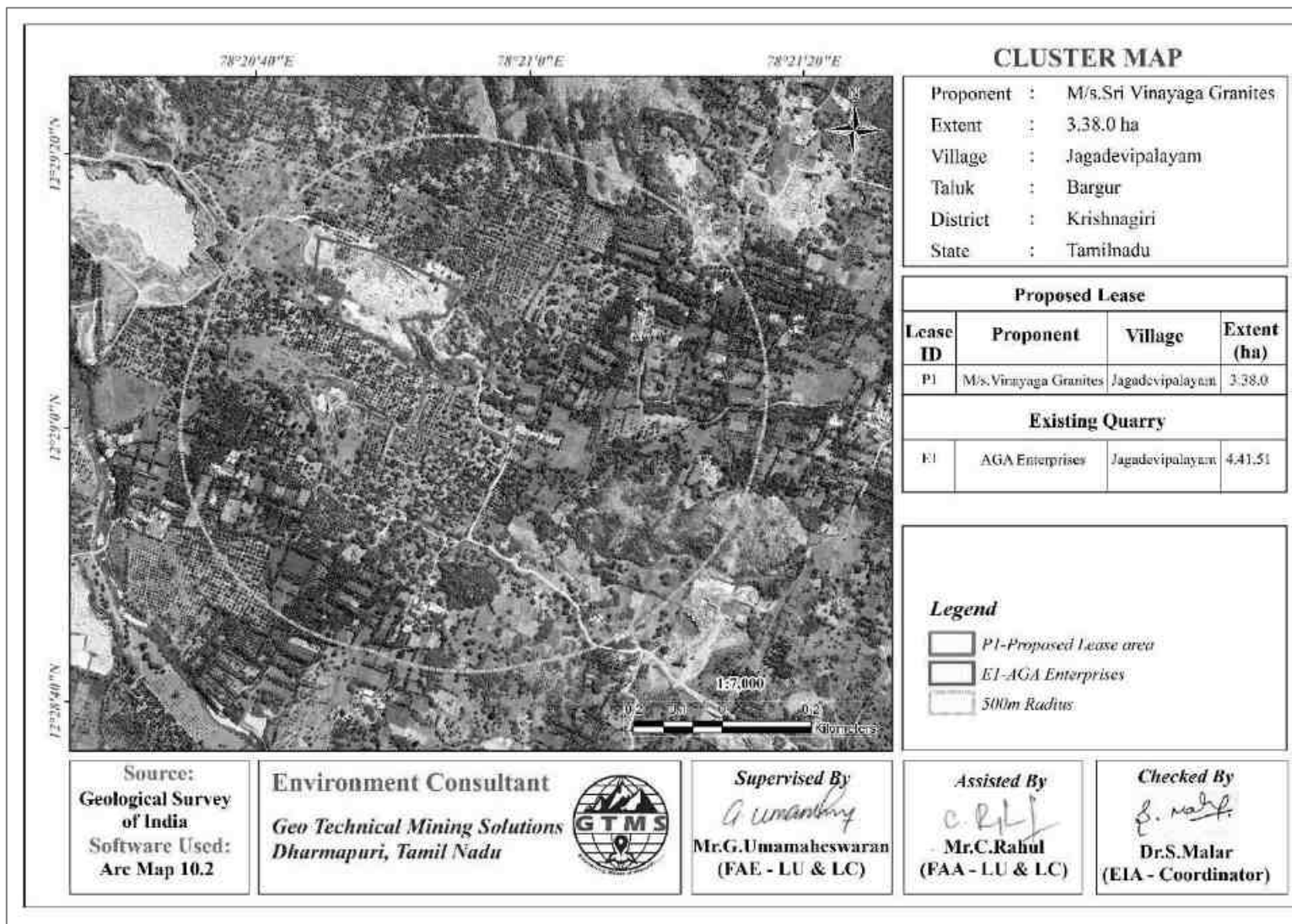


Figure 1.1 Location of Proposed and Existing Grey Granite Quarries in the Cluster of 500 m Radius

Screening

Screening is the first stage of the EIA process. In this stage, the State level Expert Appraisal Committee (SEAC) examined the application of EC made by the proponent in Form 1 through online (Proposal No. SIA/TN/MIN/530384/2025 dated:30.04.2025) and decided that the project requires detailed environmental studies for the preparation of EIA report. Therefore, the proponent submitted application for Terms of Reference (ToR) on 30.04.2025.

Scoping

The proposal was placed in the 564th meeting of SEAC on 13.05.2025. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) and the recommendation for ToR is subjected to the outcome of the Honourable NGT, Principal Bench, New Delhi (O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Public Consultation

In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, an opportunity will be given to the people living nearby the project site to express their opinions about the impact of the proposed project on the environment. The outcome of the public hearing meeting will be given in Final EIA Report.

Appraisal

In this stage, an application along with final EIA report including the outcome of the public consultations will be made to the SEIAA. The application thus made will be scrutinized by the SEAC. Then, the SEAC will make recommendations to grant EC or reject the application to the SEIAA.

1.3 TERMS OF REFERENCE (ToR)

The SEAC framed a comprehensive Terms of Reference (ToR) based on the information provided in the Form 1 and information collected from the proposed project site visit and issued ToR to the proponent vide identification No. TO25B0108TN5937243N, file No.12115 dated 17.06.2025 for the preparation of an EIA report.

1.4 POST ENVIRONMENT CLEARANCE MONITORING

For category B projects, irrespective of its clearance by MoEF/SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and the details of MoEF website where it is displayed. After obtaining EC, the project proponent will submit a half-yearly compliance report of stipulated environmental clearance terms and conditions to MoEF & CC Regional Office & SEIAA on 1st June and 1st December of every year.

1.5 TRANSFERABILITY OF ENVIRONMENTAL CLEARANCE

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor or the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period (EIA Guidance Manual for Mining of Minerals, 2010).

1.6 IDENTIFICATION OF THE PROJECT PROPONENT

The profile of the project proponent who has involved in this quarrying project has been given in Table 1.2.

Table 1.2 Details of Project Proponent

Name of the Project Proponent	Sri Vinayaga Granites
Address	01/504E, Maruthi Nagar, Jagadevipalayam Village & Post, Bargur Taluk, Krishnagiri District – 635 203.
Status	Proprietor

1.7 BRIEF DESCRIPTION OF THE PROJECT

The proposed project deals with excavation of Grey granite which is primarily used in construction projects. The method adopted for Grey granite excavation is open cast semi-mechanized method involving formation of benches with 5 m height and 5 m width. The proposed project site is located in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu. Some of the important features of the proposed project have been provided in Table 1.3.

Table 1.3 Details of the Project

Name of the Quarry	Sri Vinayaga Granites, Grey granite	
S.F.No.	331/1A (P), 332/1,332/2,332/3,332/4,332/5 (P), and 332/6	
Land Type	Patta land	
Extent	3.38.0 ha	
Depth	35m BGL	
Toposheet No	57 L/07	
Latitude between	12°28'58.47570"N to 12°29'5.11330"N	
Longitude between	78°20'51.00141"E to 78°21'0.77090"E	
Highest Elevation	495 m ASML	
Topography	Flat Topography	
Geological Reserves	Grey Granite 40% Recovery (Tons)	Granite Waste 60% (Tons)
	1673298	2509947
Mineable Reserves	Grey Granite 40% Recovery (Tons)	Granite Waste 60% (Tons)
	513409	770113
Proposed production for 5 years	Grey Granite 40% Recovery (Tons)	Granite Waste 60% (Tons)
	177628	266442
Method of Mining	The quarrying operation is carried out by Open cast semi mechanized mining method with 5.0 m vertical bench with a bench width of 5.0 m.	
Machinery proposed	Jack Hammer	4
	Compressor	2
	Tippers	2
	Excavator	1
Proposed manpower deployment	22	
Project cost	Rs. 60,50,000/-	
CER cost	Rs. 10,00,000/-	
Proposed Water Requirement	3.2 KLD	

Source: Approved mining plan book

1.8 SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. A detailed account of the emission sources, emissions control equipment, background air quality levels, meteorological measurements, dispersion model and all other aspects of pollution like effluent discharge, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of **October-December 2023** for various environmental components such as land, soil, air, water, noise, ecology, etc. to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of sample analysis, etc., are given in Table 3.1 in chapter III.

1.9 LEGISLATION APPLICABLE TO MINING OF MINERAL SECTOR

A few important legislations are given below:

- ❖ The Mines Act, 1952
- ❖ The Mines and Mineral (Development and Regulation) Act, 1957
- ❖ Mines Rules, 1955
- ❖ Mineral Concession Rules, 1960
- ❖ Mineral Conservation and Development Rules, 1988
- ❖ State Minor Mineral Concession Rules, 1960
- ❖ Granite Conservation and Development Rule, 1999
- ❖ The Water (Prevention and Control of pollution) Act, 1974
- ❖ The Air (Prevention and Control of pollution) Act, 1981
- ❖ The Environment (Protection) Act, 1986
- ❖ The Forest (Conservation) Act, 1988
- ❖ The Wildlife (Protection) Act, 1972.

CHAPTER II

PROJECT DESCRIPTION

2.0 GENERAL INTRODUCTION

The open cast mining method, also known as open-pit mining has been proposed to extract the mineral deposit. It is the most commonly used surface mining method all over the world and is generally suitable for mining low-grade mineral deposits that are found close to the surface of the earth and distributed uniformly over a large area. Open pits are also termed quarries when the pits are used for the extraction of building materials and dimension stones.

Opencast mining starts with the development of benches, the widths of which will be determined in such a way to accommodate the use of heavy machinery. The walls of open pits will be dug at an angle that will be decided based on well-established industry standards to provide safety. In some cases where the walls are composed of weak material such as soil and highly weathered rocks, dewatering holes will be drilled horizontally to relieve the water pressure to avoid wall collapse inside the mine site.

The required mine-related infrastructures will be established close to the open pit. The mining infrastructures may include an administration building, a maintenance garage, and a warehouse. The materials mined from open pits will be brought to the surface using trucks. The waste rocks will be piled up in a suitable location, usually close to the open pit. The structure produced by the waste rock pile is known as a waste dump. The dimension of the waste dump will be determined based on industrial safety standards to prevent the rocks from falling into the surrounding area.

2.1 DESCRIPTION OF THE PROJECT

The proponent **M/s. Sri Vinayaga Granites** is involved in the undertaking of establishment, construction, development, and closure of open cast mines. He, through the exploration phase, identified the proposed project site as the one that has a great potential of producing an economically viable quantity of granite. Therefore, the proponent had applied for quarry lease on 14.07.2023 to extract granite and produce dimension stones. The precise area communication letter was issued by Industries (MME.2) Department, Secretariat Chennai Lr. No.6551607/MME.2/2023-1, Dated 29.10.2024. Based on the precise area communication letter, mining plan was prepared. The mining plan thus prepared was approved by Director of Geology and Mining, Chennai Rc.No.7196/MM4/2023, Dated: 22.12.2023. The overall view of the project site is shown in Figure 2.1.

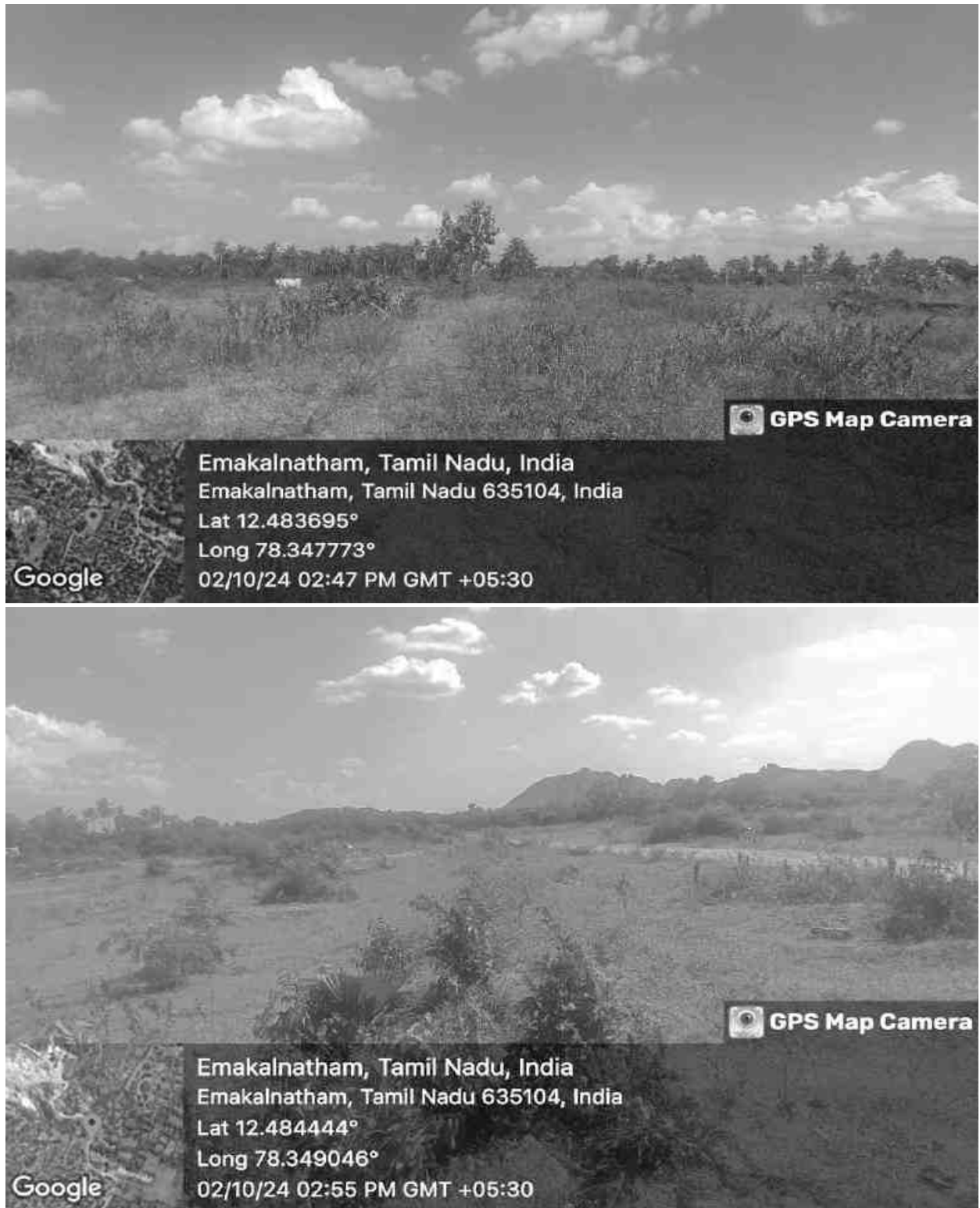


Figure 2.1 Overall View of Proposed Project Site

2.2 LOCATION AND ACCESSIBILITY

The proposed quarry project is located in jagadevipalayam Village, Bargur Taluk, Krishnagiri District as shown in Figure 2.2 & 2.3. The area is located between a latitude of 12°28'58.47570"N to 12°29'5.11330"N and a longitude of 78°20'51.00141"E to 78°21'0.77090"E. The maximum altitude of the project area is 495m AMSL. Accessibility details to the proposed project site have been given in Table 2.1.

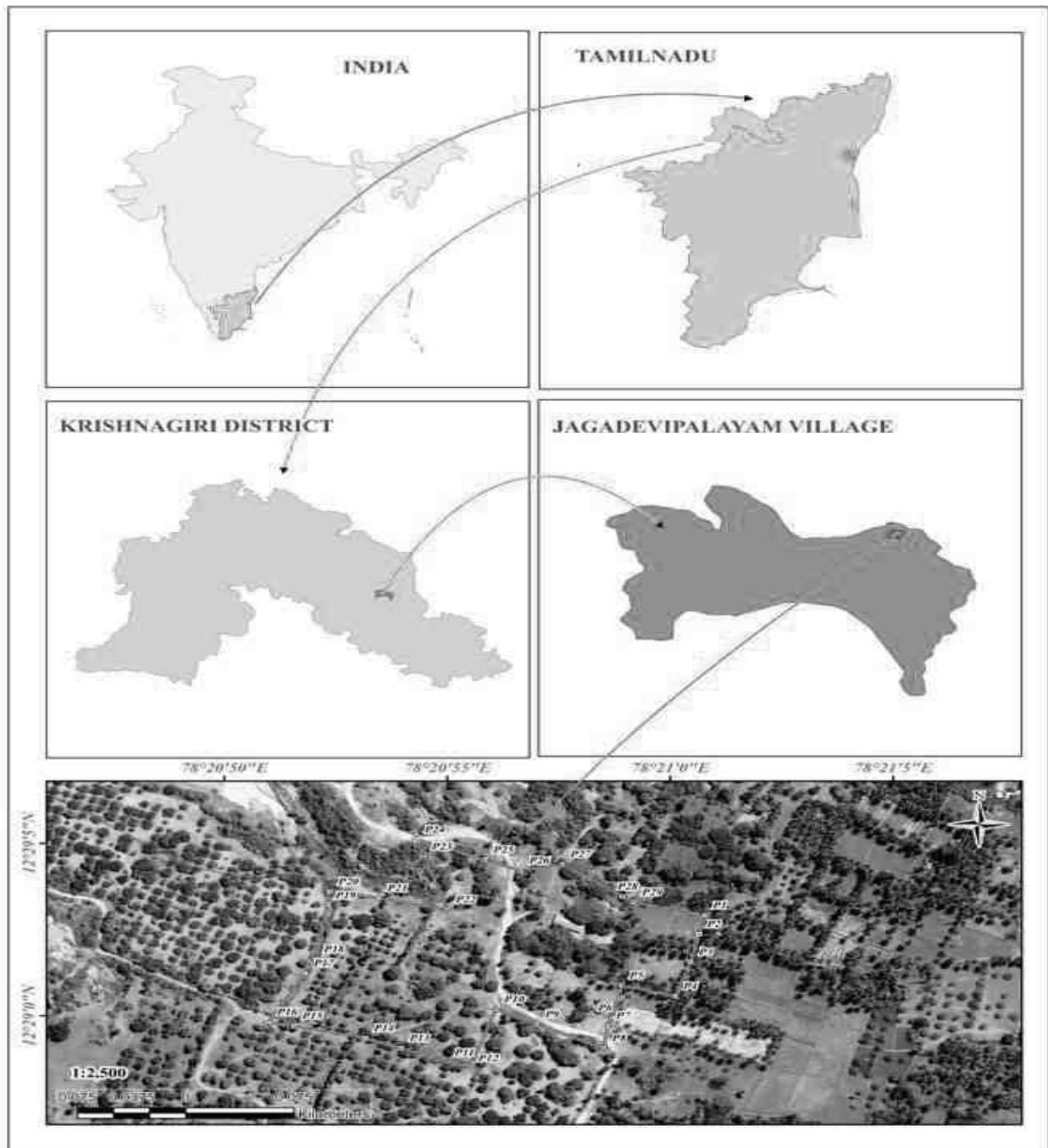


Figure 2.2 Key Map Showing Location of Project Site

Table 2.1 Site Connectivity to the Project Area

Nearest Roadways	NH – 77 Krishnagiri - Uthangarai	1.89km	SW
Nearest Railway Station	Kakangarai	18.9km	E
Nearest Town	Krishnagiri	13.41km	W
Nearest Airport	Salem	83.9km	S
Nearest Port	Chennai	222km	NE
Nearest Village	Gundalakuttai	2.5 km	N
	Bagimanur	0.7km	E
	Jittappanahalli	1.7km	S
	Jagadevipalayam	3.5 km	W

2.3 LEASEHOLD AREA

- ❖ The extent of the proposed project site is 3.38.0Hect which fall in Patta land.
- ❖ The proposed project is site specific. There is no mineral beneficiation or processing proposed inside the project area.
- ❖ There is no forest land involved in the proposed area and is devoid of major vegetation and trees.

2.3.1 Corner Coordinates

The boundary corner coordinates are given in Table 2.2 and the location of 29 boundary corners are shown in Figure 2.3.

Table 2.2 Corner Coordinates of Proposed Project

ID	Latitude	Longitude	ID	Latitude	Longitude
			15	12° 28' 59.69852" N	78° 20' 51.55764" E
			16	12° 28' 59.81765" N	78° 20' 51.00141" E
1	12° 29' 2.90934" N	78° 21' 0.77090" E	17	12° 29' 1.23366" N	78° 20' 51.81507" E
2	12° 29' 2.37182" N	78° 21' 0.63906" E	18	12° 29' 1.63583" N	78° 20' 52.04608" E
3	12° 29' 1.55604" N	78° 21' 0.46464" E	19	12° 29' 3.24111" N	78° 20' 52.30947" E
4	12° 29' 0.56737" N	78° 21' 0.11345" E	20	12° 29' 3.60074" N	78° 20' 52.36845" E
5	12° 29' 0.88441" N	78° 20' 58.90472" E	21	12° 29' 3.41316" N	78° 20' 53.47077" E
6	12° 28' 59.93753" N	78° 20' 58.70067" E	22	12° 29' 3.07913" N	78° 20' 55.00228" E
7	12° 28' 59.70641" N	78° 20' 58.59878" E	23	12° 29' 4.62021" N	78° 20' 54.47415" E
8	12° 28' 59.05597" N	78° 20' 58.50535" E	24	12° 29' 5.11330" N	78° 20' 54.30521" E
9	12° 28' 59.75496" N	78° 20' 57.01119" E	25	12° 29' 4.51862" N	78° 20' 55.84534" E
10	12° 29' 0.18540" N	78° 20' 56.09076" E	26	12° 29' 4.20938" N	78° 20' 56.64625" E
11	12° 28' 58.64241" N	78° 20' 55.56867" E	27	12° 29' 4.39694" N	78° 20' 57.58017" E
12	12° 28' 58.47570" N	78° 20' 55.51228" E	28	12° 29' 3.46078" N	78° 20' 58.93315" E
13	12° 28' 59.05554" N	78° 20' 53.96619" E	29	12° 29' 3.28854" N	78° 20' 59.18214" E
14	12° 28' 59.35231" N	78° 20' 53.17455" E			

2.4 GEOLOGY

The lease area geologically occurs on Biotite Hornblende Gneiss. Also, the lease area geomorphologically occurs Low Dissected Denudational Hills and Valleys.

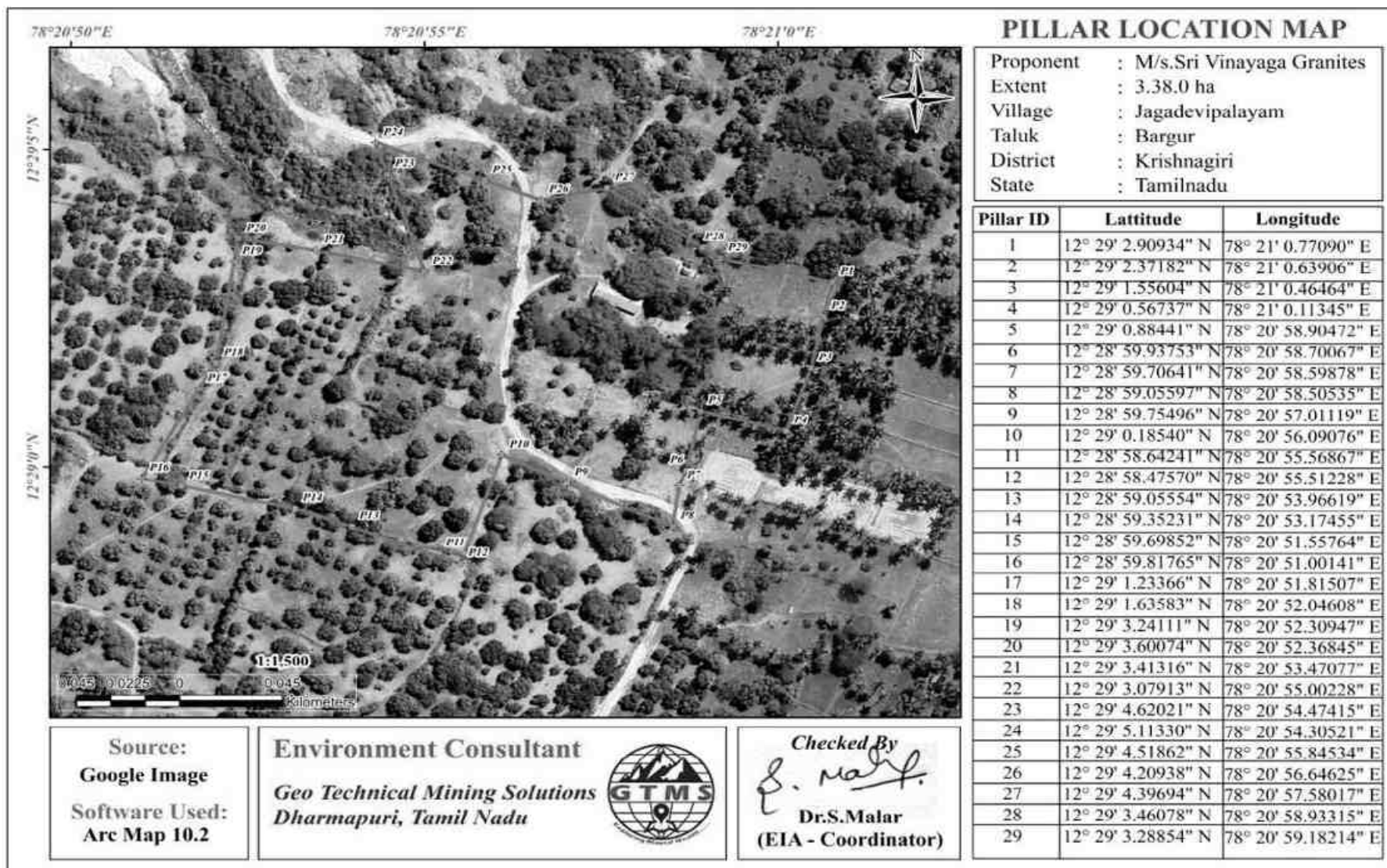


Figure 2.3 Google Earth Image Showing Lease Area with Pillars

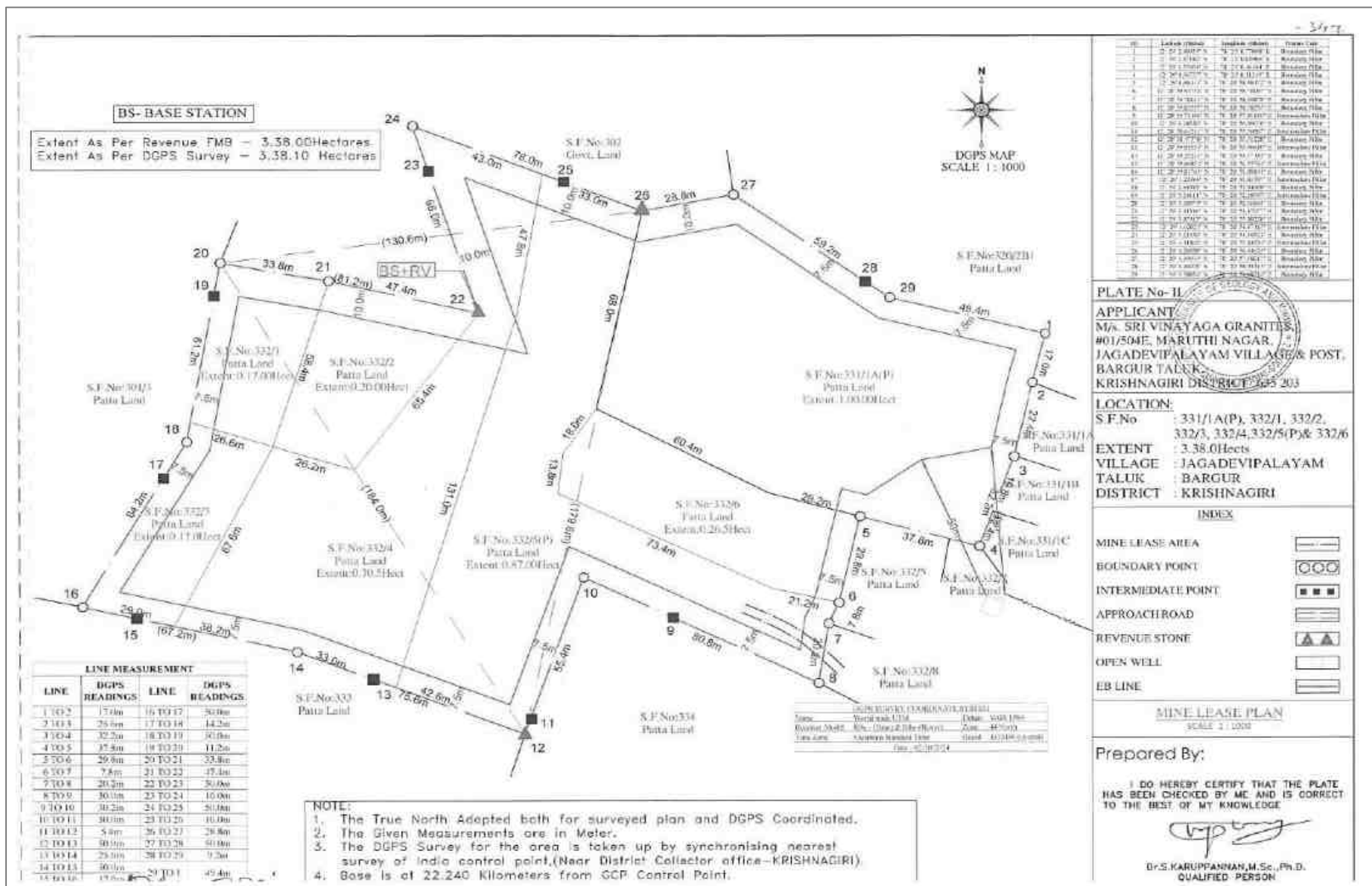


Figure 2.4 Mine Lease Plan

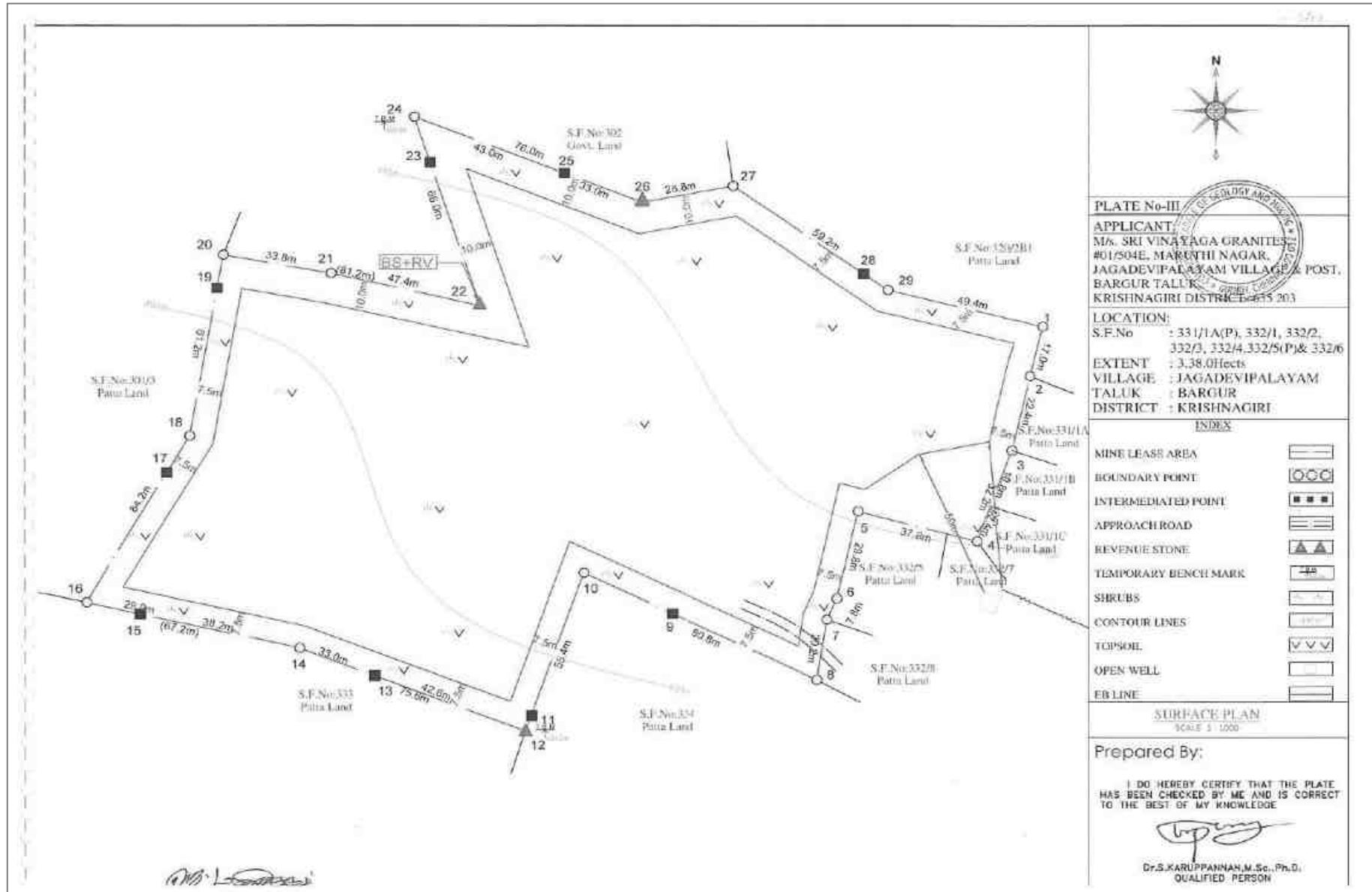


Figure 2.5 Surface Plan & Section

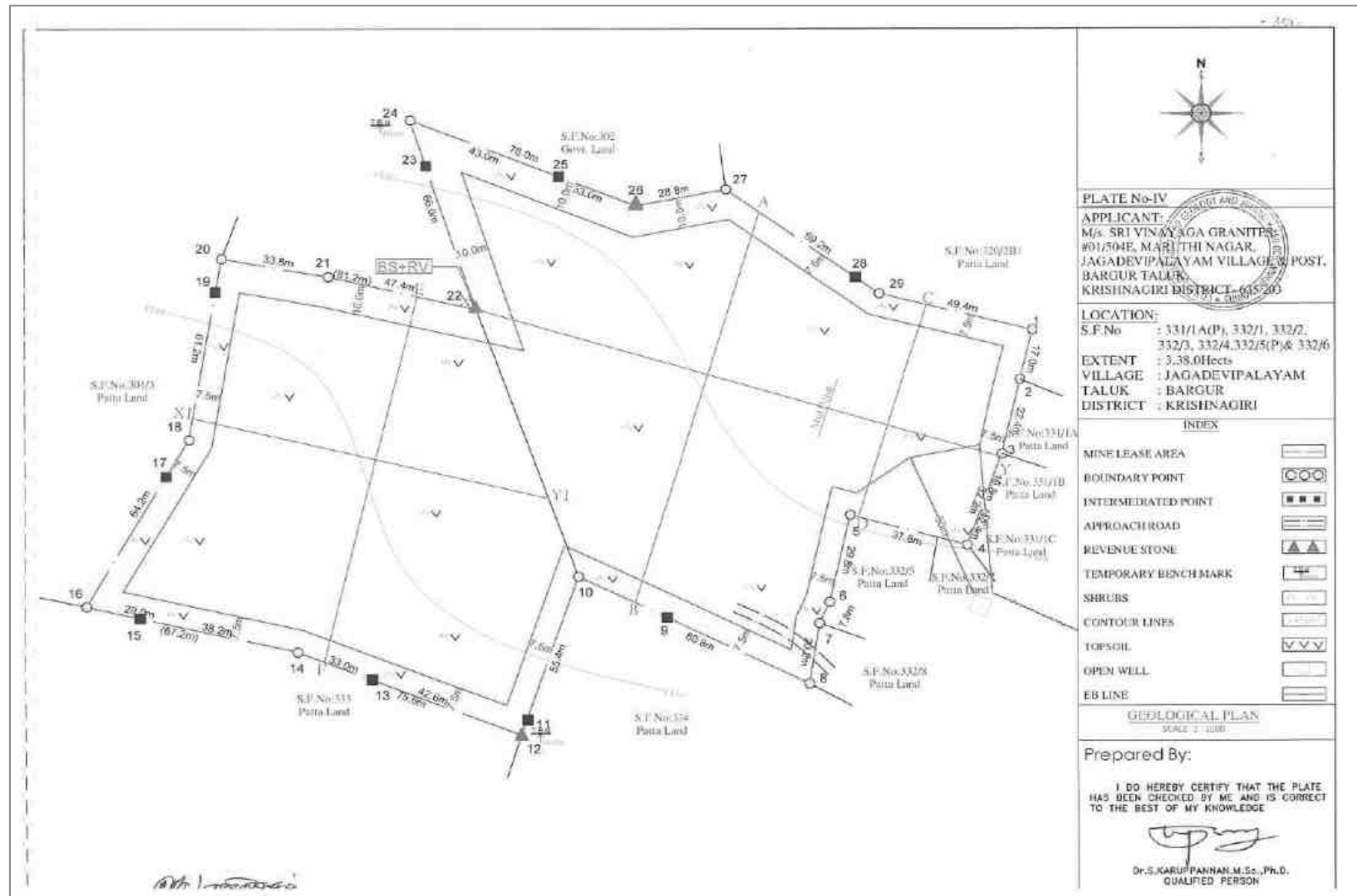


Figure 2.5A Geological Plan & Section

2.5 QUANTITY OF RESERVES

The Resources and Reserves of Grey Granite were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. Based on the availability of geological resources, the mineable reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m and 10m safety distance as per precise area communication letter and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 50m below the ground level considering there is 40% recovery, 60% waste for the proposed project. The plate used for reserve estimation has been attached in approved mining plan results of geological resources and reserves have been shown in Table 2.3.

Table 2.3 Estimated Resources and Reserves of the Project

Resource Type	40% - Recovery in Tons	60%- Waste in Tons
Geological Resource in Tons	16,73,298	25,09,947
Mineable Reserves in Tons	5,13,409	7,70,112
Proposed production for 5 years in Tons	1,77,628	2,66,442

Based on the year wise development and production plan and sections, the year wise production results have been given in Table 2.4, Year-Wise Production plan has been shown in Figure 2.5.

Table 2.4 Year- Wise Production Details

Year	40% - Recovery in Tons	60%- Waste in Tons	Weathered Rock in Tons	Top Soil in Tons
I	38033	57049	55151	26740
II	39440	59160	38289	18564
III	44671	67007	--	--
IV	27753	41629	--	--
V	27731	41597	--	--
Total	177628	266442	93440	45304

Source: Approved Mining Plan & ToR

2.6 MINING METHOD

The quarrying operation is proposed to be carried out by open cast semi- mechanized mining method with the bench height and width of 5m each. It is Eco-friendly quarry operation. No blasting is proposed; diamond wire saw cutting methods is adopted by the lessee. Now adays the splitting within the sheet rock is affected by diamond wire-sawing, which largely reduces the use of explosives in granite mining.

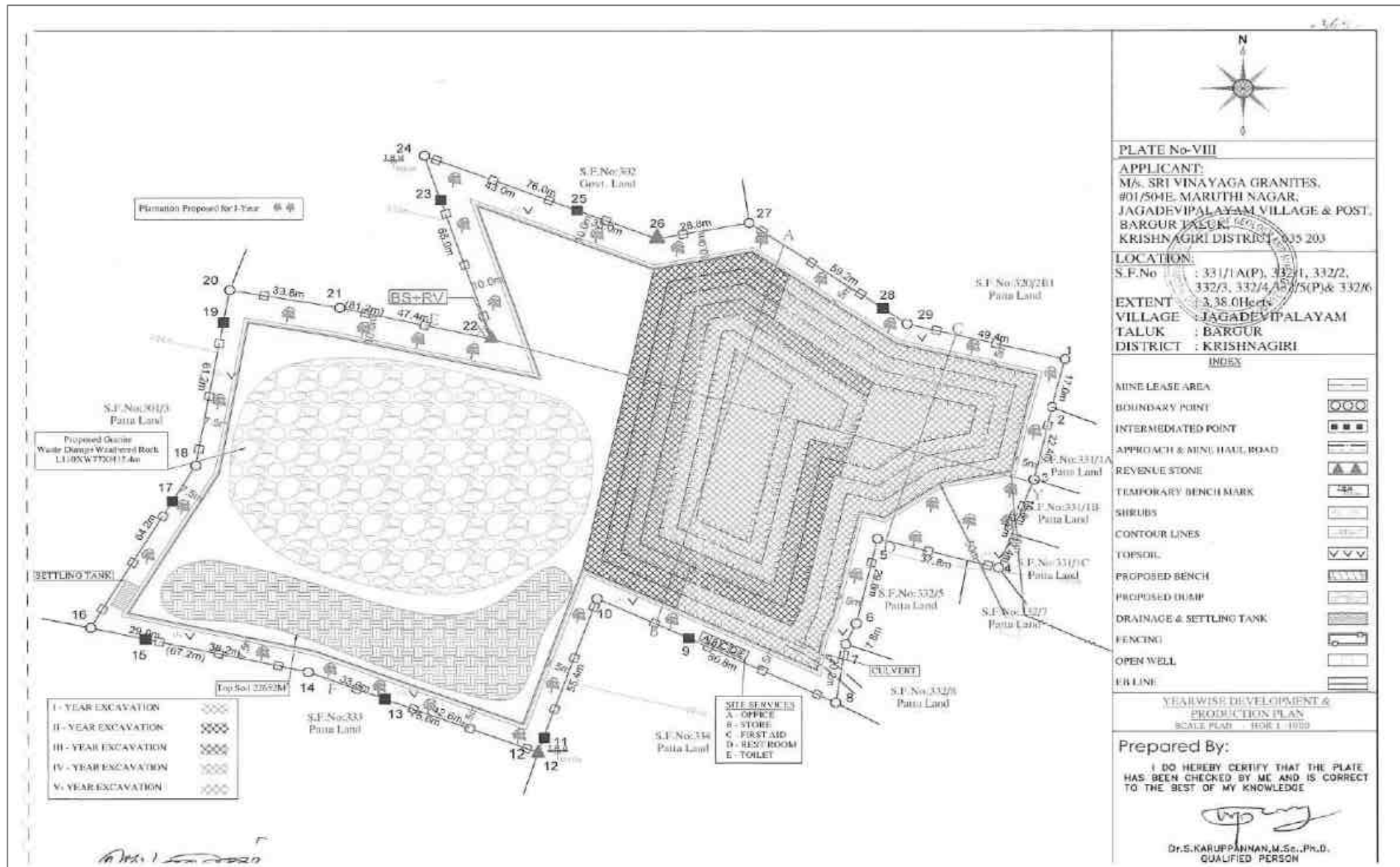


Figure 2.6 Year-Wise Production Plan

2.6.1. Magnitude of Operation

Based on the results of estimated production for the 5 years, details about the size of operation have been provided in Table 2.5.

Table 2.5 Operational Details for Proposed Project

	Grey Granite Recovery @ 40% in Tons
Quantity of Material to be Quarried out in five years	177628
Number of working days/Annum	270
Production of /Day (Ts)	132
No. of Lorry Loads	8

2.6.2 Extent of Mechanization

To achieve the above-mentioned production, various machineries are proposed for the quarrying operation, as given in Table 2.6.

Table 2.6 Machinery Details

Drilling Equipment					
Type	No. of Unit	Dia. of Hole (mm)	Size capacity	Make	Motive Power
Compressor	2	-	-	Atlas Capco	Diesel Drive
Jack Hammer	4	32		Atlas Copco	Compressed air
Loading Equipment					
Excavator	1	-	300	Tata Hitachi	Diesel Drive
Haulage & Transport Equipment					
Tipper	2		20 tons	TATA	Diesel Drive

2.6.3 Progressive Quarry closure plan

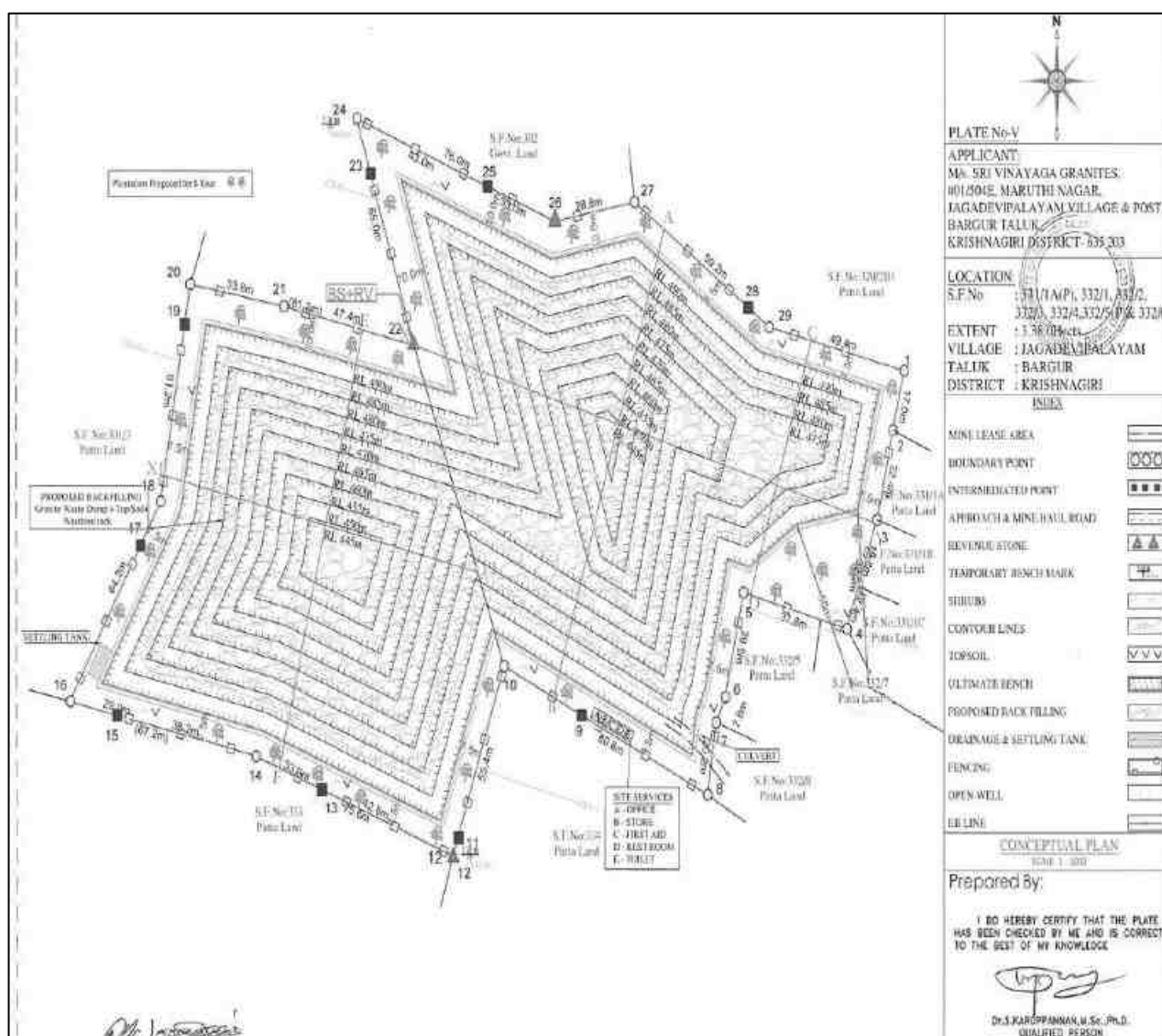
The progressive quarry closure plan of the proposed project showing present, and future land use statistics is provided in Table 2.7. According to data shown in the table, at the end of the quarry life, about 3.38.0ha of land would have been utilized for quarrying, 1.11.27ha of land for waste dump, 0.84.7ha for infrastructures, 0.02.0 ha for roads, 0.05.0ha for green belt development, and the remaining 0.62.89ha would have been left as unutilized area.

Table 2.7 Land use data at present, during scheme of mining, and at the end of mine life

Description	Present Land Use Area (ha)	Land Use Area at the end of mine life (ha)
Area under quarry	Nil	1.11.27
Infrastructure	Nil	0.02.0
Roads	Nil	0.05.0
Green Belt	Nil	0.62.89
Waste Dump	Nil	0.84.7
Unutilized Area	3.38.0	0.63.14
Total	3.38.0	3.38.0

2.6.4 Conceptual Mining Plan

On the basis of conceptual plan and its sections, as shown in Figures 2.6, the ultimate pit dimension of the quarry is 107m in length, 119m in width, and 50m in depth.



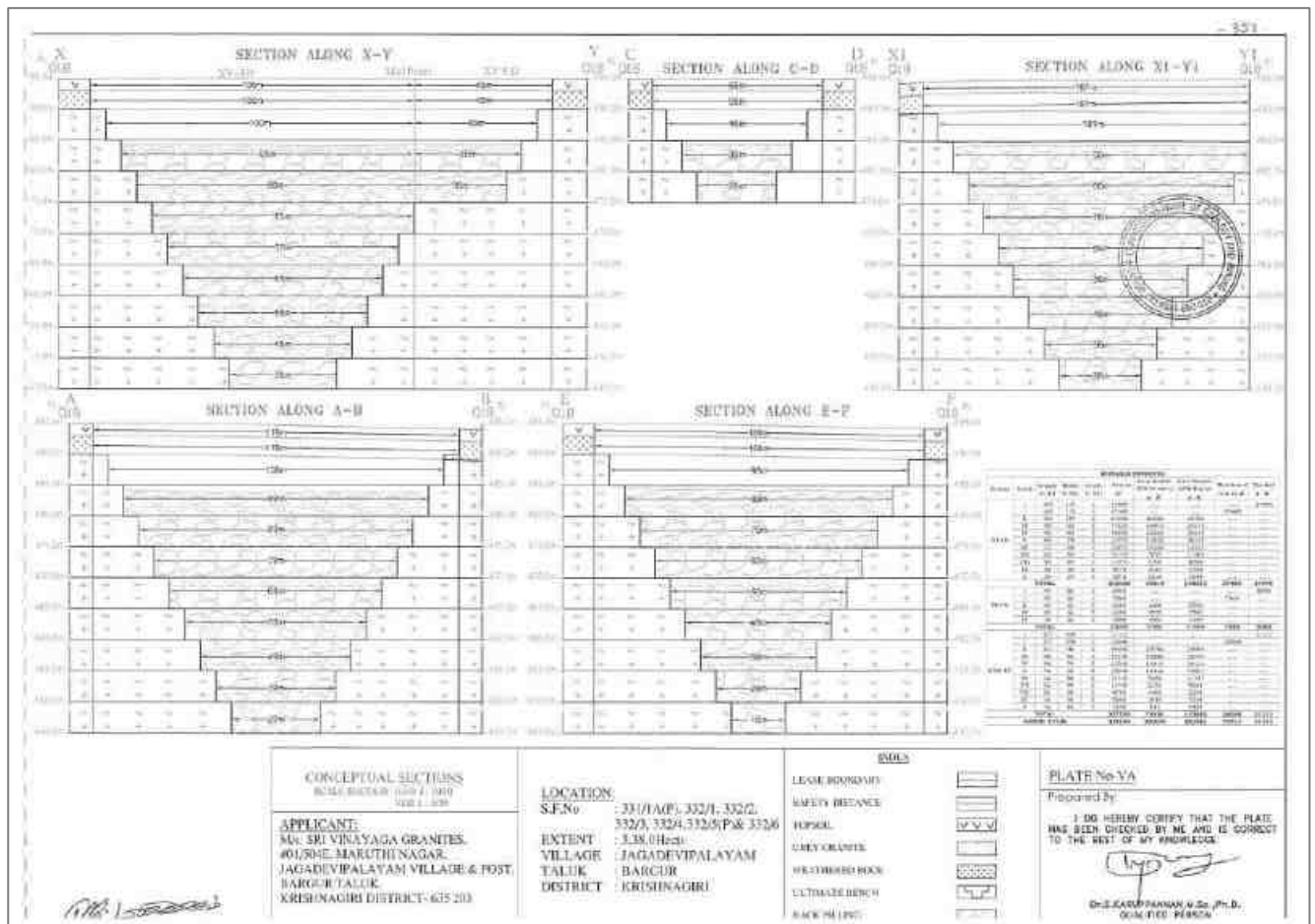


Figure 2.7 Conceptual Plan & Sections

2.6.5 Progressive Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, mine closure plan is not proposed for now. Based on the progressive mine closure plan for the scheme period, the mine closure cost is given in Table 2.8.

Table 2.8 Progressive Mine Closure Budget

Activity	Capital Cost
676 plants inside the lease area	1,35,200
1014 plants outside the lease area	3,04,200
Wire Fencing	6,76,000
Garland Drain	33,800
Total	11,49,200

Source: Environment Management Plan

2.6.6 Infrastructures

Infrastructures like mines office, temporary rest shelters for workers, latrine and urinal facilities have been proposed as per the mine rule and will be established after the grant of quarry lease. There is no proposal for the mineral processing or ore beneficiation plants in this project.

2.6.6.1 Other Infrastructure Requirement

No workshops are proposed inside the project area. Hence, there will not be any process effluent generation from the proposed lease area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. As there is no toxic effluent expected to generate in the form of solid, liquid or gaseous form, there is no requirement of waste treatment plant.

2.6.7 Project Requirement

The project requires water, power, fuel, and other infrastructures as discussed below:

2.6.7.1 Water Requirement

Detail of water requirement in 3.2KLD is given in Table 2.9.

Table 2.9 Water Requirement for the Project

Purpose	Quantity Required (KLD)	Source
Domestic & Drinking	0.50KLD	Existing bore wells nearby the lease area
Utilized Water	0.7KLD	Existing bore wells nearby the lease area
Dust Suppression	1.0 KLD	Existing bore wells and approved water vendors
Green Belt	1.5 KLD	Existing bore wells nearby the lease area
Total	3.2KLD	

Source: Prefeasibility Report.

2.6.7.2 Energy Requirement

The electricity from high tension power supply is utilized for diamond wire saw cutting machine, disc double blade cutting machine, air compressor, derrick crane and pumps for de-watering and is also used for mines office and lighting purpose

In addition to electricity, around **8,04,366** litres of HSD are used for total diesel consumption for Excavator, Compressor and Tipper. It will be brought to the site from nearby diesel pumps. Details on the estimation of fuel requirements are provided in Table 2.10.

Table 2.10 Fuel Requirement Details

Fuel Requirement for Excavator				
Details	Grey Granite Recovery @40% (1,77,628 Tons)	Granite Waste @60% (2,66,442 Ts)	Weathered Rock (93,440 Ts)	Total Diesel (litter)
Average Rate of Fuel Consumption (l/hr)	16	16	16	---
Working Capacity (Tons/hr)	55	55	55	---
Time Required (hours)	3,230	4,844	1,700	---

Total Diesel Consumption for 5 years (litter)	51,674	77,510	27,182	1,56,366
Fuel Requirement for Tipper				
Average Rate of Fuel Consumption/Trip (litter)	20	20	20	---
Carrying Capacity in Ts	16.5	16.5	16.5	---
Number of Trips / days	8	12	10	---
Number of Trips / 5 years	10,800	16,200	5,400	---
Total Diesel Consumption for 5 years (litter)	2,16,000	3,24,000	1,08,000	6,48,000
Total Diesel Consumption by Excavator, Compressor and Tipper				8,04,366

2.6.7.3 Employment Requirement

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community. Number of employees required for this project have been provided in Table 2.11.

Table 2.11 Employment Potential for the proposed project

S. No.	Category	Role	Nos.
1	Highly Skilled	Quarry Manager	1
		Mines Forman	1
		Mechanical Engineer	1
		Accountant cum & admin	1
2	Skilled	Earth moving operator	1
		Line drilling Operation	1
		Wire saw Operator	2
		Driver	1
3	Semi-Skilled	Helpers/Greasers	1
4	Unskilled	Musdoor / labours	8
		Cutter	4
Total			22

Source: Approved Mining Plan

2.6.7.4 Infrastructure Requirement

Infrastructures like mines office, temporary rest shelters for workers, latrine and urinal facilities have been proposed as per the mine rule and will be established after the grant of quarry lease. There is no proposal for the mineral processing or ore beneficiation plants in this project. Hence, there will not be any process effluent generation from the proposed lease area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. As there is no toxic effluent expected to generate in the form of solid, liquid or gaseous form, there is no requirement of waste treatment plant.

2.6.7.5 Capital Requirement

The summary of capital required for the project is provided in Table 2.12.

Table 2.12 Capital Requirement Details

S. No.	Description	Cost (Rs.)
1	Fixed Asset Cost	19,10,000/-
2	Machinery Cost	25,00,000/-
3	Expenditure Cost	16,40,000/-
Total Project Cost		60,50,000/-

Source: Mining plan report

2.7 PROJECT IMPLEMENTATION SCHEDULE

The commercial operation will commence after the grant of Environmental Clearance. CTO and CTE will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the environmental clearance will be compiled before the start of mining operation. Expected time schedule for the quarrying operation is given Table 2.13.

Table 2.13 Expected Time Schedule

S. No.	Particulars	Time Schedule (in months)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Establish						
3	Consent to operate						Project establishment period.
							Production starting period.
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

Source: Anticipated based on Timelines framed in EIA Notification & CPCB Guidelines

CHAPTER III

DESCRIPTION OF THE ENVIRONMENT

3.0 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as land, water, air, noise, biological and socio-economic status of the study area. The environmental consultant for both the clusters are the same. The monitoring of ambient air quality, noise levels, water quality and soil analysis for the nearby cluster were done in winter from **October through December 2023 with CPCB** through the third party NABL accredited **Excellence Laboratory (P) Limited**.

The baseline monitoring done for 5km radius (TERMS OF REFERENCE [TOR] FOR EIA REPORT FOR ACTIVITIES/ PROJECTS REQUIRING ENVIRONMENTAL CLEARANCE) Prepared by Administrative Staff College of India, Bellavista, Khairatabad, AUGUST 2009, Page No.86) not varied as much. Therefore, we utilize the baseline data for this cluster which is collected for the adjacent cluster in the year between **October through December 2023** as per the Office Memorandum F. No. IA3-22/10/2022-IA.III [E 177258] issued by Government of India Ministry of Environment, Forest and Climate Change (IA Division) dated 8th June 2022. We also collected the baseline data in maximum locations i.e, in the core and buffer zone for the present cluster in the 29.05.2025 (**one Day**), for cross verification. Field monitoring studies to evaluate the base line status of the project site were carried out with CPCB guidelines. Environmental baseline data were collected by an NABL accredited and MoEF notified **Greenlink Analytical and Research Laboratory (India) Private Ltd** for the environmental attributes including soil, water, air, and noise and by FAEs for ecology and biodiversity, traffic, and socio-economy.

Study Area

The study area has been divided into two zones: core zone and buffer zone. Core zone is considered as lease area and buffer zone as 5km radius from the periphery of the cluster, except for ecological study, which considers 10km as buffer zone. Both core and buffer zones are taken as the study area. The data was collected from the study area to understand the existing environment conditions of the above-mentioned environmental components. Sampling methodologies for the various environmental parameters, including frequency of sampling, method of sample analysis, etc., are briefly given in Table 3.1.

Table 3.1 Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land Use/ Land Cover	Land-use Pattern within 5 km radius of the study area	Once during the study period	Study Area	Satellite Imagery & Primary Survey
*Soil	Physico-Chemical characteristics	Once during the study period	8 (1 nearby core & 7 in buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	10 (3 surface water & 7 ground water)	IS 10500 & CPCB Standards
Meteorology	Wind speed Wind direction Temperature Cloud cover Dry bulb temperature Rainfall	1 hourly continuous mechanical/ auto matic weather station	1	Site specific primary data & secondary data from IMD Station
*Ambient Air Quality	PM ₁₀ , PM _{2.5} SO ₂ , NO _x , and	24 hours, twice a week	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient noise	Hourly observation for 24 hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing flora and fauna	Through field visit during the study period	Study Area Core and Buffer zones (10km radius) of periphery of mine lease area.	Primary Survey by Quadrate & Transect Study Secondary Data Forest Working Plan
Socio Economic Aspects	Socio-economic characteristics, population statistics and existing infrastructure in the study area	Site visit & Census Handbook, 2011	Study area (5km radius)	Primary Survey, census handbook & need based assessments.

**All monitoring and testing have been carried out as per the guidelines of CPCB and MoEF & CC.*

3.1 LAND ENVIRONMENT

3.1.1 Geology and Geomorphology

Geology:

The proposed quarry lease area is falling under Biotite hornblende gneiss as shown in Figure 3.1. It is a metamorphic rock characterized by its banded appearance and the presence of biotite and hornblende minerals. It's a type of gneiss, meaning it has a layered or foliated structure formed by intense heat and pressure. The biotite and hornblende give the rock its dark color and contribute to its distinctive texture.

Geomorphology:

The geomorphic unit's pediment and pediplain complex dominate the study area as shown in Figure 3.2. Pediments are gently sloping bedrock surfaces typically found at the base of mountains that are formed by lateral erosion and sheet flooding. Pediplains are broad, flat plains formed by the joining of multiple pediments resulting in a vast featureless landscape. This process known as pediplanation occurs primarily in arid and semi-arid regions.

3.1.2 Land Use/ Land Cover

Land Use and Land Cover (LU/LC) map, as shown In Figure 3.3 was prepared using Sentinel II image for the study area of 5km radius. Totally, 7 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 167.32ha of which lease area of 3.38.0ha contributes only about 0.038%. This small percentage of mining activities shall not have any significant impact on the land environment.

Table 3.2 LULC Statistics of the Study Area

S. No	Classification	Extent (ha)	Area (%)
1	Water	63.8	0.73
2	Trees	402.31	4.62
3	Crops	3046.24	35.00
4	Built area	2993.96	34.40
5	Mining/Industrial area	167.32	1.92
6	Bare Groung	5.15	0.06
7	Range land	2025.66	23.27
Total		8704.44	100.0

Source: Sentinel II Satellite Imagery

3.1.3 Topography

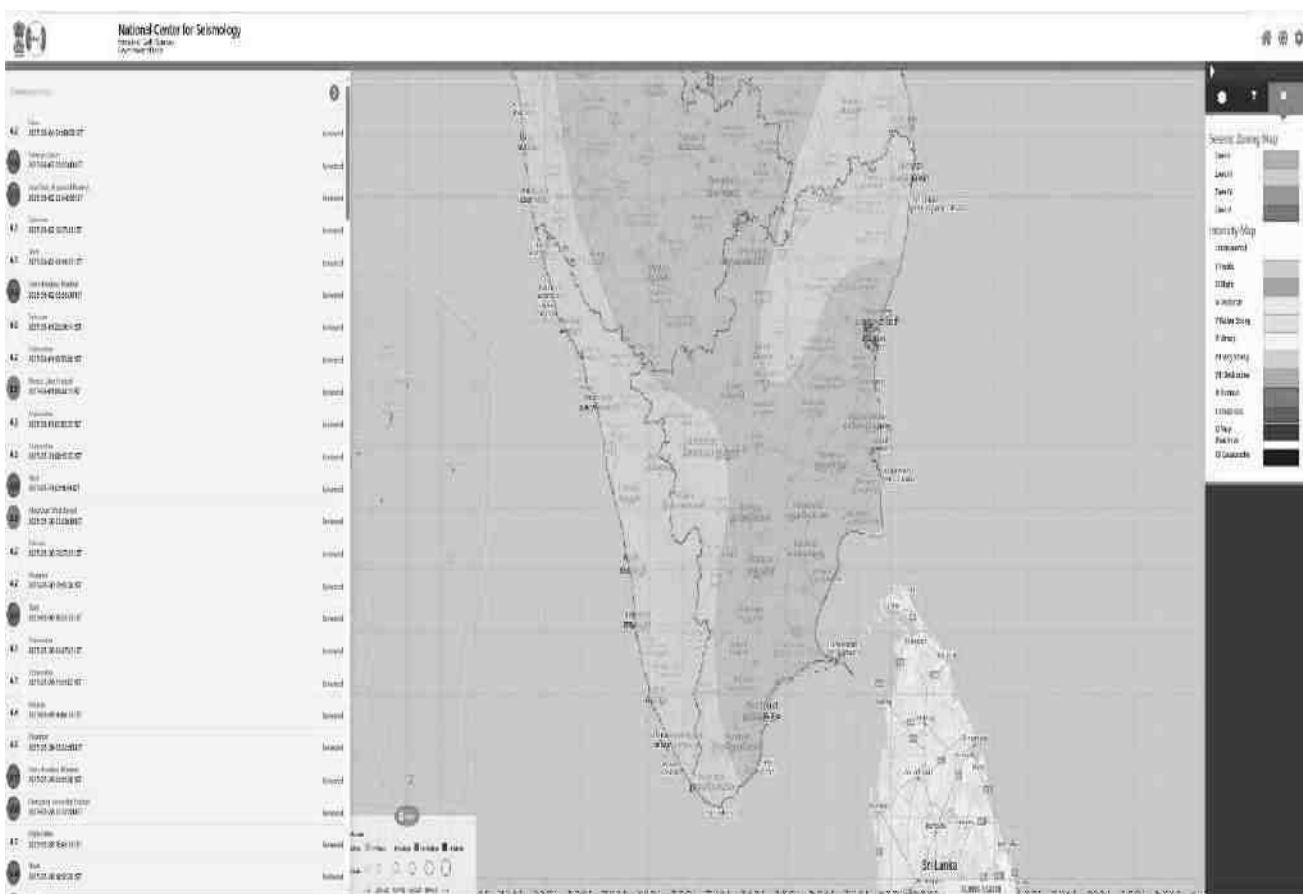
The lease area exhibits a flat terrain and maximum altitude of about 495m AMSL. The slope is towards southern side.

3.1.4 Drainage Pattern

Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin over time that reveals characteristics of the kind of rocks and geological structures in a landscape. The proposed area shows dendritic drainage pattern indicating uniform lithology beneath the surface, as shown in Figure 3.6.

3.1.5 Seismic Sensitivity

The proposed lease area is situated in a Seismic Zone II, as defined by National Centre for Seismology ([Official Website of National Centre of Seismology](#)). The Zone II is defined as the region where only minor damage is expected from seismic events. In this respect, the proposed lease area is located in a low earthquake hazard area.



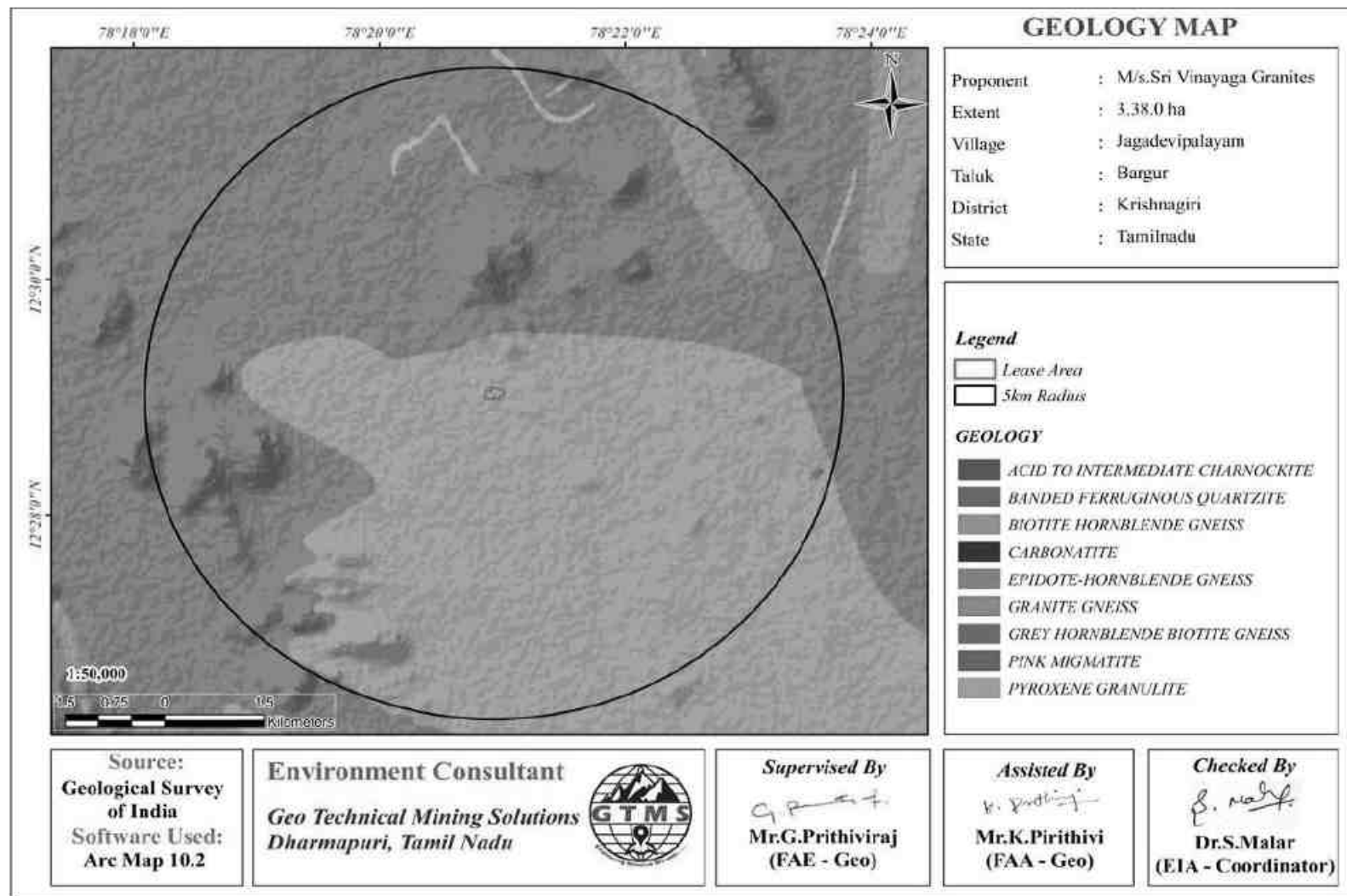


Figure 3.1 Geology Map of 5 km Radius from the Proposed Project Site

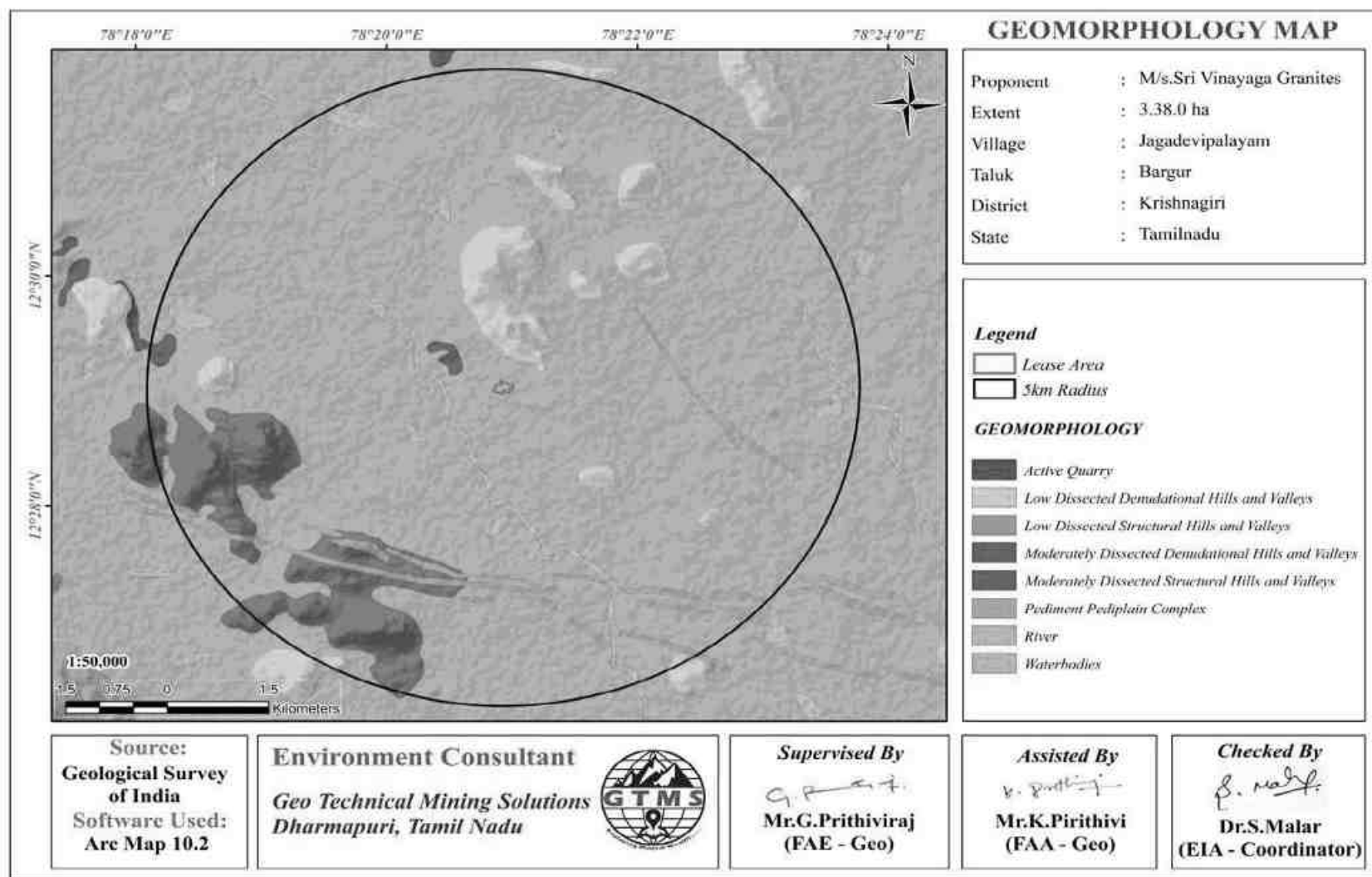


Figure 3.2 Geomorphology Map of 5km Radius from the Proposed Project Site

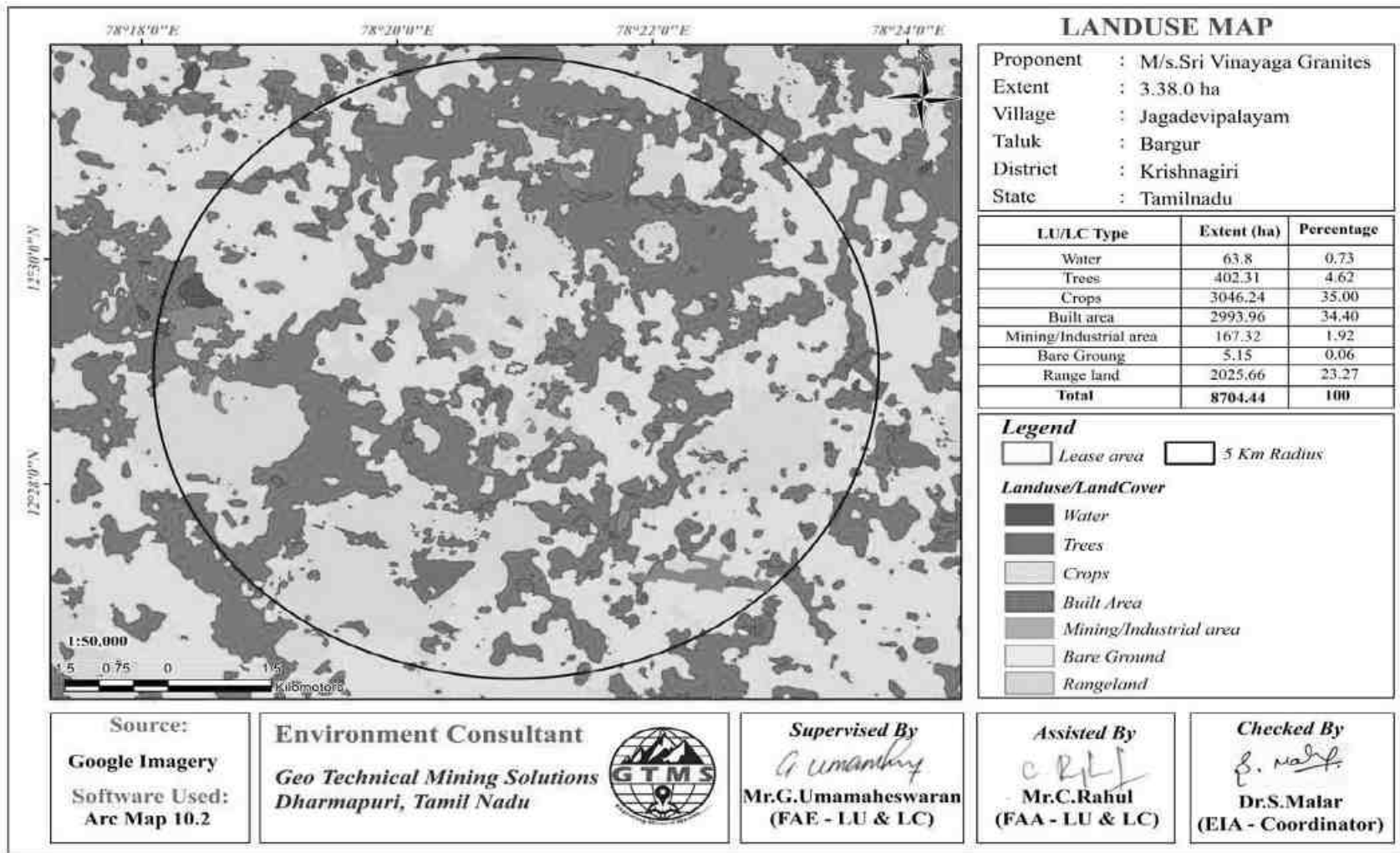


Figure 3.3 LULC Map of 5 km Radius from the Proposed Project Site

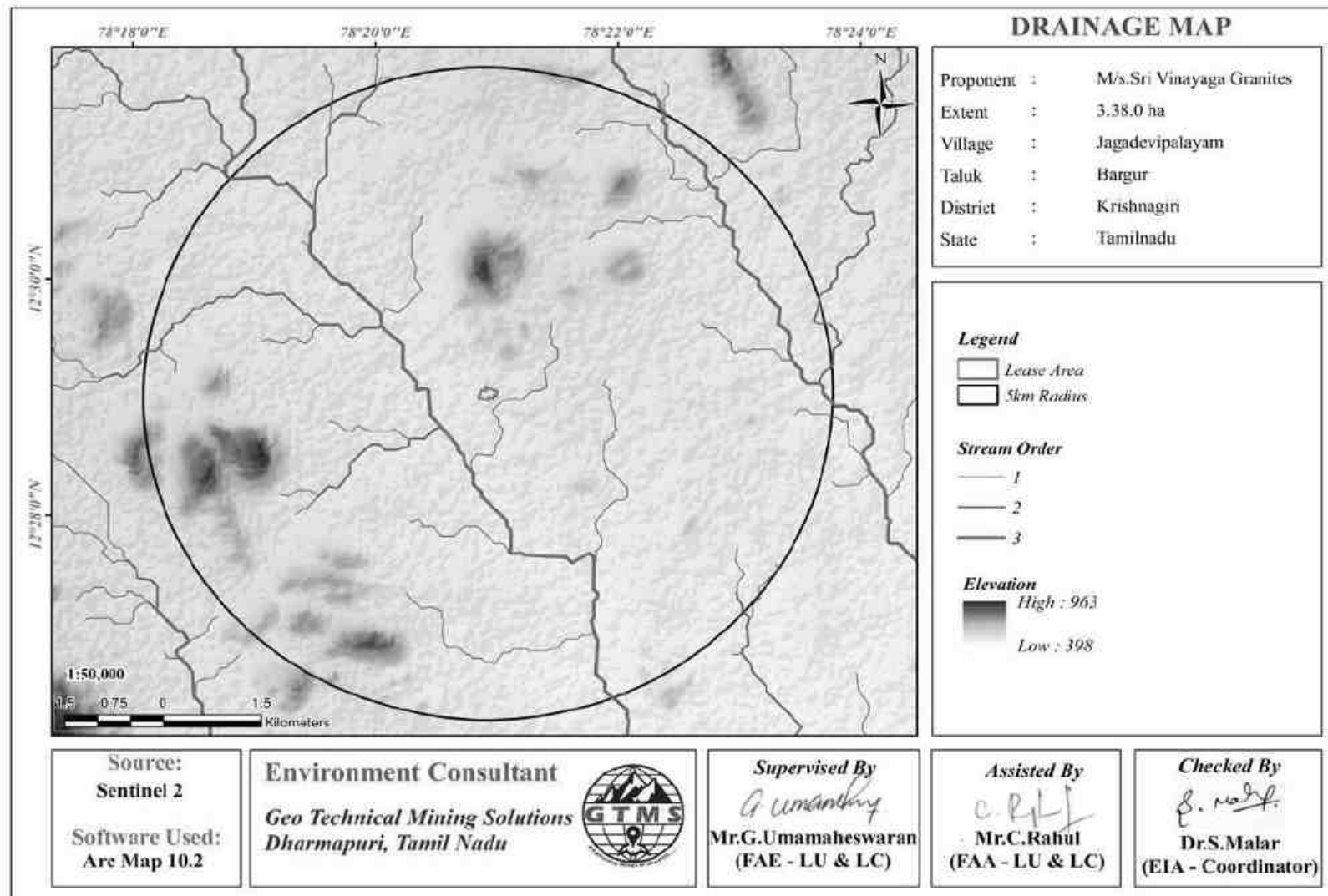


Figure 3.4 Drainage Map of 5 km Radius from the Proposed Project Site Showing Dendritic Pattern

3.2 SOIL ENVIRONMENT

The soil samples were collected from 8 locations of the study area to determine the baseline soil characteristics of the soil. The locations were selected for soil sampling based on soil types, Remove the surface litter at the sampling spot. Drive the auger to a plough depth of 90cm and draw the soil sample filled collect the sample in a clean cloth or polythene bag. Label the bag with information like name of the farmer, location of the farm, survey number, previous crop grown, present crop, crop to be grown in the next season, date of collection, name of the sampler etc. The locations of the sampling sites are shown in Table 3.3 and Figure 3.5. The samples thus collected were analyzed for physical and chemical characteristics. The physical and chemical characteristic results of soil samples are provided in Table 3.3.

Table 3.3 Soil Sampling Locations

Sampling ID	Location	Distance	Direction	Coordinates
S01	Sadhana Core	0.05	W	12°28'43.32"N, 78°21'42.18"E
S02	Pranitha Core	---	---	12°28'49.38"N, 78°21'42.90"E
S03	Bagimanoor	0.49	NNW	12°29'1.68"N, 78°21'30.90"E
S04	Battlapalli	3.44	SE	12°27'48.06"N, 78°23'28.20"E
S05	Mallapadi	3.92	NNE	12°30'50.40"N, 78°22'26.16"E
S06	Vedarkottai	3.28	W	12°28'31.38"N, 78°19'53.82"E
S07	Thogarapalli	4.74	SSW	12°26'18.72"N, 78°20'47.82"E
S08	Nearby Core	0.03	S	12°28'58.33"N 78°20'57.75"E

Source: On-site monitoring/sampling by Excellence Laboratory (P) Limited and Green link analytical & Research LAB in association with GTMS.

A. Physical Characteristics of soil

Physical characteristics of soils were determined through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity, texture are presented in Table 3.4.

- **Texture:** In lease area the soil is red calcareous. They are mostly sandy to loamy and characterised by the hard and compact layer of lime. In other places the soil found is brown in colour.
- **Structure:** The grain size is greater than 2mm in the lease area and in other places where the samples collected ranges from 0.002mm to 2mm.
- **Porosity:** The porosity of the soils is significantly impacted by the degree of weathering and fracture development in the underlying bedrock. The 500m radius cluster consists of Charnockite formations affect the porosity found in this study.
- **Density:** The soil samples collected within 5km radius are generally characterized by higher

bulk densities typically ranging from <0.1 to $<0.1\text{g/cm}^3$. This is due to the presence of red sandy and in some areas with red loamy soil. The dominant soil types include red calcareous and red non-calcareous. Sandy soils have larger pore spaces between them compared to finer-grained soils like silt and clay.

- **Consistence:** Coarse (sandy) soils may require slightly higher moisture content while fine (clay) soils may require slightly lower. A soil moisture content is very low generally considered optimal for plant growth in medium-textured soils (like loams). This range falls within the 25-50% available water zone where plants are at risk of stress if a water deficit is prolonged.

B. Chemical Characteristics of Soil

- Chemical characteristics of soils through selected parameters viz. pH, soluble cations and anions, exchangeable cations, organic content and fertility status in the form of NPK values and organic matter are presented in Table 3.5. 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. Variation in the pH of the soil in the study area is presented in Table 3.5 and it is found to be from slightly acidic to neutral (6.2 – 7.8) in reaction. Electrical conductivity a measure of soluble salts in the soil is in the range of 45- 560 $\mu\text{S/cm}$ as shown in Table 3.5.
- The important water-soluble cations in the soil are nitrogen, phosphorus, potassium, calcium and magnesium whose concentration levels ranged from core zone- N- 212.0 kg^{-1}/ha , P-7.89. mg/kg^{-1} , K-740.0 kg^{-1}/ha & buffer zone- N- 0.8% to 1.4%, P- 0.03% to 0.09%, K- 0.018% to 0.055%, Cu- 3.3 mg/Kg to 13.0 mg/Kg & M- 26 mg/kg^{-1} to 120 mg kg^{-1} respectively.
- The soil samples in the study area show loamy textures varying between Silt Loam and sandy loam. pH of the soil varies from 6.8 – 7.6 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 45– 560 $\mu\text{S/cm}$. The physical and chemical properties of soil is shown in the Table 3.4.

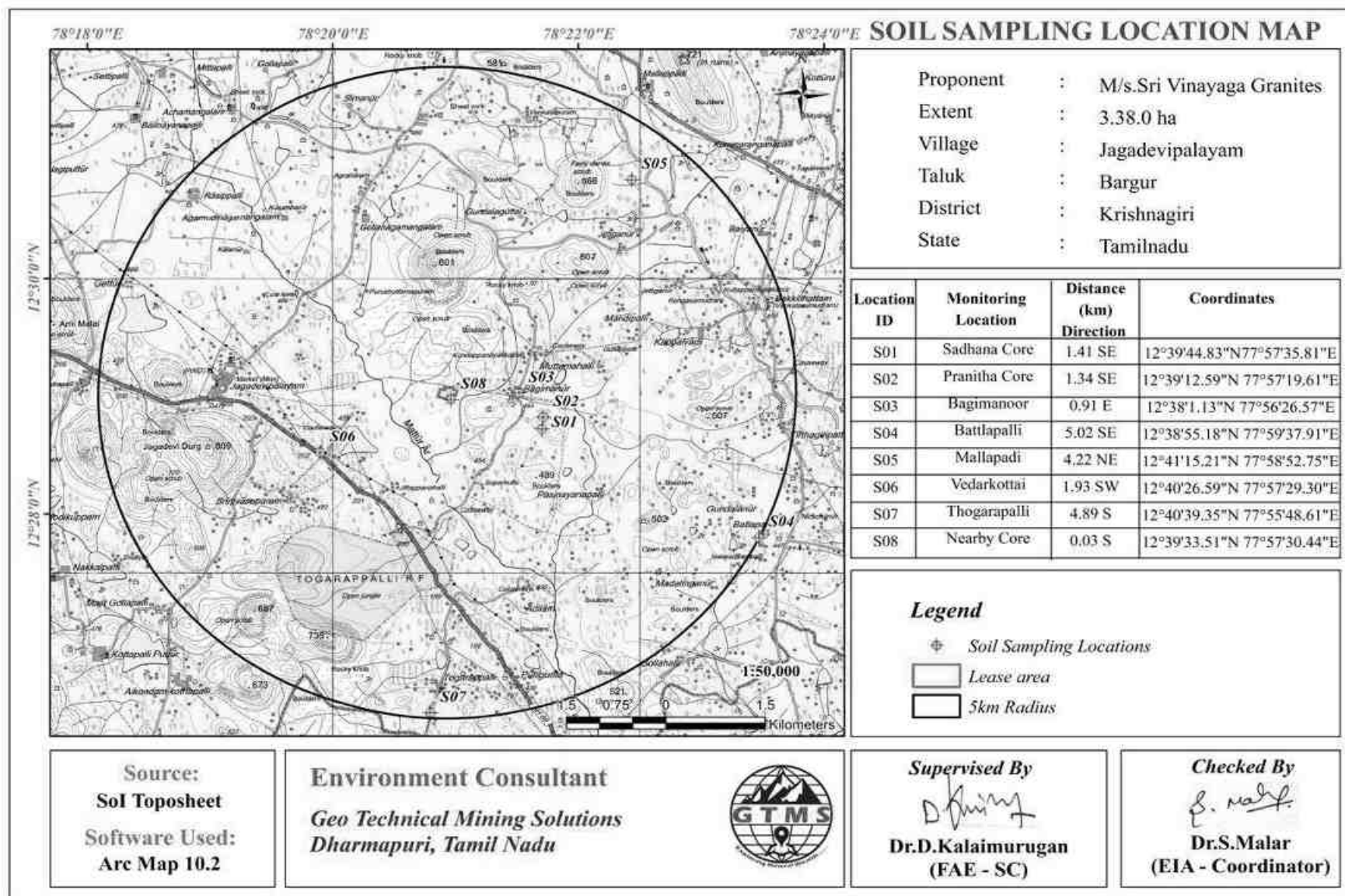


Figure 3.5 Toposheet Showing Soil Sampling Locations within 5 km Radius around the Proposed Project Site

Table 3.4 Soil Quality of the Study Area

S. No	Name of the Test	Units	Minimum	Maximum	Average
1	Arsenic	mg/Kg	<0.1	<0.1	<0.1
2	Cadmium (as Cd)	mg/Kg	<1.0	<1.0	<1.0
3	Cation Exchange Capacity	meq%	<1.0	0.27	0.15
4	Chromium (as Cr)	mg/Kg	<2.0	42	16.67
5	Copper (as Cu)	mg/Kg	3.3	13	7.37
6	Lead (as Pb)	mg/Kg	<1.0	<1.0	<1.0
7	Manganese (as Mn)	mg/Kg	26	120	76.5
8	Nickel (as Ni)	mg/Kg	6.4	16	<1.0
9	Nitrogen (as N)	%	0.8	1.4	1.15
10	Organic Matter @ 155°C	%	2.4	9.4	5.68
11	pH value @ 25°C	---	6.2	7.8	6.97
12	Phosphate (as P)	%	0.03	0.09	0.065
13	Potassium (as K)	%	0.018	0.055	0.03
14	Sodium (as Na)	---	0.006	0.024	0.01
15	Electrical Conductivity@25°	µS/Cm	45	560	211.5
16	Water Content @110°C	%	0.2	5.9	3.00
17	Zinc (as Zn)	mg/Kg	20	100	48.00
18	Bulk density	g/cm ³	<0.1	<0.1	<0.1
19	Texture*	---	Sandy Clay Loam		
20	Sand	%	10.12	65.4	46.89
21	Clay	%	6.2	45.2	29.87
22	Silt	%	8.2	49.8	23.25

S8- Core Zone			
S. No	Name of the Test	Units	Result
1	pH value @ 25°C	---	7.11
2	Electrical Conductivity@25°	µS/cm	240.0
3	Total Organic Carbon	%	0.88
4	Available Nitrogen	Kg/ha	212.0
5	Available Potassium	Kg/ha	740.0
6	Available Phosphorous	mg/Kg	7.89
7	Available Calcium	mg/Kg	628.0
8	Available Magnesium	mg/Kg	296.0

9	Moisture	%	12.41
10	Organic Matter	%	1.28
11	Chloride	mg/100g	101.5

Source: On-site monitoring/sampling by Excellence Laboratory (P) Limited and Green link analytical & Research LAB in association with GTMS.

The soil sample result was compared to previous report on the month **Oct- 2023 to Dec- 2023** in N, P, K and EC, Density was slightly increased in soil sample for **27 May 2025**, study period because of does change based on rain season, soil test results can vary significantly between seasons. Factors like rainfall, temperature, and plant uptake influence nutrient levels and pH, making it crucial to consider seasonal variations when interpreting soil tests.

3.3 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the baseline quality of surface and ground water.

Table 3.5 Water Sampling Locations

Sampling ID	Location	Distance (km)	Direction	Coordinates
SW1	Mattur River	2.16	SSW	12°27'37.76"N, 78°21'17.14"E
SW2	Bargur River	3.36	E	12°29'7.16"N, 78°23'36.46"E
SW3	Kumaranganapalli Lake	4.42	NE	12°30'13.48"N, 78°23'45.11"E
BW1	Vedarkottai	3.50	W	12°28'27.41"N, 78°19'47.16"E
BW2	Nearby Core	0.32	S	12°28'33.84"N, 78°21'39.12"E
OW1	Verupanakuppam	4.80	NW	12°29'51.58"N, 78°19'15.87"E
OW2	Venkatapuram	4.52	N	12°31'15.93"N, 78°21'26.56"E
OW3	Thogarapalli	4.01	SSW	12°26'41.54"N, 78°20'54.90"E
Green link analytical & Research LAB				
BW1	Nearby Core	0.21	NE	12°29'6.03"N 78°21'6.89"E
OW1	Nearby Core	0.26	NE	12°29'5.99"N 78°21'8.89"E

Source: Sampling Results by Excellence Laboratory (P) Limited, and Green link analytical & Research LAB in Association with GTMS.

3.3.1 Ground Water Quality Result

3.3.1.1 Physical Parameter of ground water:

The basic physical parameters of water include

Colour:

- Value observed in Project Site (True/Apparent Color): 1 Hazen unit.
- Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as “Standards” from herein).

Odour & Taste:

- The water is odour less. The taste of the water is slightly salty which is due to the presence of

hardness in water which is attributed to the presence of calcium and magnesium in the water. As per the standards the odour and taste should be agreeable.

pH:

- Value observed in the Project Site: Min. 7.1 & Max. 7.8 mg/L.
- Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is neutral in nature.

Turbidity:

- Value observed in the Project Site: less than 1.
- Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplankton and other sediments.

Total Dissolved Solids:

- Value observed in the Project Site: Min. 642 & Max. 1144 mg/L.
- Acceptable and permissible limits: 500mg/L and 2000 mg/L respectively.
- TDS is the presence of inorganic salts and small amounts of organic matter present in the water.

3.3.1.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

- Value observed in Min. 110 & Max.175 mg/L.
- Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.
- Calcium is an essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

- Value observed in Min. 5.8 & Max. 49 mg/L.
- Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.
- The value of Magnesium in the project site is below in acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

Chloride

- Value observed in Min. 95 & Max. 202 mg/L.
- Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.
- The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as CaCO₃:

- Value observed in Avg. 272 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides, which will impart soda taste to the water. The value of the total alkalinity is within acceptable and permissible limits in the project site.

Hardness:

- Value observed in Min. 326 & Max. 533 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- The value of Hardness in the project site is higher than acceptable limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.2 Surface Water

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water. Surface and ground water quality result are more or less same as compared to previous report. TDS, EC and hardness was slightly increased in ground water for 29 May 2025 sampling result, because of water quality does change based on season, primarily due to fluctuations in temperature, precipitation and sunlight. These changes can affect factors like dissolved oxygen, pH, and nutrient levels. The warmer temperatures in summer can lead to increased TDS, EC and Total Hardness (TH). Conversely, increased rainfall in certain seasons can dilute hard water minerals.

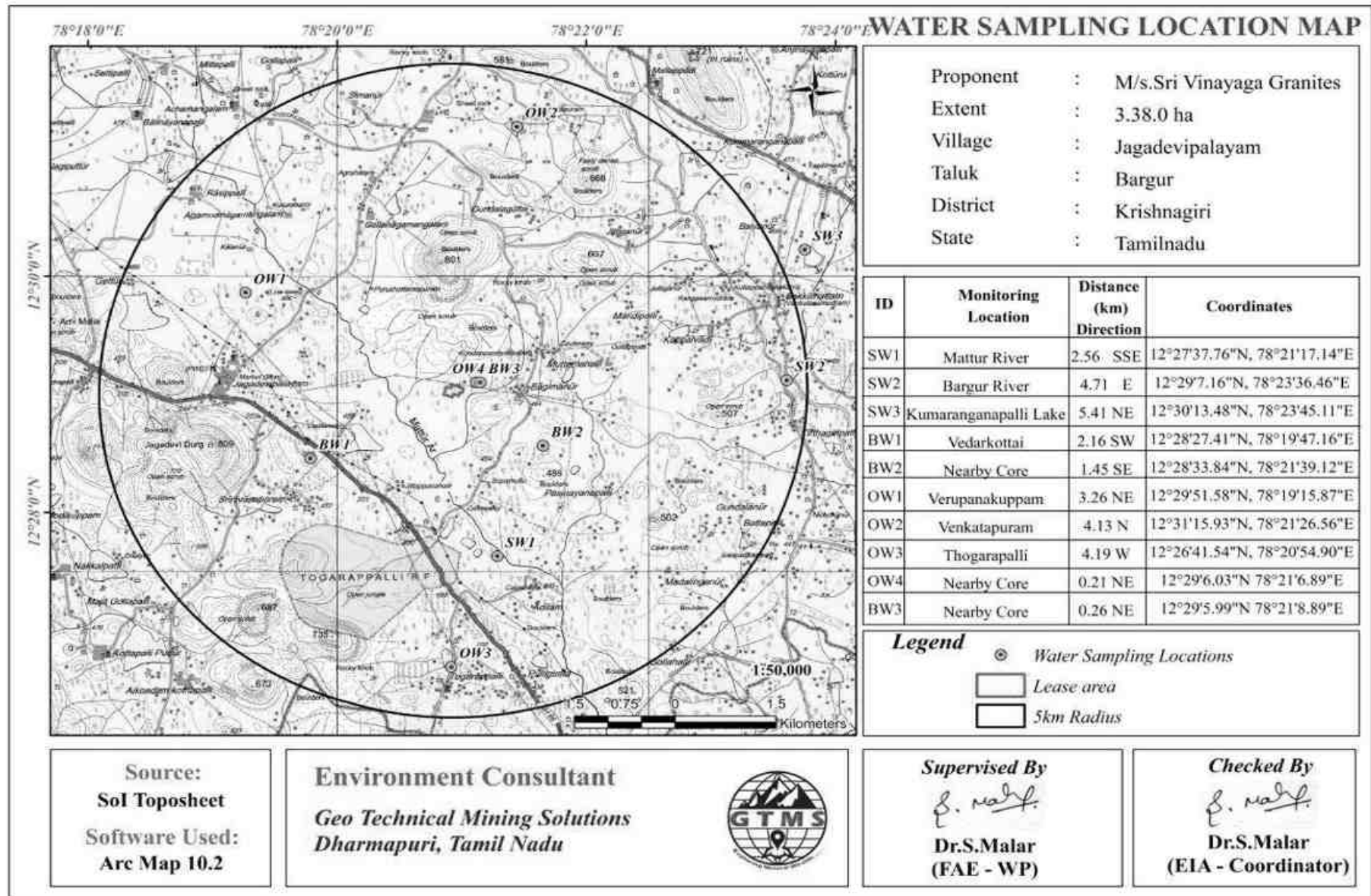


Figure 3.6 Map Showing Water Sampling Locations within 5 km Radius around Proposed Project Site

Table 3.6 Surface Water Quality Results

S.No.	Parameters	Units	Result			10500:2012 (Acceptable)	IS:2296-1982 Standards For Class A
			Minimum	Maximum	Average		
1	Barium (Ba)	mg /l	<0.1	<0.1	<0.1	0.5	1
2	Boron (B)	mg /l	<0.1	<0.1	<0.1	0.5	-
3	Calcium (Ca)	mg /l	41	79	53.75	75	80.10
4	Chloride (Cl)	mg /l	63	134	94	250	250
5	Colour	CU	2	5	3.5	5	10
6	Copper (Cu)	mg/l	<0.02	<0.02	<0.02	0.05	1.5
7	Fluoride (F)	mg/l	<0.1	<0.1	<0.1	1.0	1.5
8	Free Residual Chlorine (RFC)	mg/l	<0.1	<0.1	<0.1	0.2	-
9	Iron (Fe)	mg/l	<0.05	<0.05	<0.05	0.3	0.3
10	Lead (Pb)	mg/l	<0.01	<0.01	<0.01	0.01	0.1
11	Magnesium (Mg)	mg/l	19	33	24.8	30	24.28
12	Mercury (Hg)	mg/l	<0.001	<0.001	<0.001	0.001	0.001
13	Nitrate (NO ₃)	mg/l	1.8	4.5	3.04	45	20
14	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
15	pH value @ 25°C	--	6.9	7.1	7	6.5-8.5	6.5-8.5
16	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	0.001	0.002
17	EC @ 25°C	µS/Cm	789	981	882.2	-	-
18	Sulphates (SO ₄)	mg/l	29	39	34.2	200	400
19	Total Alkalinity	mg/l	143	193	169.6	200	
20	Arsenic (As)	mg/l	<0.005	<0.005	<0.005	0.01	0.05
21	Chromium (Cr)	mg/l	<0.05	<0.05	<0.05	0.05	0.05
22	TDS	mg/l	571	1215	836.6	500	500
23	TH (CaCO ₃)	mg/l	513	638	573.6	200	300
24	Turbidity	NTU	211	250	233.4	1	5
25	Zinc (Zn)	mg/l	8.3	19	14.32	5	15
26	Total Silica (SiO ₂)	mg/l	0.5	1	0.8	0.1	0.5
27	<i>Coliforms Bacteria</i>	MPN	Present	Present	Present	Shall not be detectable in any 100 ml sample	50
28	<i>E.Coli</i>	MPN	Present	Present	Present	Shall not be detectable in any 100 ml sample	-

Source: Sampling Results by **Excellence Laboratory (P) Limited**, in association with GTMS

Table 3.6a Ground Water Quality Results

S.No.	Parameters	Units	Result			10500:2012 (Acceptable)	10500:2012 (Permissible)
			Minimum	Maximum	Average		
1	Barium (Ba)	mg /l	<0.1	<0.1	<0.1	0.5	No relaxation
2	Boron (B)	mg /l	<0.1	<0.1	<0.1	0.5	1.0
3	Calcium (Ca)	mg /l	110	175	142.4	75	200
4	Chloride (Cl)	mg /l	95	202	153.4	250	1000
5	Colour	CU	<1.0	<1.0	<1.0	5	15
6	Copper (Cu)	mg/l	<0.02	<0.02	<0.02	0.05	1.5
7	Fluoride (F)	mg/l	0.23	1.2	0.8	1.0	1.5
8	Free Residual Chlorine (RFC)	mg/l	<0.1	<0.1	<0.1	0.2	1.0
9	Iron (Fe)	mg/l	<0.05	<0.05	<0.05	0.3	No relaxation
10	Lead (Pb)	mg/l	<0.01	<0.01	<0.01	0.01	No relaxation
11	Magnesium (Mg)	mg/l	5.8	49	24.51	30	100
12	Mercury (Hg)	mg/l	<0.001	<0.001	<0.001	0.001	No relaxation
13	Nitrate (NO ₃)	mg/l	4	6.8	5.53	45	No relaxation
14	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15	pH value @ 25°C	--	7.1	7.8	7.34	6.5-8.5	No relaxation
16	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	0.001	0.002
17	EC @ 25°C	µS/Cm	987	1756	1295.71	-	-
18	Sulphates (SO ₄)	mg/l	38	92	66.57	200	400
19	Total Alkalinity	mg/l	215	318	272.57	200	600
20	Arsenic (As)	mg/l	<0.005	<0.005	<0.005	0.01	0.05
21	Chromium (Cr)	mg/l	<0.05	<0.05	<0.05	0.05	No relaxation
22	TDS	mg/l	642	1144	882	500	2000
23	TH (CaCO ₃)	mg/l	326	533	429.14	200	600
24	Total Silica (SiO ₂)	mg/l	18	33	25.57	-	1
25	Turbidity	NTU	<0.1	<0.1	<0.1	5	15
26	Zinc (Zn)	mg/l	<0.01	<0.01	<0.01	0.1	0.3
27	<i>Coliforms Bacteria</i>	MPN	Present	Present	Present	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
28	<i>E. Coli</i>	MPN	Absent	Absent	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample

Source: Sampling Results by **Excellence Laboratory (P) Limited**, in association with GTMS

Table 3.7 Water Quality Results

S. No.	Parameters	Units	Results		10500:2012 (Permissible Limit)
			OW1	BW1	
1	pH value @ 25°C	No.	7.58	7.84	6.5-8.5
2	TDS	mg/l	440	1340	2000
3	EC @ 25°C	µS/cm	766.0	1710.0	-
4	Turbidity	NTU	0.22	<0.1	1
5	Colour	Hazen	<1.0	<1.0	5.0
6	Calcium (Ca)	mg /l	40.08	140.28	200
7	Magnesium (Mg)	mg/l	14.59	65.66	100
8	Chlorides (Cl)	mg /l	112.0	248.0	600
9	Sulphates (SO ₄)	mg/l	56.0	121.0	600
10	Silica (as SiO ₂)	mg/l	15.8	30.6	-
11	Total Residual Chlorine	mg/l	BDL(DL-0.1)	BDL(DL-0.1)	0.2
12	Sodium (Na)	mg/l	16.8	80.4	-
13	Total Hardness (CaCO ₃)	mg/l	160.0	620.0	600
14	Total Alkalinity (CaCO ₃)	mg/l	128.0	140.0	600
15	Fluoride	mg/l	-	0.88	1.5
16	Odour	-	Agreeable	Agreeable	Agreeable
17	Taste	-	Disagreeable	Disagreeable	Agreeable
18	Total Solids	mg/l	462.0	1352.0	-
19	Dissolved Oxygen	mg/l	5.4	4.8	-
20	Phosphorous	mg/l	1.0	1.0	-
21	Potassium	mg/l	4.0	20.9	-
22	Nitrite (NO ₂)	mg/l	BDL(DL-0.1)	BDL(DL-0.1)	-
23	Phenolphthalein Alkalinity	mg/l	10.0	40.0	200
24	Total Coliform	CFU/ml	Absent	Absent	Absent
25	Escherichia Coli	CFU/ml	Absent	Absent	Absent

CFU: Colony Forming Uni, BDL: Below Detectable level, DL: Detectable level

Source: Sampling Results by **Greenlink Analytical and Research Laboratory (India) Private Ltd**, in association with GTMS

Table 3.8 Weighted Arithmetic Water Quality Index (WAWQI) Method for ground water (Brown et al., 1972)

S. No.	Water Quality Index (WQI)					WQI Range	Classification	Grading
	BW1	BW2	OW1	OW2	OW3			
1		24.44		20.13	21.56	0 – 25	Excellent	A
2	29.56		37.10			25 – 50	Good	B
3						50 – 75	Poor	C
4						75 – 100	Very Poor	D
5						> 100	Unsuitable	E

Table 3.8a Weighted Arithmetic Water Quality Index as per WAWQI Method for surface water (Brown et al., 1972)

S. No.	Water Quality Index (WQI)			WQI Range	Classification	Grading
	SW1	SW2	SW3			
1	19.63	20.01	19.98	0 – 25	Excellent	A
2				25 – 50	Good	B
3				50 – 75	Poor	C
4				75 – 100	Very Poor	D
5				> 100	Unsuitable	E

The WQI is a unique digital rating expression that expresses overall water quality status viz: excellent, good, poor, very poor and unsuitable based on various water quality parameters. It is used as an important tool to compare the quality of groundwater and their management in a particular region. The WQI of the ground water, as shown Table 3.7 indicates that three groundwater samples is of excellent quality and two groundwater samples is of good quality. The WQI of ground water samples fall under excellent and good quality indicating their suitability for drinking, domestic and agriculture purpose. The WQI of the surface water, as shown in Table 3.7a shows that all the three surface water samples fall under excellent quality indicating their suitability for drinking, domestic and agriculture purpose.

3.3.3 Hydrogeological Studies

The area within 2km radius consists of numerous open wells and deep wells. Groundwater level data were collected both from open wells and bore wells for two monsoon seasons as discussed in the following section.

3.3.3.1 Rainfall

Rainfall data for the study area were collected for the period of 1981-2021([POWER | Data Access Viewer \(nasa.gov\)](#)). Long term monthly average rainfall was estimated from the data of 1981-2022 and compared with the monthly rainfall for the year 2022, shown in Figure 3.9. The Figure 3.13 shows that monthly rainfall in 2022 is generally high in the months of May, August, September and October, when compared to the long term monthly average rainfall.

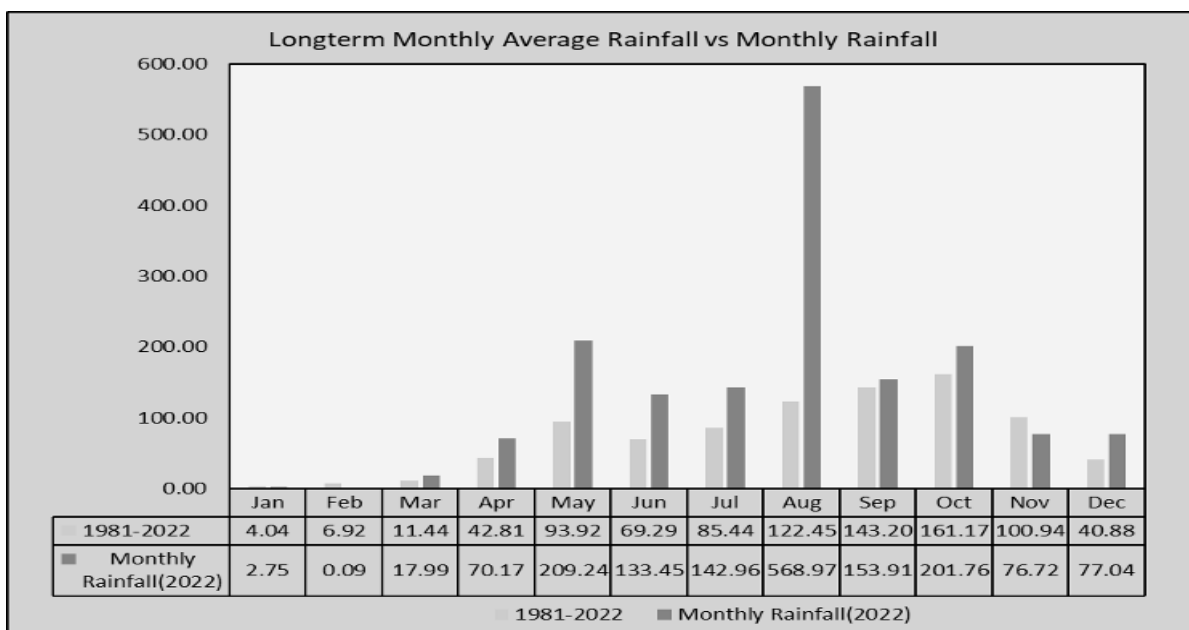


Figure 3.7 Long-term monthly average rainfall vs monthly rainfall

3.3.3.2 Groundwater Levels and Flow Direction

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May, 2023 (Pre-Monsoon Season) and from October through December, 2023 (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.8 and 3.9. According to the data, average depths to the static water table in open wells range from 21.77 to 24.57 m BGL in pre monsoon and 17.97 to 18.93 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.10 and 3.11. The average depths to static potentiometric surface in bore wells for the period of October through December 2023 (Post- Monsoon Season) vary from 47.00 to 53.00 m and from 57.00 to 60.00 m for the period of March through May, 2023 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

From the maps of open well groundwater flow direction shown in Figures 3.11 -3.12, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 6 located in South direction of the proposed project site. The groundwater flow maps in Figure 3.13-3.14 show that most of the bore well groundwater for the post- and pre-monsoon seasons flow towards the bore well number 4. It is located in West

direction of the proposed project site. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

Table 3.9 Pre-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL (m)				Latitude	Longitude
	Mar-2023	Apr-2023	May- 2023	Average		
OW01	20.7	21.5	23.4	21.87	12°29'6.04"N	78°21'7.09"E
OW02	21.3	22.2	23.2	22.23	12°28'39.41"N	78°20'30.32"E
OW03	20.8	21.4	23.1	21.77	12°29'7.26"N	78°21'26.99"E
OW04	21.3	22.1	22.5	21.97	12°29'3.55"N	78°20'20.09"E
OW05	20.5	21.9	23.1	21.83	12°28'43.12"N	78°21'7.20"E
OW06	21.2	21.8	23.4	22.13	12°28'39.27"N	78°21'1.71"E
OW07	20.5	26.1	27.1	24.57	12°29'8.32"N	78°21'21.13"E
OW08	20.9	25.2	27.3	24.47	12°27'57.00"N	78°21'2.38"E
OW09	21.4	24.8	27.5	24.57	12°28'33.96"N	78°21'39.23"E

Source: Onsite monitoring data

Table 3.10 Post-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL (m)				Latitude	Longitude
	Oct-2023	Nov-2023	Dec-2023	Average		
OW01	19.6	17.8	16.5	17.97	12°29'6.04"N	78°21'7.09"E
OW02	19.7	17.4	16.8	17.97	12°28'39.41"N	78°20'30.32"E
OW03	20.2	19.2	17.1	18.83	12°29'7.26"N	78°21'26.99"E
OW04	19.9	18.5	16.8	18.40	12°29'3.55"N	78°20'20.09"E
OW05	20.2	19.4	17.2	18.93	12°28'43.12"N	78°21'7.20"E
OW06	20.2	19.2	16.5	18.63	12°28'39.27"N	78°21'1.71"E
OW07	19.6	19.6	16.8	18.67	12°29'8.32"N	78°21'21.13"E
OW08	20.4	19.4	16.4	18.73	12°27'57.00"N	78°21'2.38"E
OW09	20.6	18.8	17.2	18.87	12°28'33.96"N	78°21'39.23"E

Source: Onsite monitoring data

Table 3.11 Pre-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Mar-2023	Apr-2023	May- 2023	Average		
BW01	57	58	60	58	12°29'1.86"N	78°21'29.89"E
BW02	58	60	61	59	12°29'25.03"N	78°21'33.60"E
BW03	59	60	61	60	12°29'7.06"N	78°21'7.52"E
BW04	58	59	60	59	12°28'56.67"N	78°20'37.00"E

BW05	56	59	61	58	12°29'21.28"N	78°21'20.78"E
BW06	56	57	59	57	12°28'39.87"N	78°20'48.00"E
BW07	57	59	61	59	12°28'12.77"N	78°21'10.72"E
BW08	59	60	61	60	12°28'49.03"N	78°20'9.38"E
BW09	56	57	58	57	12°29'35.14"N	78°20'12.44"E

Source: Onsite monitoring data

Table 3.12 Post-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Oct-2023	Nov-2023	Dec-2023	Average		
BW01	47	49	50	48	12°29'1.86"N	78°21'29.89"E
BW02	48	50	51	49	12°29'25.03"N	78°21'33.60"E
BW03	50	51	53	51	12°29'7.06"N	78°21'7.52"E
BW04	52	53	54	53	12°28'56.67"N	78°20'37.00"E
BW05	51	52	53	52	12°29'21.28"N	78°21'20.78"E
BW06	49	51	52	51	12°28'39.87"N	78°20'48.00"E
BW07	48	49	51	49	12°28'12.77"N	78°21'10.72"E
BW08	50	51	51	50	12°28'49.03"N	78°20'9.38"E
BW09	45	47	48	47	12°29'35.14"N	78°20'12.44"E

Source: Onsite monitoring data

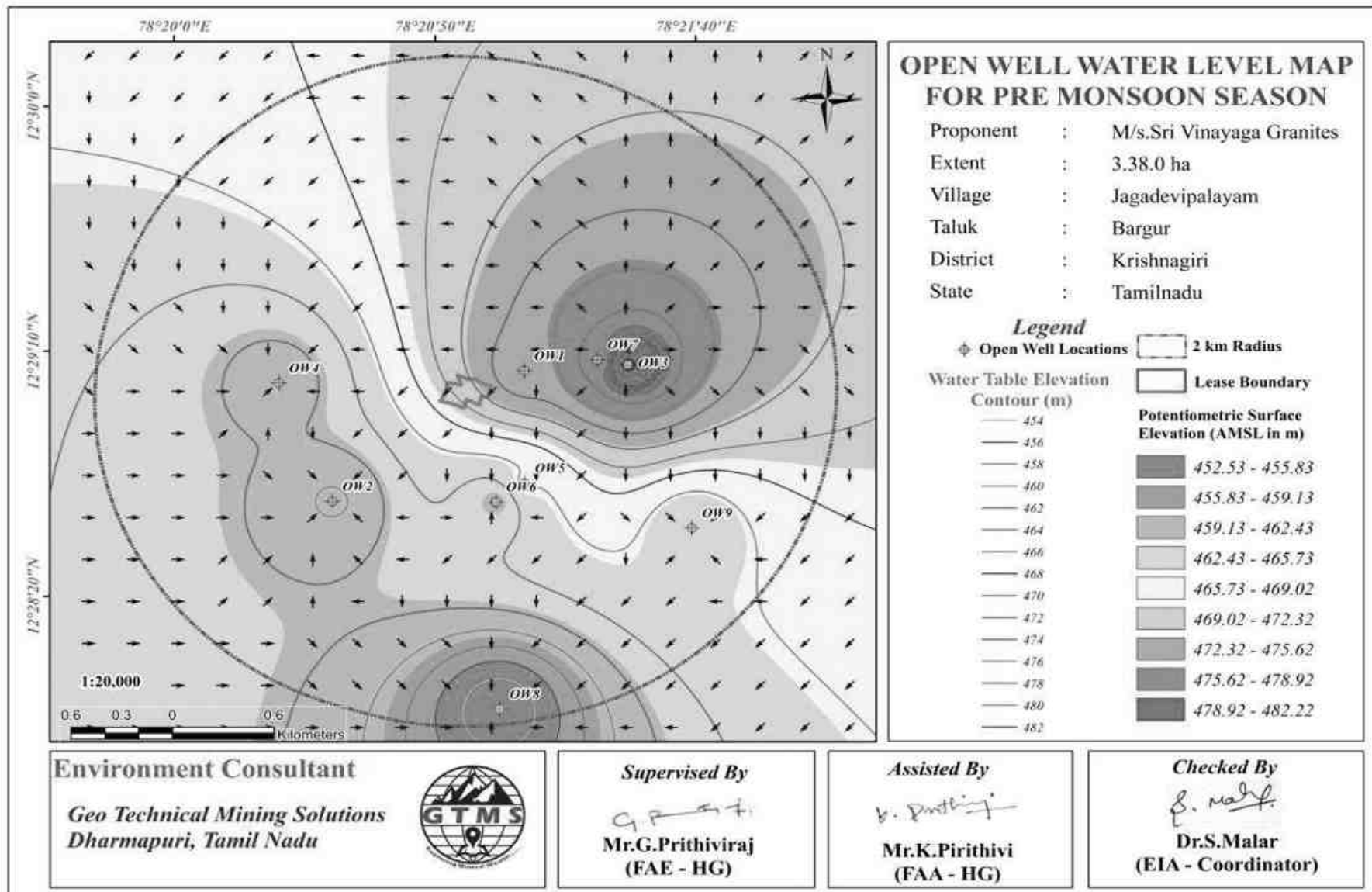


Figure 3.8 Open well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

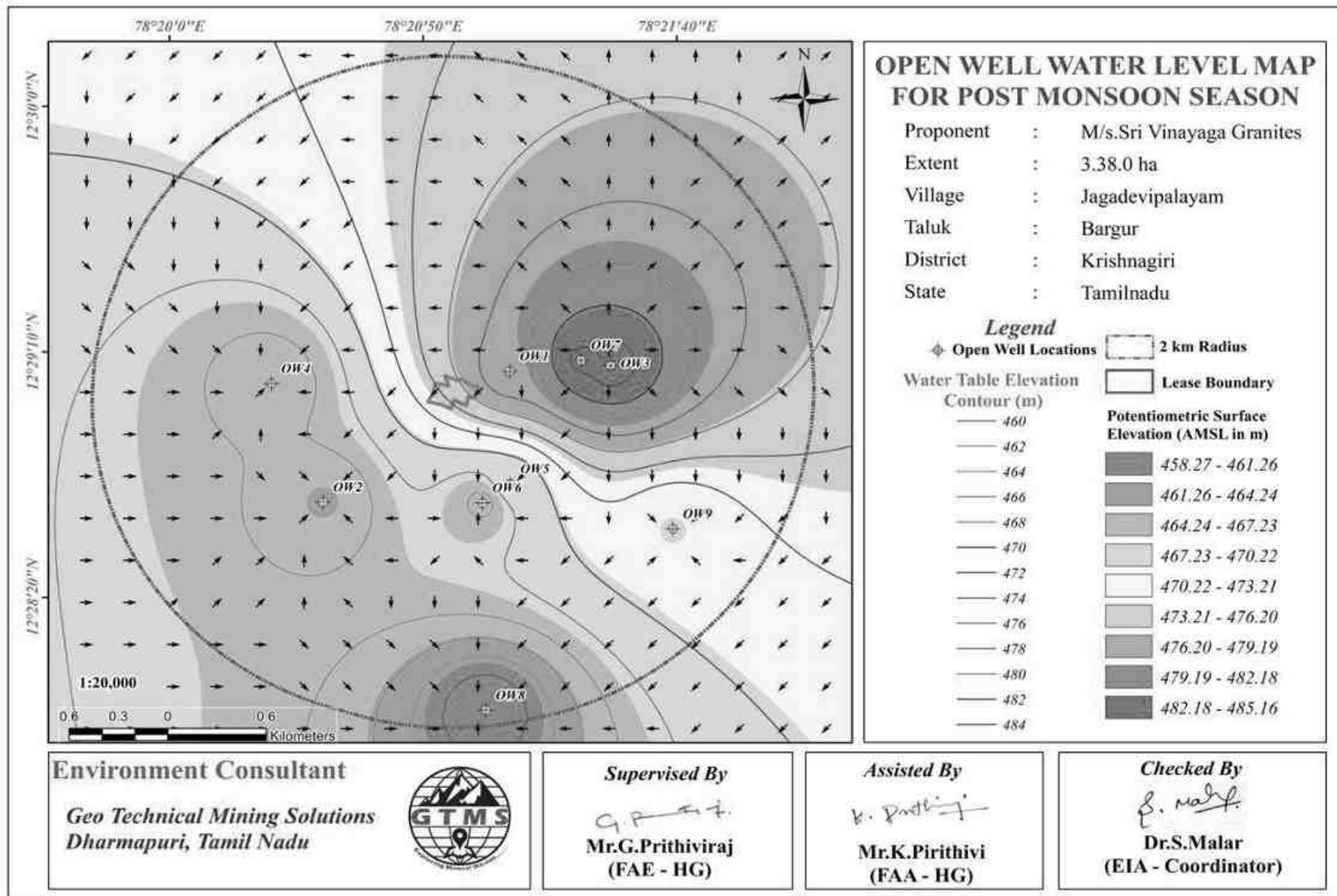


Figure 3.9 Open well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

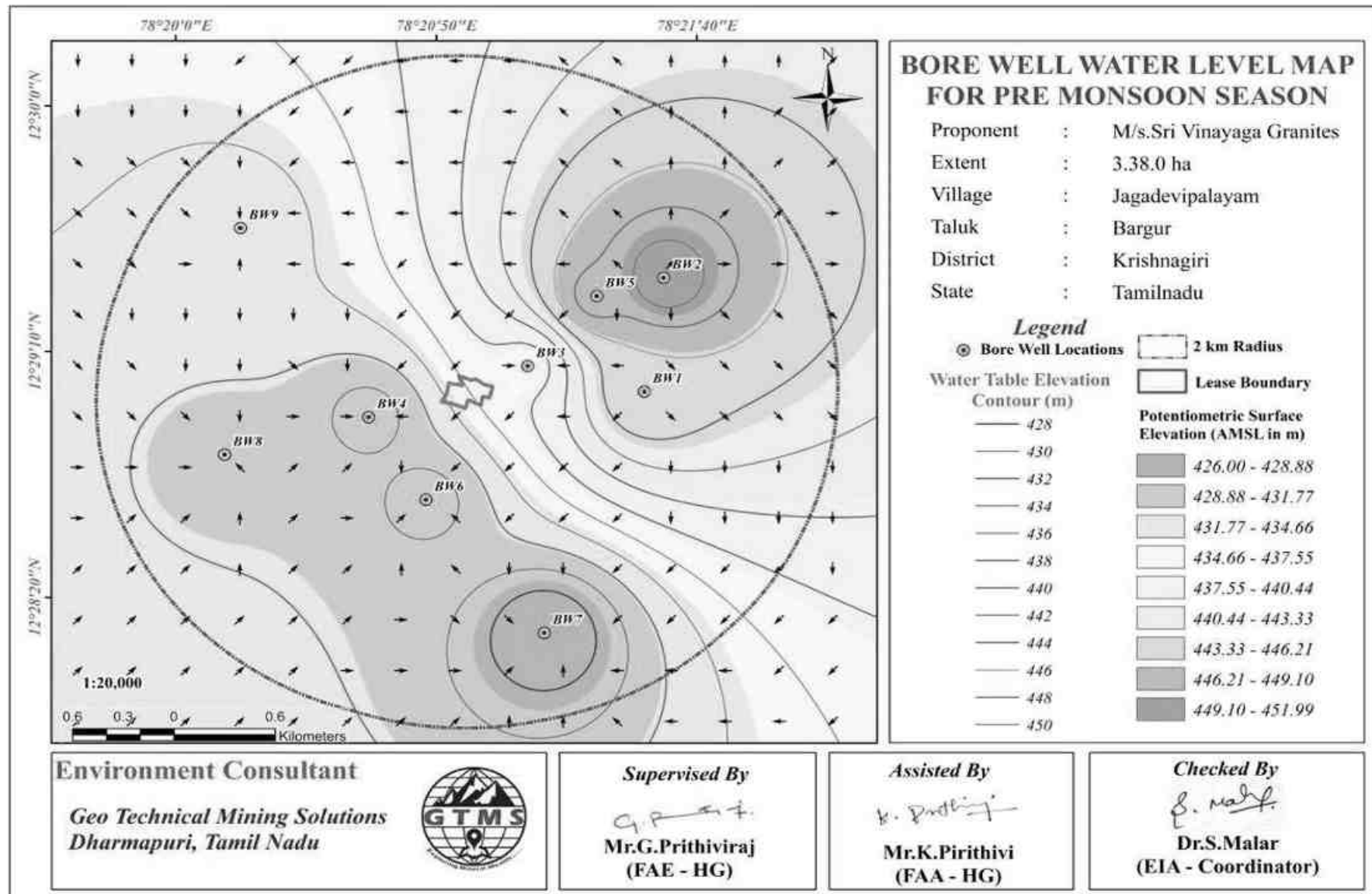


Figure 3.10 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

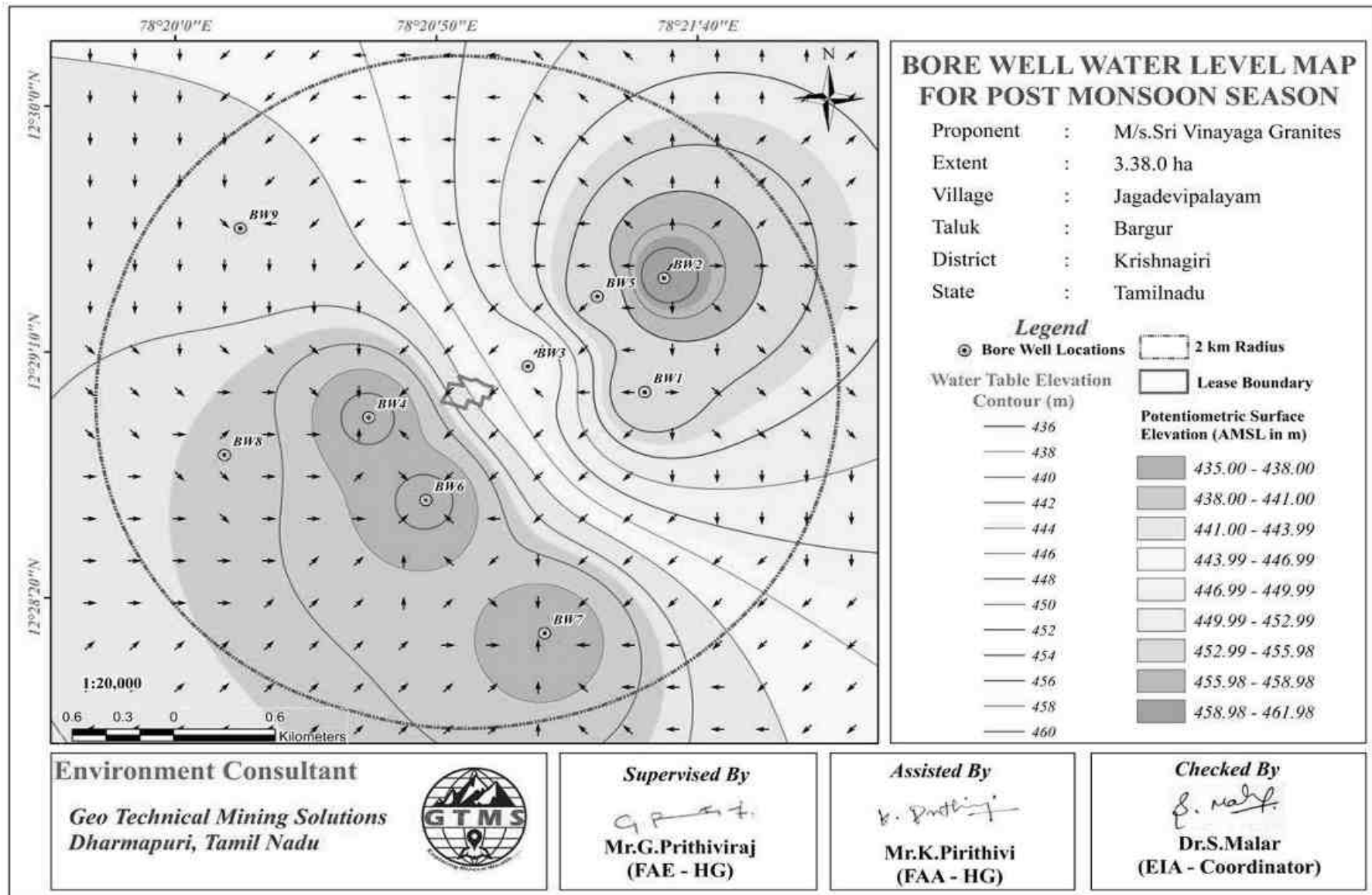


Figure 3.11 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

3.3.3.3 Electrical Resistivity Investigation

Electrical resistivity investigation is especially useful in the areas where there are no adequate exploratory well data about the aquifer conditions. The present study makes use of vertical electric sounding (VES) to delineate earth's subsurface layers. The electrical resistivity investigation uses four electrodes set up where current is sent through outer electrodes into the ground and the inner electrodes measure the potential difference.

Soil Resistivity

In a geophysical survey report, soil resistance, also known as earth resistivity, refers to the ability of the soil to resist the flow of an electric current. This property is influenced by factors like soil composition, water content, and the arrangement of voids. Resistivity surveys use electrical current to map subsurface variations, helping to identify features like buried structures, geological formations, and water table depths.

In this study area the soil resistance is very high, so in rainy season the water will be not seepage in the shallow depth and not through intrusion to water table. Identified the aquifer for proposed mining area through the geophysical investigation the water table thickness is 60m below ground level, the proposed ultimate mining depth is 50m below ground level. So, this mining activity is not disturbing to the ground water table through entire mining periods.

Result

The Geophysical VES data obtained from the project site have been shown in Table 3.13. The field data obtained from a detailed geophysical investigation were plotted using excel spreadsheet for interpretation. The plot for the purpose of interpretation has been shown in Figure 3.15.

Table 3.13 Vertical Electrical Sounding Data

Location Coordinates - 12°29'2.36"N, 78°20'55.80"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometrical Factor (G)	Resistance in Ω	Apparent Resistivity in Ωm
1	5	2	16.5	8.016	132.26
2	10	2	75.43	2.578	194.48
3	15	5	62.86	4.699	295.38
4	20	5	117.86	3.345	394.22
5	25	5	188.58	2.683	505.96
6	25	10	82.5	6.061	500.05

7	30	10	125.72	4.288	539.12
8	35	10	176.79	4.117	727.76
9	40	10	235.73	3.722	877.48
10	45	10	302.51	3.583	1083.91
11	50	20	165.01	7.270	1199.65
12	60	20	251.44	3.167	796.42
13	70	20	353.59	3.535	1249.9
14	80	20	471.45	2.739	1291.12
15	90	20	605.03	2.573	1556.68
16	100	20	754.32	2.380	1795.32

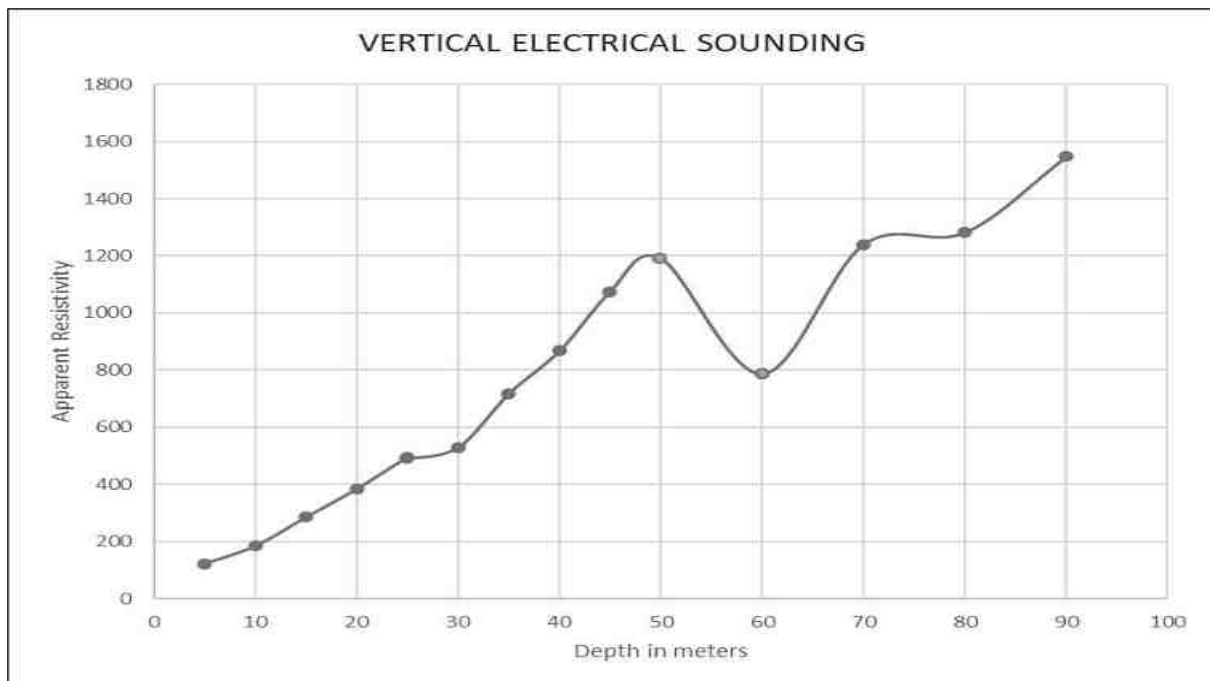


Figure 3.12 Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 60m Below Ground Level in the Proposed Project Area

The rock formation of low resistivity values indicates occurrence of water at the depth of about 60m below ground level. The maximum depth proposed for the proposed project is 50m below ground level. Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

3.4 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollutants and their existing levels in ambient air. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities.

3.4.1 Meteorology

3.4.1.1 Climatic Variables

A temporary meteorological station was installed at the project sites by covering cluster quarries. The station was installed at a height of 3 m above the ground level as there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature. Meteorological data obtained from the onsite monitoring station are provided in Table 3.13. According to the onsite data, the temperature in October, 2023 varied from 15.33 to 30.28⁰C with the average of 23.83⁰ C; in November, 2023 from 12.49 to 29.24⁰C with the average of 22.0⁰ C; and in December, 2023 from 14.02 to 27.78⁰C with the average of 21.06⁰C.

In October, 2023, relative humidity ranged from 40.81 to 100 % with the average of 81.67%; in November, 2023, from 49.19 to 100 % with the average of 88.20 %; and in December, 2023, from 42.94 to 100 % with the average of 85.88%. The wind speed in October, 2023 varied from 0.52 to 7.68 m/s with the average of 2.56 m/s; in November, 2023 from 0.65 to 6.40 m/s with the average of 2.68 m/s; and in December, 2023 from 0.15 to 8.42 m/s with the average of 3.39 m/s. In October, 2023, wind direction varied from 1.07 to 359.60 with the average of 125.55⁰; in November, 2023, from 0.22 to 359.81⁰ with the average of 90.53⁰; and in December, 2023, from 0.76 to 357.83⁰ with the average of 89.92⁰. In October, 2023, surface pressure varied from 93.58 to 94.47kPa with the average of 94.08 kPa; in November, 2023, from 93.66 to 94.52kPa with the average of 94.09 kPa; and in December, 2023, from 92.96 to 94.80 kPa with the average of 94.05 kPa

Table 3.14 Onsite Meteorological Data 2023

S. No.	Parameters		Oct, 2023	Nov, 2023	Dec, 2023
1	Temperature (⁰ C)	Min	15.33	12.49	14.02
		Max	30.28	29.24	27.78
		Avg	23.83	22.00	21.06
2	Relative Humidity (%)	Min	40.81	49.19	42.94
		Max	100.00	100.00	100.00
		Avg	81.67	86.63	85.88

3	Wind Speed (m/s)	Min	0.52	0.65	0.15
		Max	7.68	6.40	8.42
		Avg	2.56	2.68	3.39
4	Wind Direction (degree)	Min	1.07	0.22	0.76
		Max	359.60	359.81	357.83
		Avg	125.55	90.53	89.92
5	Surface Pressure (kPa)	Min	93.58	93.66	92.96
		Max	94.47	94.52	94.80
		Avg	94.08	94.09	94.05

Source: On-site monitoring/sampling by **Excellence Laboratory (P) Limited** in association with GTMS

3.4.1.2 Wind Pattern

Wind pattern will largely influence the dispersion pattern of air pollutants and noise from the proposed project site. Analysis of wind pattern requires hourly site-specific data of wind speed and direction. Two types of wind rose were generated: historical seasonal wind rose for the period of October through December of the years from 2018 to 2022 and the seasonal wind rose for the study period of October through December 2022. The wind rose diagrams thus produced are shown in Figures 3.16-3.16a. Figure 3.17 reveals that:

- ❖ The measured average wind velocity during the study period is 2.88m/s.
- ❖ Predominant wind was dominant in the directions ranging from East to West.

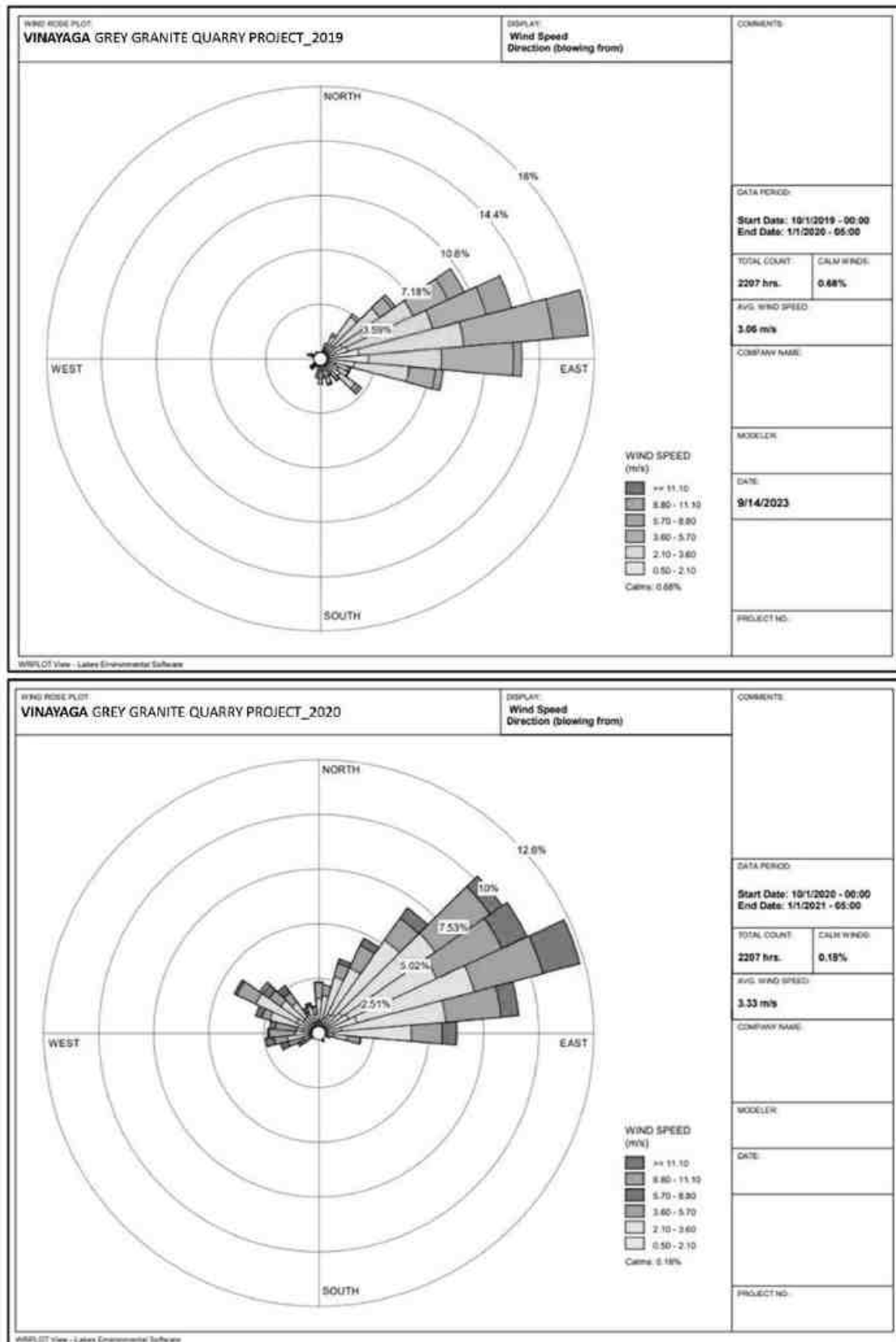


Figure 3.13 Windrose Diagram for 2019 and 2020 (October to December)

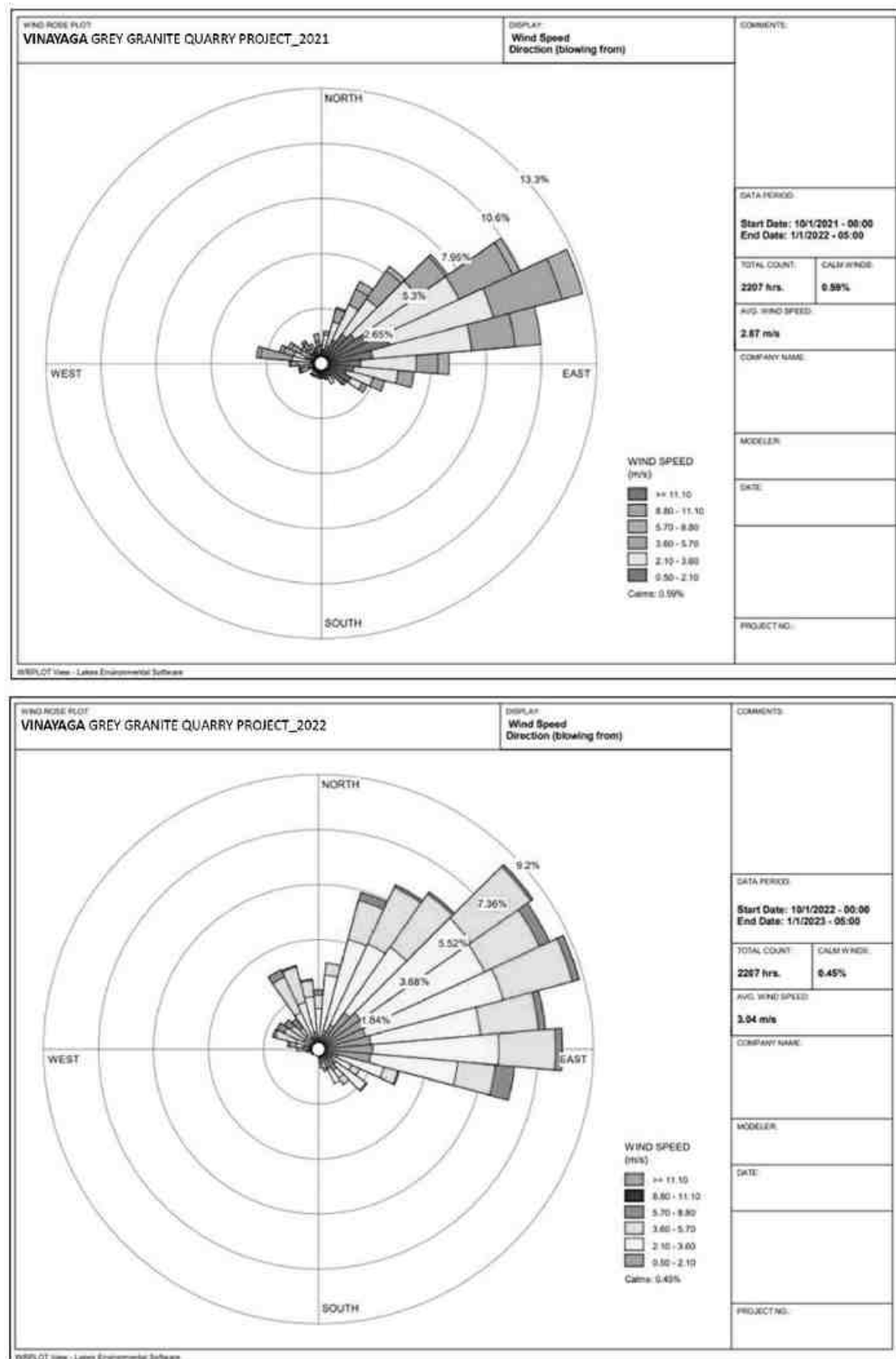


Figure 3.13(a) Windrose Diagram for 2020 and 2021 (October to December)

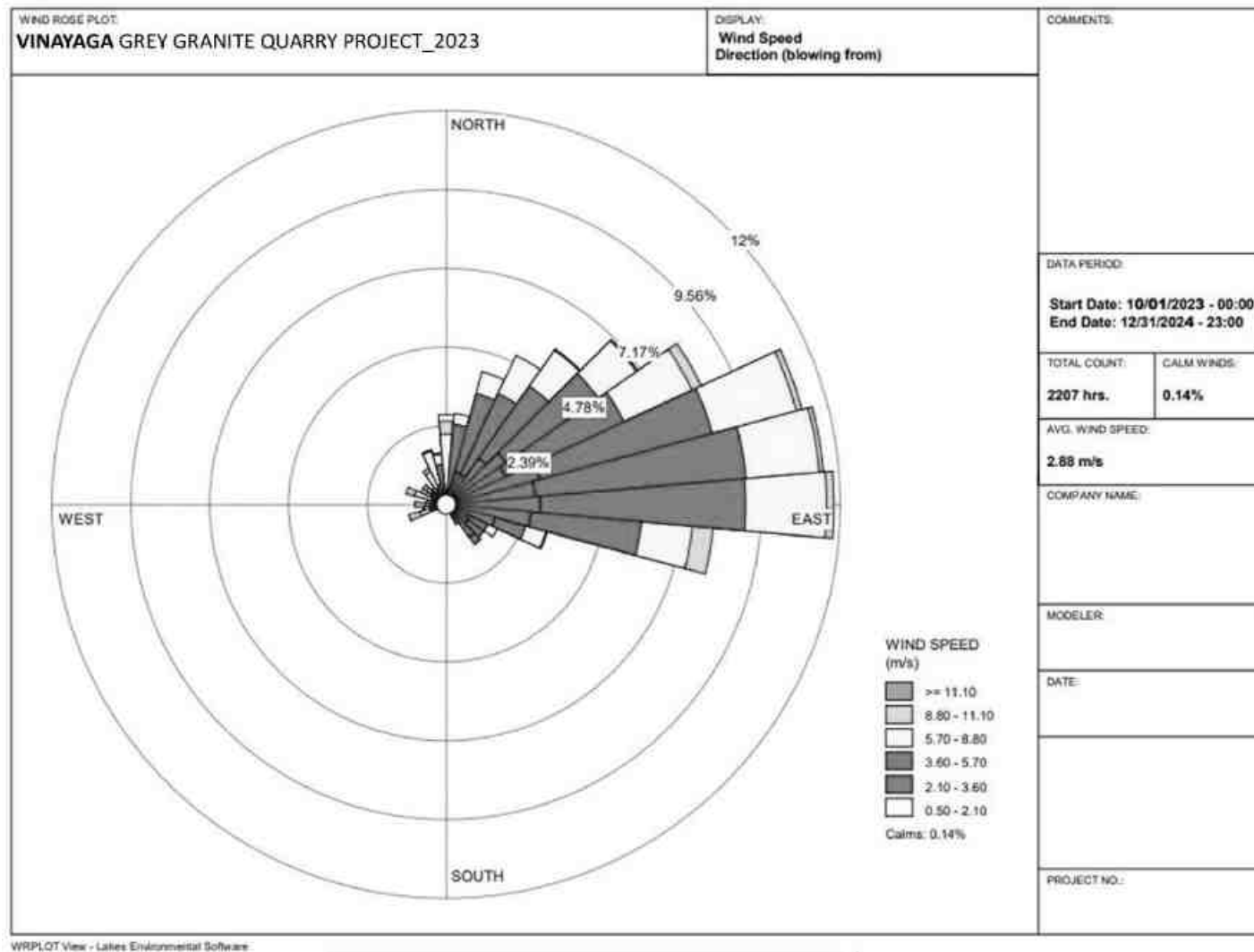


Figure 3.14 Onsite Windrose Diagram 2023

3.4.4 Site Specific Meteorological Data - 2025

Site specific meteorological data was collected by installing weather station near to project site. The meteorological data was obtained for anemometer fixed in the lease area on March 2025-May 2025 to cross check the secondary data. Brief summary of site-specific data has been presented in the table below– Meteorological data obtained from the onsite monitoring station are provided in Table 3.15.

Table 3.15 Onsite Meteorological Data -2025(March-May)

S. No.	Parameters		March,2025	April,2025	May,2025
1	Temperature (°C)	Min	16.87	18.91	21.46
		Max	38.4	39.27	38.08
		Avg	27.60	28.99	28.25
2	Relative Humidity (%)	Min	5.45	15.76	24.27
		Max	100.00	95.52	96.29
		Avg	50.22	53.60	62.69
3	Wind Speed (m/s)	Min	0.03	0.22	0.04
		Max	6.07	4.55	6.04
		Avg	2.47	1.95	1.94
4	Wind Direction (degree)	Min	0.00	1.00	1.8
		Max	344.7	358.7	352.1
		Avg	116.80	141.54	211.65
5	Surface Pressure(kPa)	Min	93.42	93.39	92.97
		Max	94.6	94.35	94.02
		Avg	94.03	93.85	93.47

Source: On-site monitoring/sampling by Greenlink Analytical and Research Laboratory (India) Private Ltd in association with GTMS

Site Specific Meteorological Data Wind Pattern

Wind pattern will largely influence the dispersion pattern of air pollutants and noise from the proposed project site. The seasonal Windrose for the study period of March through May 2025. The wind rose diagrams thus produced are shown in Figure 3.18 reveals that:

- ❖ The measured average wind velocity during the study period is 2.11m/s.
- ❖ Predominant wind was dominant in the directions ranging from Southeast to Southwest.

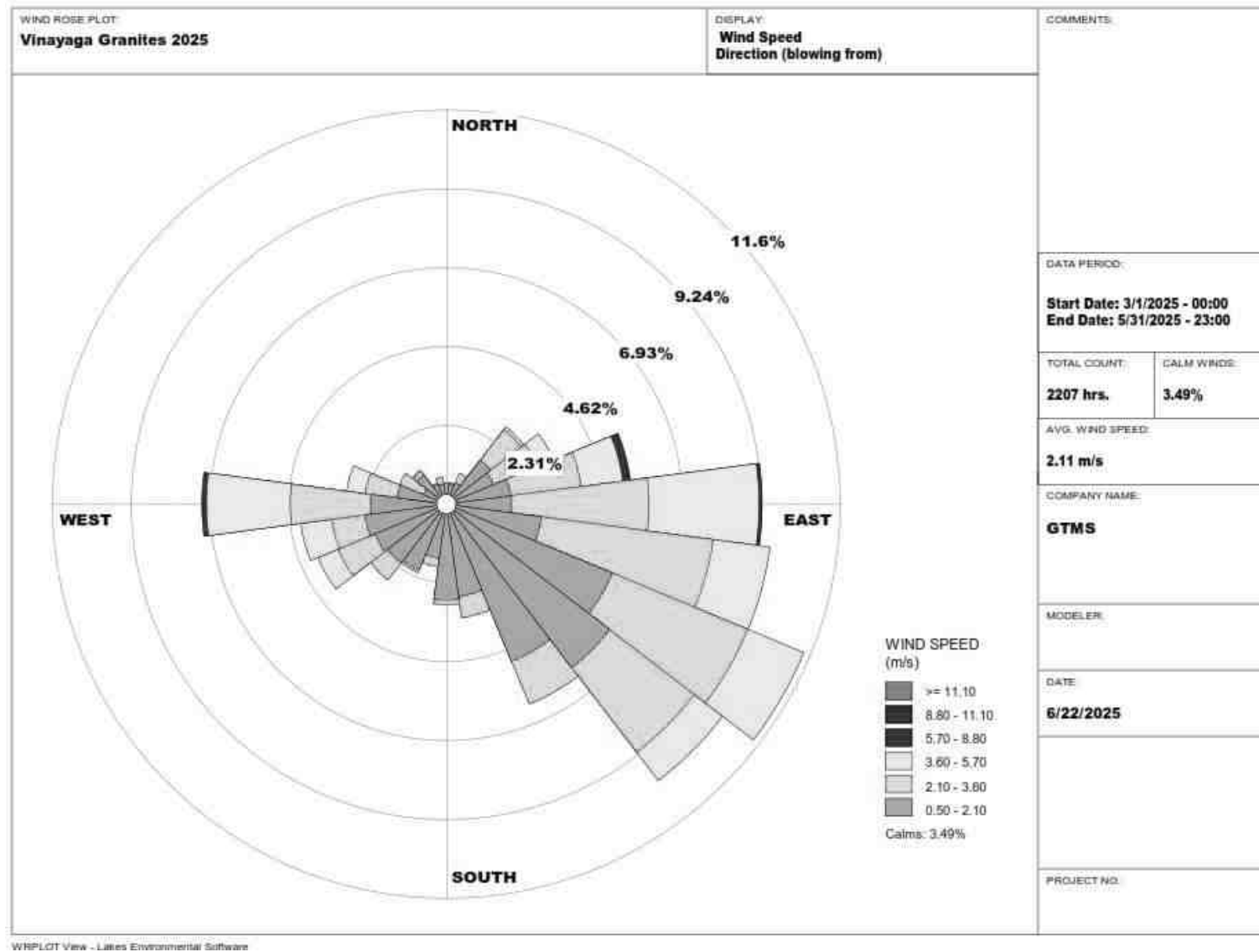


Figure 3.15 Onsite Windrose Diagram 2025

3.4.2 Ambient Air Quality Study

The baseline ambient air quality is studied through a scientifically designed ambient air quality monitoring network considering the followings:

- ❖ Meteorological condition on synoptic scale
- ❖ Topography of the study area
- ❖ Representatives of regional background air quality for obtaining baseline status
- ❖ Location of residential areas representing different activities
- ❖ Accessibility and power availability

Table 3.16 Methodology and Instrument Used for AAQ Analysis

Parameter	Method	Instrument
PM _{2.5}	Gravimetric method Beta attenuation method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric method Beta attenuation method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hoch heiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology based on **Excellence Laboratory (P) Limited** & CPCB Notification

Table 3.17 National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	SO ₂ (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	NO ₂ (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	PM _{2.5} (µg/m ³)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

3.4.2.1 Methodology

Ambient air quality monitoring was carried out with a frequency of two samples per week at Six (6) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period October-December, 2023 as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5 m above the ground level at each monitoring station for negating the effects of wind-blown ground dust. The equipment was placed at space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. The baseline data of ambient air were generated for PM₁₀, PM_{2.5}, sulphur dioxide (SO₂) and nitrogen dioxide (NO_x). The sampling locations are shown in Figure 3.18 and average concentrations of air pollutants are summarized in Tables 3.16.

Table 3.18 Ambient Air Quality (AAQ) Monitoring Locations

S. No	Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
					Lat	Long
1	AAQ1	Nearby Pranitha Granites Core	1.32	E	12°28'47.86"N	78°21'41.71"E
2	AAQ2	Kondappanayakempalli	1.30	NE	12°29'24.55"N	78°21'37.59"E
3	AAQ3	Jagadevi	1.92	S	12°28'5.55"N	78°20'19.27"E
4	AAQ4	Jagadevi	2.98	W	12°29'16.08"N	78°19'13.86"E
5	AAQ5	Billakottai	4.29	SE	12°26'42.99"N	78°21'29.60"E
6	AAQ6	Sakilnatham	4.70	NE	12°29'49.26"N	78°23'29.08"E
Green link analytical & Reserch LAB						
7	AAQ7	Nearby Core	--	--	12°29'2.70"N	78°20'57.71"E

Source: On-site monitoring/sampling by **Excellence Laboratory (P) Limited** in association with GTMS

3.4.2.2 Results

As per the monitoring data, PM_{2.5} ranges from 16.1 µg/m³ to 22.8 µg/m³; PM₁₀ from 36.2 µg/m³ to 43.8µg/m³; SO₂ from 7.6 µg/m³ to 10.9 µg/m³; NO₂ from 16.2 µg/m³ to 21.6g/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

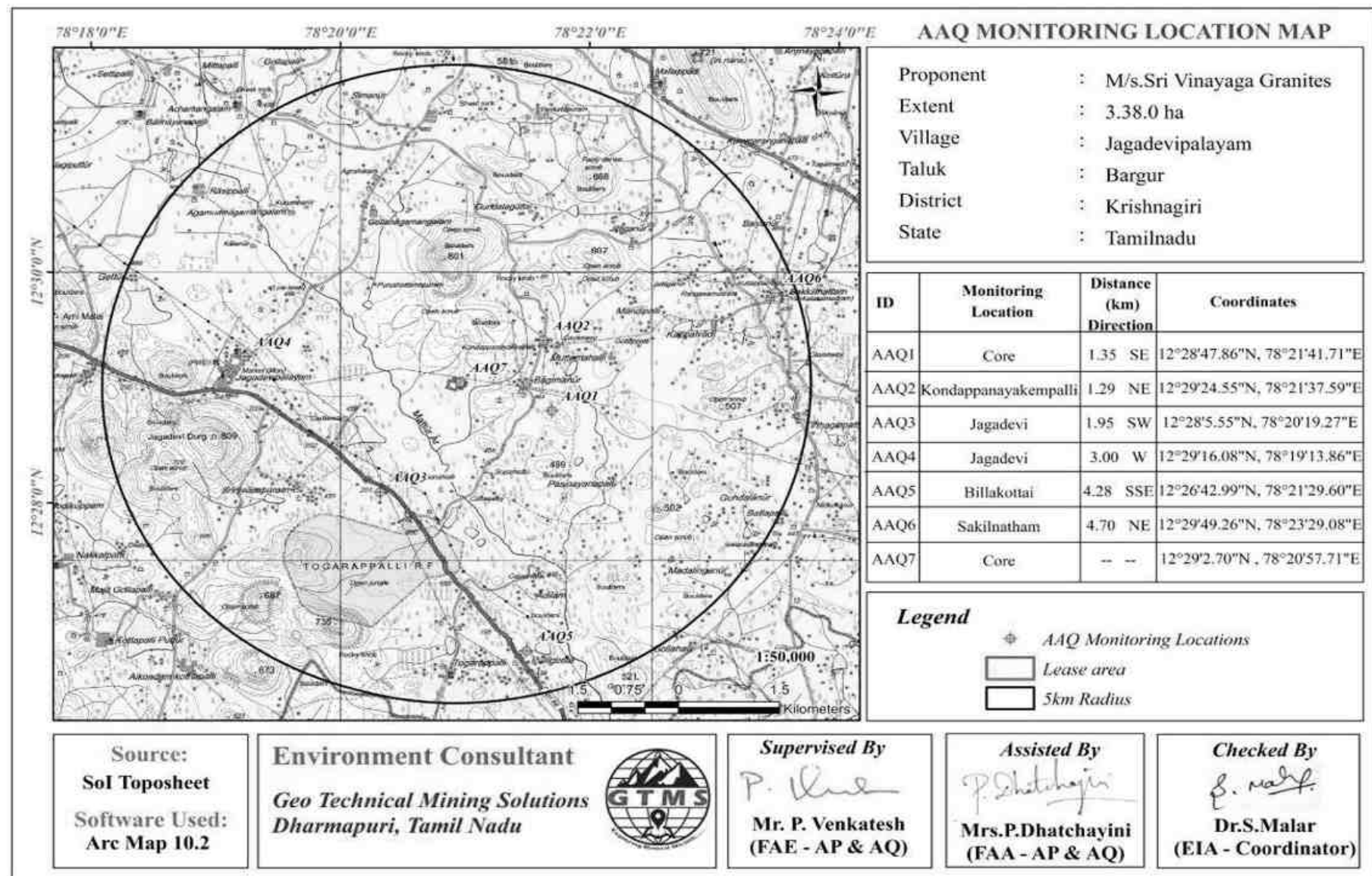


Figure 3.16 Toposheet Showing Ambient Air Quality Monitoring Station Locations around 5akm Radius from the Proposed Project Site

Table 3.19 Summary of AAQ Result

PM _{2.5}					PM ₁₀			
Station ID	Max	Min	Mean	98 th Percentile	Max	Min	Mean	98 th Percentile
AAQ1	20.0	14.1	17.2	19.8	44.2	33.2	38.5	44.1
AAQ2	17.8	11.9	15.0	17.6	42.8	33.6	39.1	42.8
AAQ3	23.1	17.5	19.8	21.5	43.8	38.6	41.3	43.8
AAQ4	23.2	18.9	21.3	23.0	44.7	39.4	41.8	44.6
AAQ5	23.4	16.6	20.3	23.4	47.4	39.6	42.5	46.6
AAQ6	21.6	14.2	17.4	21.5	37.9	29.7	34.1	37.9
AAQ7	30.6	19.5	21.4	23.3	55.1	38.4	39.7	41.0
SO ₂					NO ₂			
AAQ1	14.5	8.6	11.7	14.3	20.1	14.2	17.3	19.9
AAQ2	13.8	9.4	11.0	13.4	21.3	14.7	17.0	20.8
AAQ3	19.4	15.0	16.9	18.1	24.5	20.1	22.0	24.3
AAQ4	18.5	15.4	17.0	18.5	24.3	17.8	21.3	24.0
AAQ5	19.0	15.9	17.5	19.0	24.2	17.1	20.3	24.2
AAQ6	12.2	7.3	9.4	11.8	19.4	11.6	15.8	19.3
AAQ7	10.6	7.1	8.7	10.2	17.3	14.3	17.8	19.8

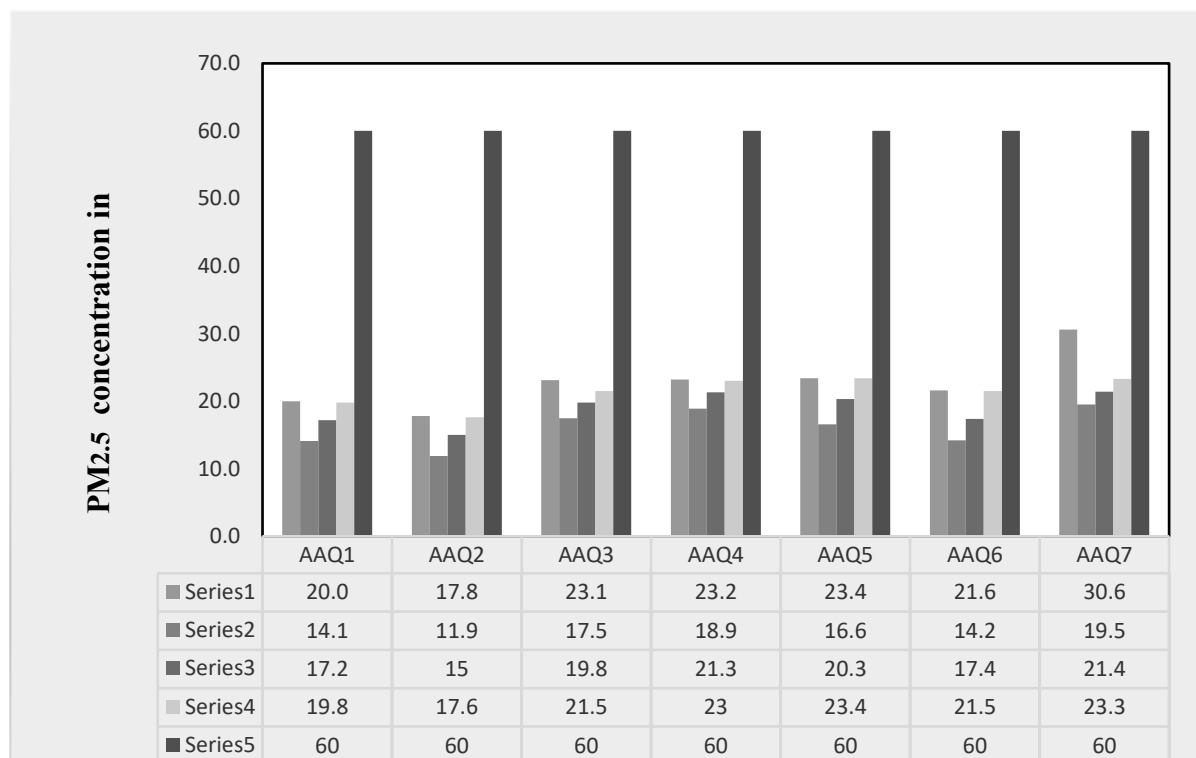


Figure 3.17 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{2.5} Measured from 7 Air Quality Monitoring Stations within 5 km Radius

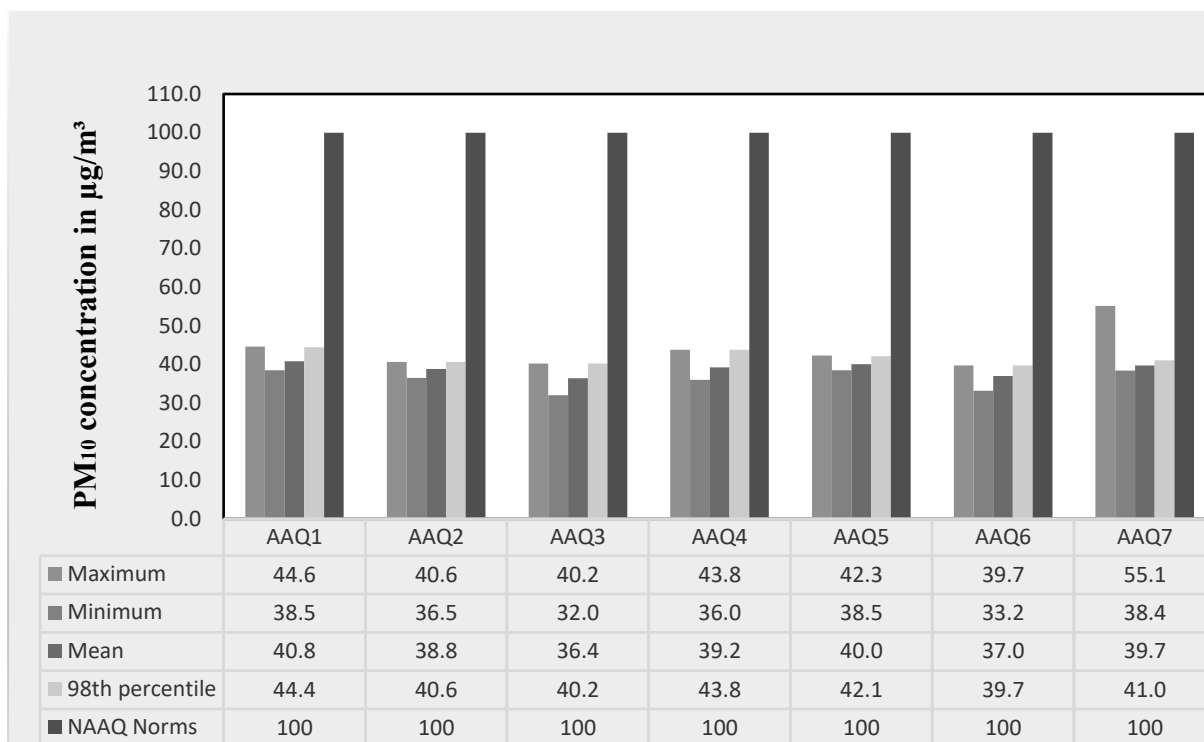


Figure 3.18 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM₁₀ Measured from 7 Air Quality Monitoring Stations within 5 km Radius

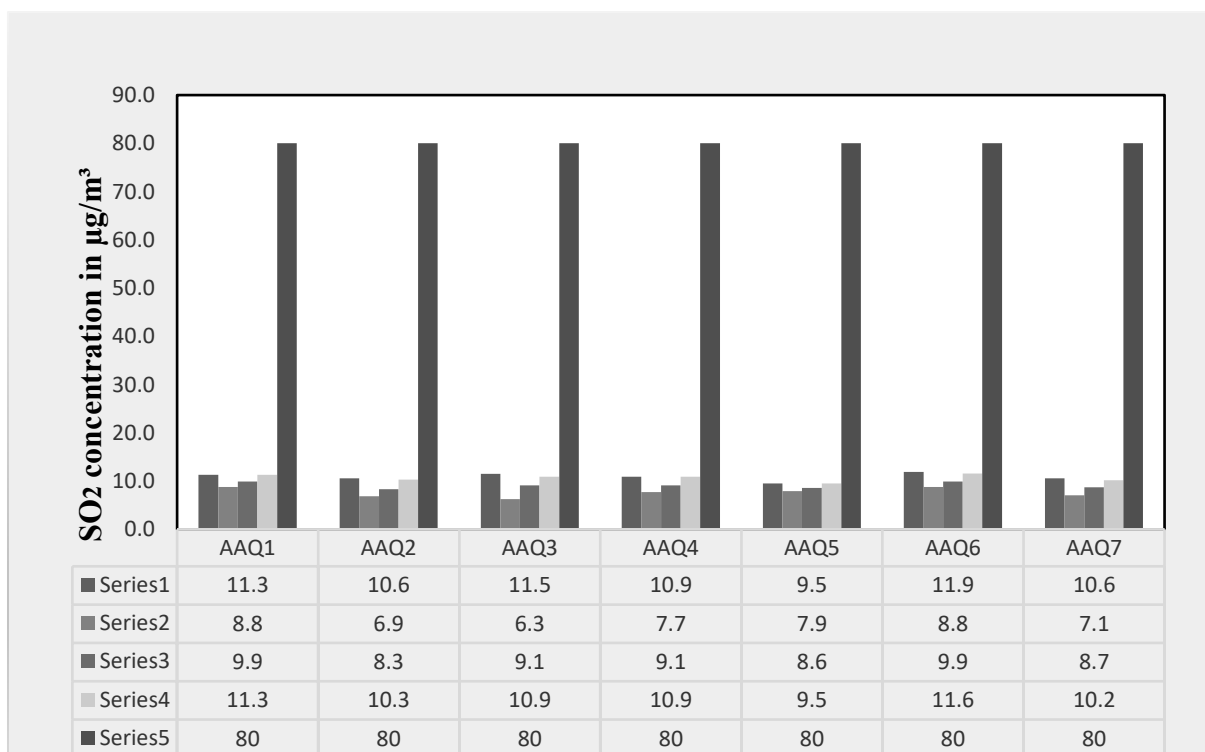


Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO₂ Measured from 7 Air Quality Monitoring Stations within 5 km Radius

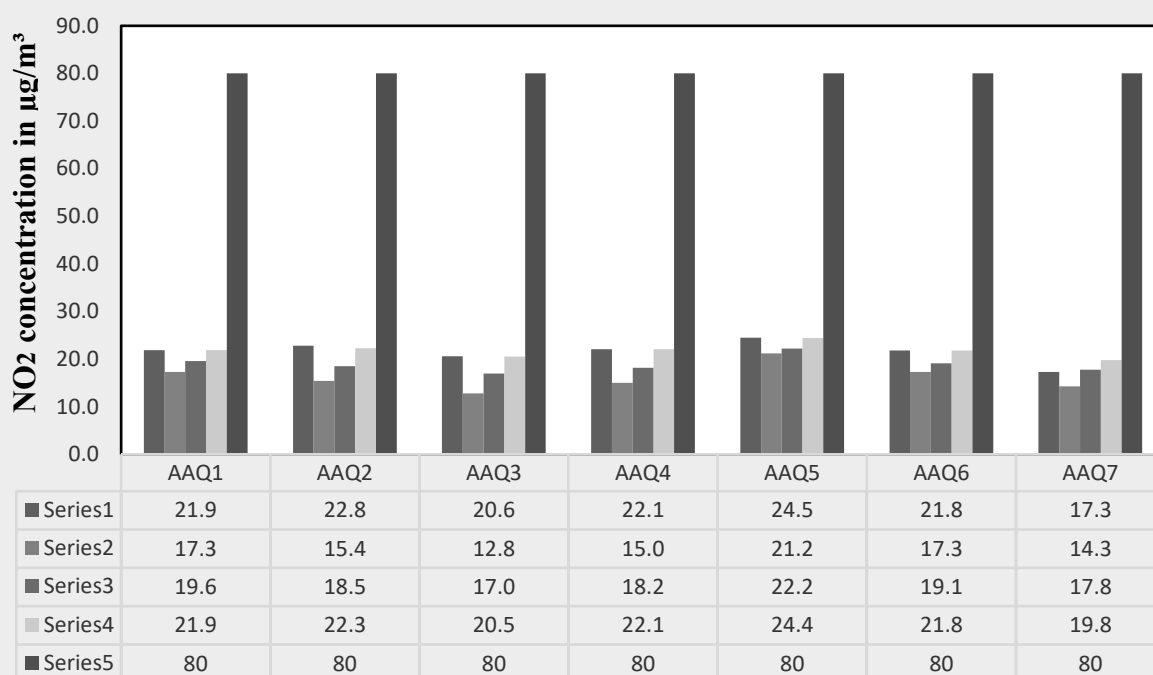


Figure 3. 20 Bar Chart Showing Maximum, Minimum, And Average Concentrations of NO_x Measured from 7 Air Quality Monitoring Stations within 5 km Radius

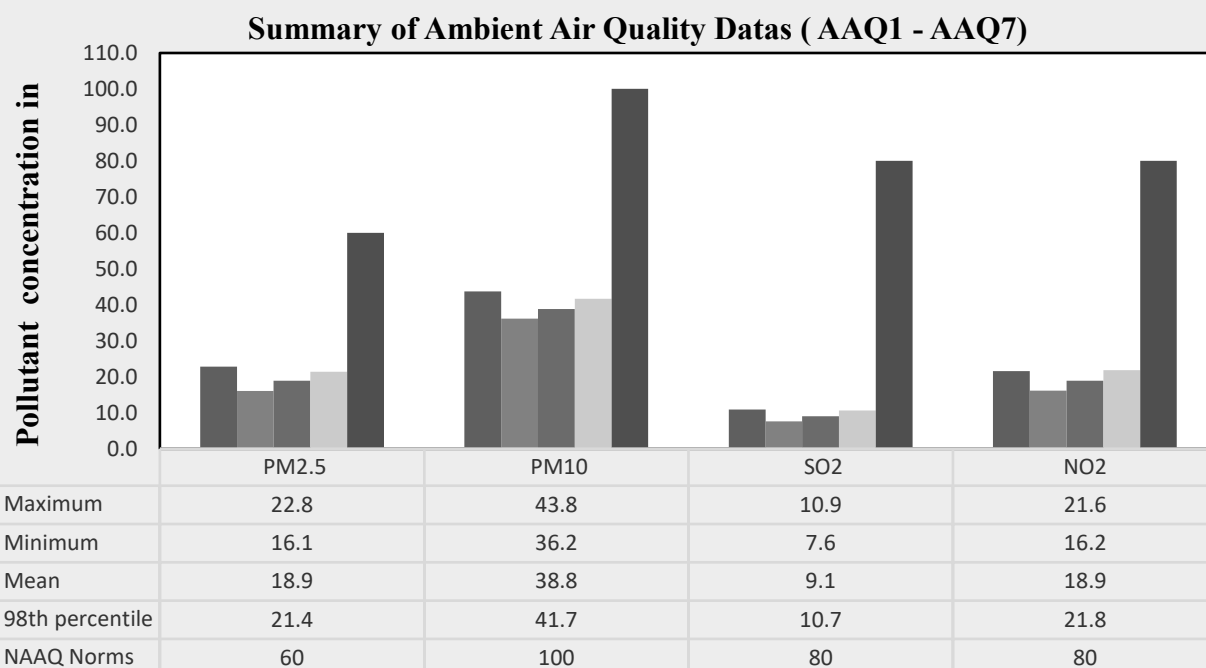


Figure 3.21 Bar Chart Showing Maximum, Minimum, and Average Concentrations of Pollutants in the Atmosphere within 5 km Radius

3.5 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in the study area. The main objective of noise monitoring in the study area is to establish the baseline noise level, which will in turn be used to assess the impact of the total noise expected to be generated during the project operations around the project site. In order to assess the ambient noise levels within the study area, noise monitoring was carried out at seven (7) locations covering commercial, residential, rural areas within the radius of 5 km. Details of noise monitoring locations are provided in Table 3.20 and spatial occurrence of the locations are shown in Figure 3.26.

Table 3.20 Noise Monitoring Locations

S. No	Location Code	Monitoring Locations	Distance in km	Direction	Coordinates	
					Lat	Long
1	N1	Near Core	0.07	W	12°28'49.12"N	78°21'41.94"E
2	N2	Kondappanayakempalli	0.42	NW	12°28'59.10"N	78°21'32.05"E
3	N3	Jagadevi	2.80	SW	12°28'6.44"N	78°20'20.15"E
4	N4	Jagadevi	4.58	NW	12°29'13.02"N	78°19'12.19"E
5	N5	Billakottai	3.80	SSW	12°26'39.66"N	78°21'26.82"E
6	N6	Sakilnatham	3.62	NE	12°29'46.12"N	78°23'31.06"E
7	N7	Core	--	--	12°29'8.26"N	78°20'54.22"E

Source: On-site monitoring/sampling by *Excellence Laboratory (P) Limited & Greenlink Analytical and Research Laboratory (India) Private Ltd* in association with GTMS

Table 3.21 Ambient Noise Quality Result

Station ID	Location	Environmental setting	Average day noise level(dB(A))	Average night noise level (dB(A))	Day time (6.00 AM – 10.00 PM)	Night time (10.00 PM – 6.00 AM)
					Standard (Leq in dB(A))	
N1	Near Core	Industrial area	37.3	35.8	75	70
N2	Kondappanayakempalli	Residential area	43.2	39.9	55	45
N3	Jagadevi		45.6	42.2	55	45
N4	Jagadevi		45.8	43.3	55	45
N5	Billakottai		45.4	41.4	55	45
N6	Sakilnatham		39.5	35.9	55	45
N7	Core	Industrial area	40.1	37.7	75	70

Source: On-site monitoring/sampling by *Excellence Laboratory (P) Limited & Greenlink Analytical and Research Laboratory (India) Private Ltd* in association with GTMS.

The Table 3.19 shows that noise level in core zone was 40.1dB (A) Leq during day time and 37.7 dB (A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 39.5 to 45.8 dB (A) Leq and during night time from 35.8 to 43.3 dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.24 and 3.25.

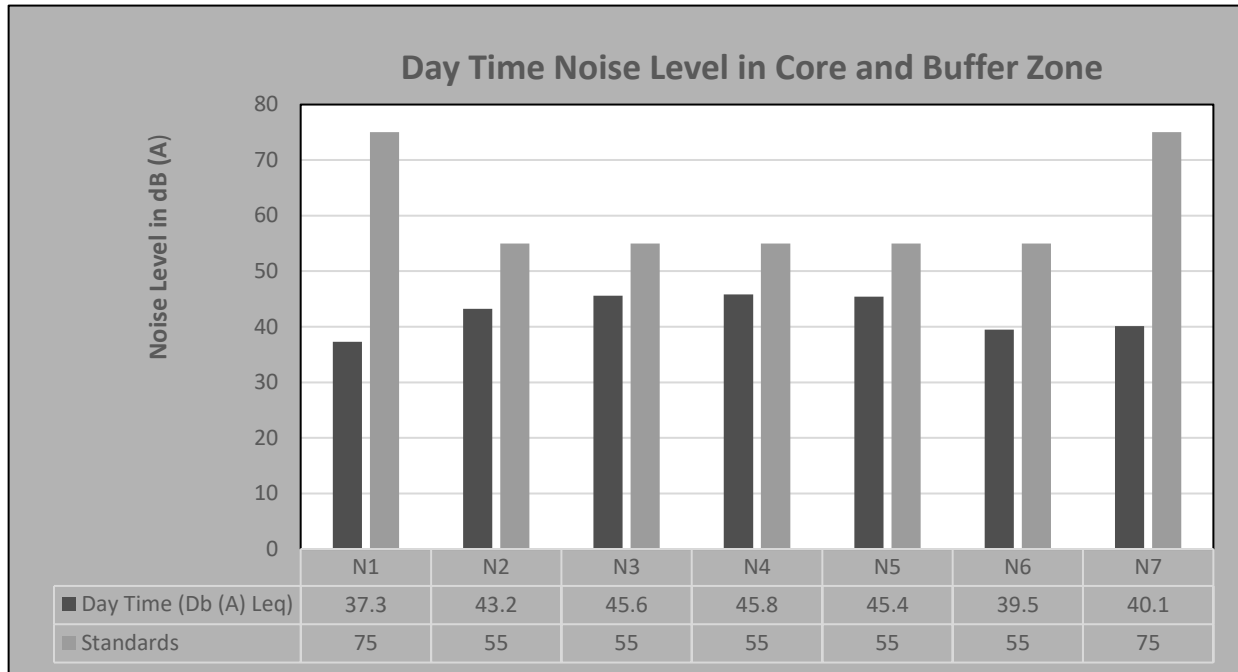


Figure 3.22 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

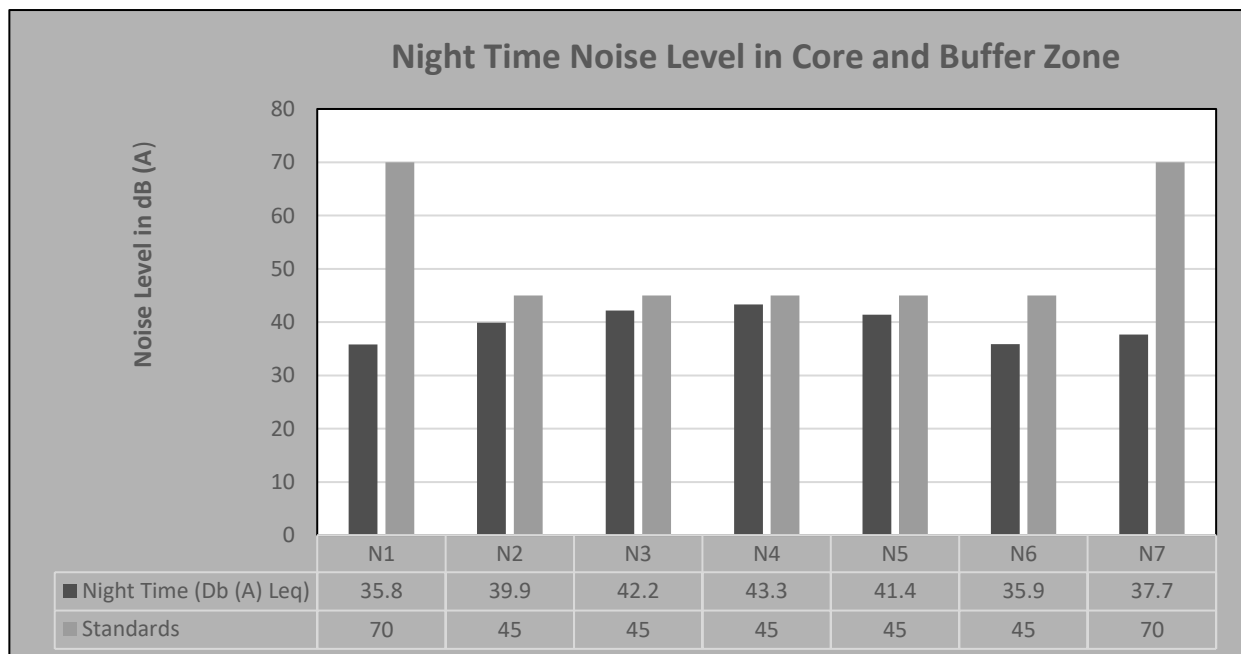


Figure 3.23 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

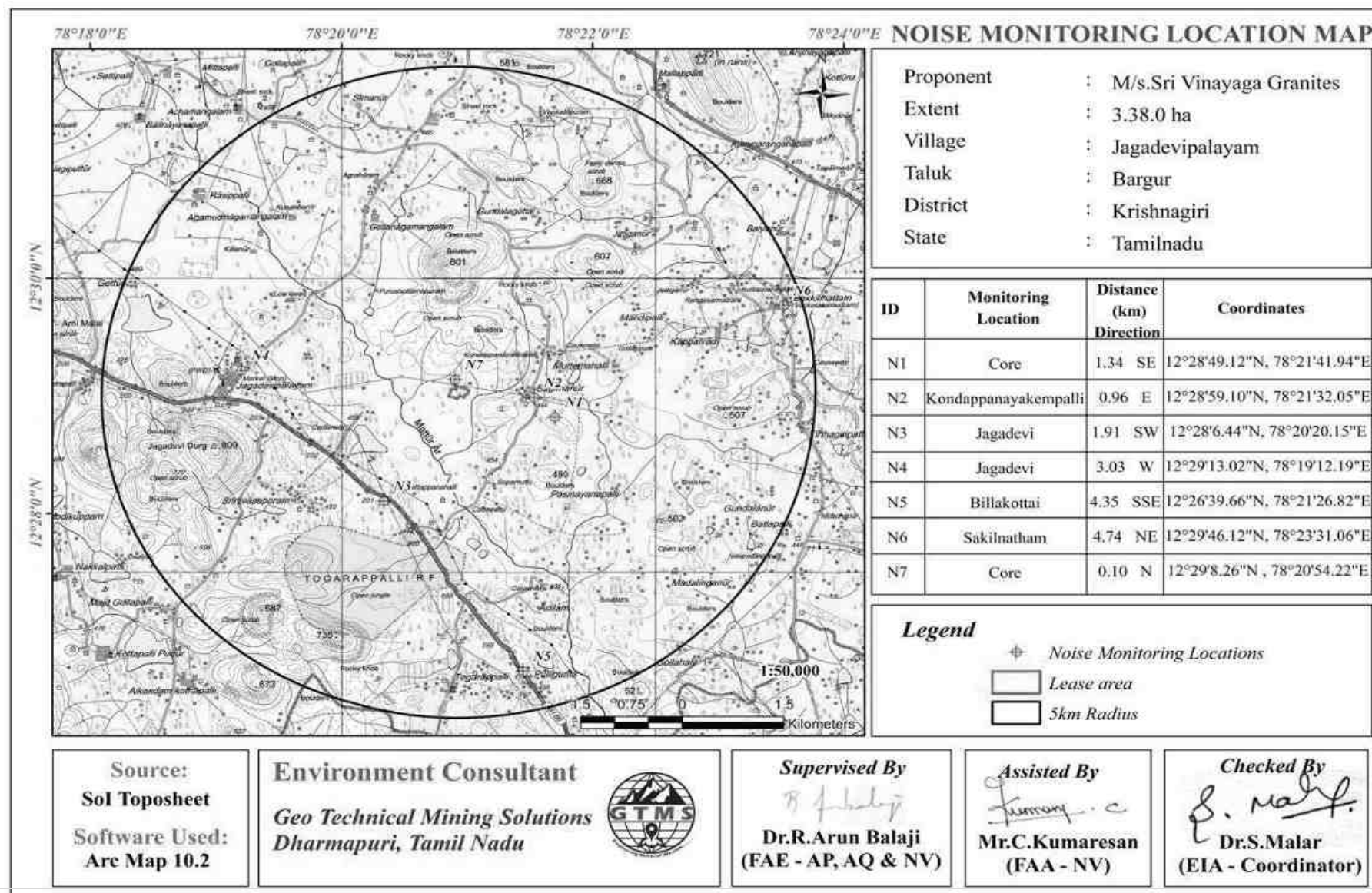


Figure 3.24 Toposheet Showing Noise Level Monitoring Station Locations around 5 km Radius from the Proposed Project Site

3.6 BIOLOGICAL ENVIRONMENT

Collection of comprehensive baseline information on flora and fauna is a prerequisite for assessment of impacts of any extractive industries/ activities. Biological environment is an important component of the environment of any area. It covers flora & fauna in the region, details of forests and wildlife sanctuaries in the region, with list of endangered species. Over the years ecological and along with it the loss of biological diversity has become a national and a global concern. Ecological assessment therefore is very critical for decision making and for the setting of a developmental project or an industry. An ecological study of the ecosystem is essential to understand the impact of industrialization and urbanization on existing flora and fauna of the area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for undertaking appropriate action to mitigate the impact, if any.

The objective of this Section is to characterize and understand the present status of the ecosystems in the study area to assess the bio-diversity and to identify the critical areas. The present study was undertaken as a part of EIA report to understand the present status of ecosystem prevailing in the study area, to compare it with the past condition with the help of available data, to predict changes as a result of present activities and to suggest measures for maintaining the conditions.

3.7.1 Flora

3.7.1.1 Objectives of the Study

The ecological study of the area was conducted in order to understand the existing status of the flora and fauna to generate baseline information and evaluate the possible impacts on biological environment. The present study highlights the various issues pertaining to floristic diversity and faunal wealth in the surrounding area up to 10km radius from the proposed expansion project.

3.7.1.2 Study Approach & Methodology

The baseline study for existing ecological environment was carried out during study period. A participatory and consultative approach was followed. Field visits were under taken for survey of the aquatic and terrestrial vegetation and animals in the study area.

Nested quadrat sampling method was used for the study of community structure of the vegetation. The sampling consisted of randomly placed quadrats of 10m × 10m were laid down to assess trees, and sub quadrats of 5 m × 5 m were laid down for shrubs, 1m x 1m were

laid done for herbs. The size and number of quadrats needed were determined using the species- area curve (Misra, 1968). The data on vegetation were quantitatively analyzed for abundance, density, frequency as per Curtis & McIntosh (1950). The Important Value Index (IVI) for trees was determined as the sum of relative density, relative frequency and relative dominance (Curtis, 1959).



Figure 3.25 Quadrates Sampling Methods of Flora

3.7.1.3 Survey Methodology

The baseline study for existing biological environmental was carried out in Nov 2024. Study of flora and fauna carried out as per prescribed method addressed in SOP. Field visits were under taken for survey of the vegetation and animals in the study area. The study area is divided into three parts as project site area along with 500m from all direction surrounding site is being considered as core area and rest of 5km study area is buffer part of the study area.

3.7.1.4 Important Value Index (IVI)

The concept of ‘Important Value Index (IVI)’ has been developed for expressing the dominance and ecological success of any species, with a single value (Mishra, 1968, Sharma, 2005). This index utilizes three characteristics, they are (i) Relative frequency and (ii) Relative density. The three characteristics computed using frequency, density and abundance for all the species falling in all the quadrat by using the following formula. The relative frequency, relative density and relative abundance has been calculated to calculate the IVI value

$$IVI = \text{Relative frequency} + \text{Relative abundance} + \text{Relative density} [RF + RA + RD]$$

Relative Value Index (RVI) = Relative Density + Relative Frequency [RD + RF].

Relative Value Index used for Expressing dominance and Ecological success of Shrub and herb Species in a particular area.

Shannon – Wiener Index, Evenness and Richness

Biodiversity index is a quantitative measure that reflects how many different types of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species is equally abundant.

The **Shannon Diversity Index** (sometimes called the Shannon-Wiener Index) is a way to measure the diversity of species in a community.

The species diversity index (H) for floral and faunal diversity is calculated by the use of Shannon Wiener Index (Shannon Wiener, 1963) as:

$$H = - \sum (ni/n) \times \ln (ni/n)$$

- Where, n_i is individual density of a species and n is total density of all the species
- The Evenness Index (E) is calculated by using Shannon's Evenness formula (Magurran, 2004).
- The higher the value of H, the higher the diversity of species in a particular community

The lower the value of H, the lower the diversity. A value of $H = 0$ indicates a community that only has one species

$$\text{Evenness Index (E)} = H / \ln(S)$$

Where, H is Shannon Wiener Diversity index; S is number of species

The Shannon evenness Index is a way to measure the evenness of species in a community. The term “evenness” simply refers to how similar the abundances of different species are in the community.

3.7.1.5 Floral diversity Analysis

Flora study was conducted using the above said methodology to inventory the existing terrestrial plants in both core and buffer zones. Details of plants have been described in the succeeding sections.

Flora in core zone

_____The mine lease area contains total of 17 species belonging to 12 families have been _____

recorded from the mine lease area. 2 trees 6 shrubs, 8 herbs were identified. It is a grassy land. There are no endangered species in mine lease area. Details of vegetation with scientific name indicated in Table 3.26.

Flora in 300m radius

The 300m radius zone area contains a total of 38 species belonging to 26 families have been recorded from the buffer zone. 10 Trees, 7 Shrubs and 21 Herbs and Climbers were identified. Details of flora with the scientific name details and of diversity species Richness index were mentioned in Table 3.27- 3.29 and Figure 3.28. There is no threat to the Flora species in 300m radius.

Flora in 10km radius zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area. It contains a total of species belonging to 39 families have been recorded from the buffer zone. The floral (80) varieties among them 31 Trees, 11 Shrubs, Herbs and Climbers, Creeper, Grass & Cactus, 38 were identified. Details of flora with the scientific name details of diversity species rich ness index were mentioned in Table 3.30- 3.32 and Figure 3.28.

Table 3.22 Flora in Mine lease area

S.No	Local name	Scientific name	Family name	No of plants
Tree				
1	Wetpalai maram	<i>Wrightia tinctoria</i>	Fabaceae	4
2	Unjai maram	<i>Albizia amara</i>	Apocynaceae	5
Shrubs				
1	Avaram chadi	<i>Senna auriculata</i>	Fabaceae	7
2	Earuku	<i>Calotropis gigantea</i>	Apocynaceae	8
3	communist pacha	<i>Chromolaena odorata</i>	Asteraceae	17
4	Unnichadi	<i>Lantana camara</i>	Verbenaceae	9
5	Thuthi	<i>Abutilon indicum</i>	Meliaceae	10
6	Sithapalam	<i>Annona squamosa</i>	Annonaceae	2
Herbs /Climber				
1	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	3
2	Thathapondur	<i>Tridax procumbens</i>	Asteraceae	14
3	Kolunji chadi	<i>Tephrosia purpurea</i>	Fabaceae	11
4	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	7
5	Nearunji mull	<i>Tribulus zeyheri</i> Sond	Zygophyllaceae	10
6	Pill	<i>Cenchrus ciliaris</i>	Poaceae	18
7	Pulapoo	<i>Aerva lanata</i>	Amaranthaceae	7
8	American mint	<i>Hyptis suaveolens</i>	Lamiaceae	12

Table 3.23 Flora in 300meter radius

S. No	Local Name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
Tree													
1	Velikathan maram	<i>Prosopis juliflora</i>	Fabaceae	7	6	8	0.9	75.0	1.2	10.6	10.7	21.3	Not Listed
2	Pongam oiltree	<i>Pongamia pin nata</i>	Fabaceae	6	5	8	0.8	62.5	1.2	9.1	8.9	18.0	Not Listed
3	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	8	7	8	1.0	87.5	1.1	12.1	12.5	24.6	Not Listed
4	Nochi	<i>Vitex negundo</i>	Lamiaceae	6	5	8	0.8	62.5	1.2	9.1	8.9	18.0	Not Listed
5	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	5	4	8	0.6	50.0	1.3	7.6	7.1	14.7	Not Listed
6	Vembu	<i>Azadirachta indica</i>	Meliaceae	7	6	8	0.9	75.0	1.2	10.6	10.7	21.3	Not Listed
7	Manga maram	<i>Mangifera indica</i>	Anacardiaceae	8	7	8	1.0	87.5	1.1	12.1	12.5	24.6	Not Listed
8	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	5	4	8	0.6	50.0	1.3	7.6	7.1	14.7	Not Listed
9	Wetpalai maram	<i>Wrightia tinctoria</i>	Apocynaceae	6	5	8	0.8	62.5	1.2	9.1	8.9	18.0	Not Listed
10	Unjai maram	<i>Albizia amara</i>	Fabaceae	8	7	8	1.0	87.5	1.1	12.1	12.5	24.6	Not Listed
Shrubs													
1	Unichedi	<i>Lantana camara</i>	Verbenaceae	7	6	8	0.9	75.0	1.2	14.9	15.0	29.9	Not Listed
2	Sundaika	<i>Solanum torvum</i>	Solanaceae	8	7	8	1.0	87.5	1.1	17.0	17.5	34.5	Not Listed
3	Erukku	<i>Calotropis gigantea</i>	apocynaceae	6	5	8	0.8	62.5	1.2	12.8	12.5	25.3	Not Listed
4	Avarai	<i>Senna auriculata</i>	Fabaceae	7	6	8	0.9	75.0	1.2	14.9	15.0	29.9	Not Listed
5	Sappathikalli	<i>Cereus pterogonus</i>	Cactus	8	7	8	1.0	87.5	1.1	17.0	17.5	34.5	Not Listed
6	Kattamanaku	<i>Jatropha gossypifolia L</i>	Euphorbiaceae	5	4	8	0.6	50.0	1.3	10.6	10.0	20.6	Not Listed

7	Karunochi	<i>Vitex negundo</i>	Lamiaceae	6	5	8	0.8	62.5	1.2	12.8	12.5	25.3	Not Listed
Herbs, Climbers & Grass													
1	Thumbai	<i>Leucas aspera</i>	Lamiaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
2	Kantang kathrikai	<i>Solanum virginianum</i>	Solanaceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed
3	Arugampul	<i>Cynodon dactylon</i>	Poaceae	8	7	8	1.0	87.5	1.1	5.7	5.9	11.6	Not Listed
4	Poolai poondur	<i>Aerva lanata</i>	Amaranthaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
5	Korai	<i>Cyperus rotundus</i>	Cyperaceae	5	4	8	0.6	50.0	1.3	3.6	3.4	6.9	Not Listed
6	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales	8	7	8	1.0	87.5	1.1	5.7	5.9	11.6	Not Listed
7	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
8	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed
9	Anachundaikai	<i>Solanum violaceum</i> <i>Ortega</i>	Solanaceae	5	4	8	0.6	50.0	1.3	3.6	3.4	6.9	Not Listed
10	Kombumul	<i>Acanthospermum</i> <i>hispidum</i>	Asteraceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed
11	Ponnangani	<i>Alternanthera pungens</i>	Amaranthaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
12	wild thulasi	<i>Hyptis suaveolens</i> (L.)	Lamiaceae	8	7	8	1.0	87.5	1.1	5.7	5.9	11.6	Not Listed
13	Gopuram Tangi	<i>Andrographis echinoides</i>	Acanthaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
14	Amman Paccharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed
15	Paca poondur	<i>Pavonia gallaensis</i>	Malvaceae	5	4	8	0.6	50.0	1.3	3.6	3.4	6.9	Not Listed
16	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	8	7	8	1.0	87.5	1.1	5.7	5.9	11.6	Not Listed
17	Vishnukrandai	<i>Evolvulus alsinoides</i>	Convolvulaceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
18	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed
19	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae	7	6	8	0.9	75.0	1.2	5.0	5.0	10.0	Not Listed
20	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	8	7	8	1.0	87.5	1.1	5.7	5.9	11.6	Not Listed
21	Agave	<i>Agave sisalana</i>	Asparagaceae	6	5	8	0.8	62.5	1.2	4.3	4.2	8.5	Not Listed

Table 3.24 Calculation of Species Diversity in 300m Radius

S. No	Common name	Scientific name	No. of Species	Pi	In (Pi)	Pi x in (Pi)
Tree						
1	Velikathan maram	<i>Prosopis juliflora</i>	7	0.11	-2.24	-0.24
2	Pongam oiltree	<i>Pongamia pin nata</i>	6	0.09	-2.40	-0.22
3	Panai maram	<i>Borassus flabellifer</i>	8	0.12	-2.11	-0.26
4	Nochi	<i>Vitex negundo</i>	6	0.09	-2.40	-0.22
5	Nuna maram	<i>Morinda citrifolia</i>	5	0.08	-2.58	-0.20
6	Vembu	<i>Azadirachta indica</i>	7	0.11	-2.24	-0.24
7	Manga maram	<i>Mangifera indica</i>	8	0.12	-2.11	-0.26
8	Thennai maram	<i>Cocos nucifera</i>	5	0.08	-2.58	-0.20
9	Wetpalai maram	<i>Wrightia tinctoria</i>	6	0.09	-2.40	-0.22
10	Unjai maram	<i>Albizia amara</i>	8	0.12	-2.11	-0.26
H (Shannon Diversity Index) =2.29						
Shrubs						
1	Unichedi	<i>Lantana camara</i>	7	0.15	-1.90	-0.28
2	Sundaika	<i>Solanum torvum</i>	8	0.17	-1.77	-0.30
3	Erukku	<i>Calotropis gigantea</i>	6	0.13	-2.06	-0.26
4	Avarai	<i>Senna auriculata</i>	7	0.15	-1.90	-0.28
5	Sappathikalli	<i>Cereus pterogonus</i>	8	0.17	-1.77	-0.30
6	Kattamanaku	<i>Jatropha gossypifolia L</i>	5	0.11	-2.24	-0.24
7	Karunochi	<i>Vitex negundo</i>	6	0.13	-2.06	-0.26
H (Shannon Diversity Index) =1.93						
HERBS						
1	Thumbai	<i>Leucas aspera</i>	7	0.05	-3.00	-0.15
2	Katang kathrikai	<i>Solanum virginianum</i>	6	0.04	-3.15	-0.13
3	Arugampul	<i>Cynodon dactylon</i>	8	0.06	-2.86	-0.16
4	Poolai poondur	<i>Aerva lanata</i>	7	0.05	-3.00	-0.15
5	Korai	<i>Cyperus rotundus</i>	5	0.04	-3.33	-0.12
6	Nerunji	<i>Tribulus terrestris</i>	8	0.06	-2.86	-0.16
7	Nayuruvi	<i>Achyranthes aspera</i>	7	0.05	-3.00	-0.15
8	Thottalchinungi	<i>Mimosa pudica</i>	6	0.04	-3.15	-0.13
9	Anachundaikai	<i>Solanum violaceum Ortega</i>	5	0.04	-3.33	-0.12

10	Kombumul	<i>Acanthospermum hispidum</i>	6	0.04	-3.15	-0.13
11	Ponnangani	<i>Alternanthera pungens</i>	7	0.05	-3.00	-0.15
12	wild thulasi	<i>Hyptis suaveolens (L.)</i>	8	0.06	-2.86	-0.16
13	Gopuram Tangi	<i>Andrographis echiodides</i>	7	0.05	-3.00	-0.15
14	Amman Paccharisi	<i>Euphorbia hirta</i>	6	0.04	-3.15	-0.13
15	Paca poondu	<i>Pavonia gallaensis</i>	5	0.04	-3.33	-0.12
16	Perandai	<i>Cissus quadrangularis</i>	8	0.06	-2.86	-0.16
17	Vishnukrandai	<i>Evolvulus alsinoides</i>	7	0.05	-3.00	-0.15
18	Musumusukkai	<i>Mukia maderaspatana</i>	6	0.04	-3.15	-0.13
19	Sirupunaikkali	<i>Passiflora foetida</i>	7	0.05	-3.00	-0.15
20	Nagathali	<i>Opuntia dillenii</i>	8	0.06	-2.86	-0.16
21	Agave	<i>Agave sisalana</i>	6	0.04	-3.15	-0.13
H (Shannon Diversity Index) =3.03						

Table 3.25 Species Richness (Index) in 300m Radius

Details	H	H max	Evenness	Species Richness
Tree	2.29	2.30	0.99	2.15
Shrubs	1.93	1.95	0.99	1.56
Herbs	3.03	3.04	1.00	4.05

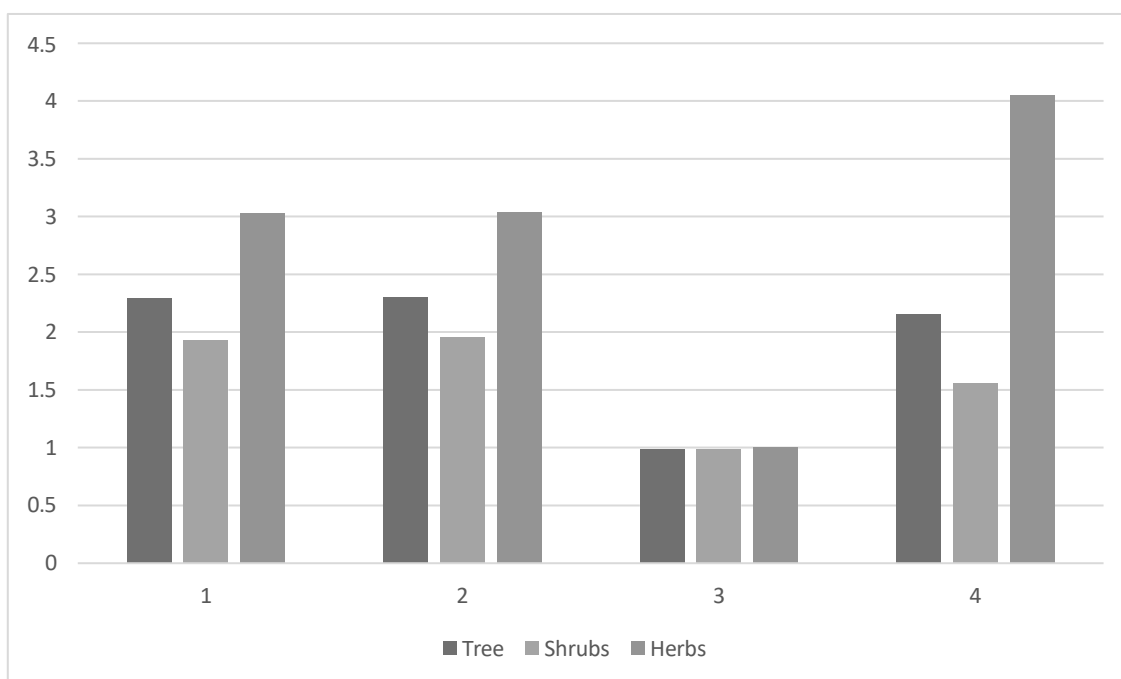


Figure. 3.26 Species Richness (Index) in 300-meter radius

Table 3.26 Flora in Buffer Zone

S. No	Local Name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
Tree													
1	Vembu	<i>Azadirachta indica</i>	Meliaceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
2	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
3	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
4	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	5	4	10	0.5	40.0	1.3	2.3	2.1	4.4	Not Listed
5	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	4	3	10	0.4	30.0	1.3	1.8	1.6	3.4	Not Listed
6	Puliyamaram	<i>Tamarindus indica</i>	Legumes	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
7	Punnai	<i>Calophyllum inophyllum</i>	Calophyllaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
8	Athi	<i>Ficus recemosa</i>	Moraceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
9	Vazhaimaram	<i>Musa</i>	Musaceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
10	Kadukka puli	<i>Terminalia chebula</i>	Combretaceae	5	4	10	0.5	40.0	1.3	2.3	2.1	4.4	Not Listed
11	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
12	Perumungil	<i>Bambusa bambos</i>	Poaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
13	Sapota	<i>Manilkara zapota</i>	Sapotaceae	9	8	10	0.9	80.0	1.1	4.1	4.3	8.4	Not Listed
14	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed

15	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
16	Ezhumuchai maram	<i>Citrus lemon</i>	Rutaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
17	Alamaram	<i>Ficus benghalensis</i>	Moraceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
18	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	5	4	10	0.5	40.0	1.3	2.3	2.1	4.4	Not Listed
19	Manga	<i>Mangifera indica</i>	Anacardiaceae	9	8	10	0.9	80.0	1.1	4.1	4.3	8.4	Not Listed
20	Thekku	<i>Tectona grandis</i>	Verbenaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
21	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
22	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
23	Vellai Karuvelam	<i>Vachellia nilotica</i>	Fabaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
24	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
25	Vadanarayani	<i>Delonix elata</i>	Fabaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
26	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	9	8	10	0.9	80.0	1.1	4.1	4.3	8.4	Not Listed
27	Pappali maram	<i>Carica papaya L</i>	Caricaceae	8	7	10	0.8	70.0	1.1	3.7	3.7	7.4	Not Listed
28	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	6	5	10	0.6	50.0	1.2	2.8	2.7	5.4	Not Listed
29	Koyya	<i>Psidium guajava</i>	Myrtaceae	10	9	10	1.0	90.0	1.1	4.6	4.8	9.4	Not Listed
30	Seethapazham	<i>Annona reticulata</i>	Annonaceae	9	8	10	0.9	80.0	1.1	4.1	4.3	8.4	Not Listed
31	Moonghil	<i>Bambusa bambo</i>	Poaceae	7	6	10	0.7	60.0	1.2	3.2	3.2	6.4	Not Listed
Shrubs													
1	Avarai	<i>Senna auriculata</i>	Fabaceae	8	7	10	0.8	70.0	1.1	9.5	9.6	19.1	Not Listed
2	Sundaika	<i>Solanum torvum</i>	Solanaceae	9	8	10	0.9	80.0	1.1	10.7	11.0	21.7	Not Listed
3	Arali	<i>Nerium indicum</i>	Apocynaceae	7	6	10	0.7	60.0	1.2	8.3	8.2	16.6	Not Listed
4	Idlipoo	<i>xoracoc cineia</i>	Rubiaceae	6	5	10	0.6	50.0	1.2	7.1	6.8	14.0	Not Listed
5	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae	7	6	10	0.7	60.0	1.2	8.3	8.2	16.6	Not Listed
6	Icham	<i>Phoenix pusilla</i>	Arecaceae	8	7	10	0.8	70.0	1.1	9.5	9.6	19.1	Not Listed

7	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	9	8	10	0.9	80.0	1.1	10.7	11.0	21.7	Not Listed
8	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	6	5	10	0.6	50.0	1.2	7.1	6.8	14.0	Not Listed
9	Thuthi	<i>Abutilon indicum</i>	Meliaceae	7	6	10	0.7	60.0	1.2	8.3	8.2	16.6	Not Listed
10	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	9	8	10	0.9	80.0	1.1	10.7	11.0	21.7	Not Listed
11	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	8	7	10	0.8	70.0	1.1	9.5	9.6	19.1	Not Listed
Herbs, Climber, Creeper, Grass & Cactus													
1	Thumbai	<i>Leucas aspera</i>	Lamiaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
2	Parttiniyam	<i>Parthenium</i>	Asteraceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
3	Thoiya keera	<i>Digeria muricata</i>	Amaranthaceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
4	Pulliyari	<i>Oxalis corniculata</i>	Oxalidaceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed
5	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	5	4	12	0.4	33.3	1.3	1.7	1.6	3.3	Not Listed
6	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	10	9	12	0.8	75.0	1.1	3.4	3.5	7.0	Not Listed
7	Arugampul	<i>Cynodon dactylon</i>	Poaceae	11	10	12	0.9	83.3	1.1	3.8	3.9	7.7	Not Listed
8	Manjal	<i>Curcuma longa</i>	Zingiberaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
9	Manathakkali	<i>Solanum nigrum</i>	Solanaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
10	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed
11	Koraikkilangu	<i>Cyperus articulatus</i>	Cyperaceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
12	Karisilanganni	<i>Eclipta prostrata</i>	Asteraceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
13	Korai	<i>Cyperus rotundus</i>	Cyperaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
14	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed
15	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
16	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
17	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	10	9	12	0.8	75.0	1.1	3.4	3.5	7.0	Not Listed
18	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed

19	Sangupoo	<i>Clitoria ternata</i>	Fabaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
20	Malli	<i>Jasminum augustifolium</i>	Oleaceae	5	4	12	0.4	33.3	1.3	1.7	1.6	3.3	Not Listed
21	Vallikeerai	<i>Ipomoea aquatica</i>	Convolvulaceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
22	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
23	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
24	mookuthi poondu	<i>Wedelia trilobata</i>	Asteraceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
25	Pullu	<i>Eragrostis ferruginea</i>	Poaceae	11	10	12	0.9	83.3	1.1	3.8	3.9	7.7	Not Listed
26	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
27	Nagathali	<i>Opuntia dillenii</i>	Nagathali	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
28	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
29	Veetukaayapoondur	<i>Tridax procumbens</i>	Asteraceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed
30	Kaattu piral	<i>Hibiscus hispidissimus</i>	Malvaceae	5	4	12	0.4	33.3	1.3	1.7	1.6	3.3	Not Listed
31	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
32	Karisilanganni	<i>Eclipta prostrata</i>	Asteraceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
33	Korai	<i>Cyperus rotundus</i>	Cyperaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
34	Kumattikkirai	<i>Allmania nodiflora</i>	Amaranthaceae	6	5	12	0.5	41.7	1.2	2.1	2.0	4.0	Not Listed
35	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed
36	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae	8	7	12	0.7	58.3	1.1	2.7	2.8	5.5	Not Listed
37	Kanamvazhalai	<i>Commelina benghalensis</i>	Commelinaceae	9	8	12	0.8	66.7	1.1	3.1	3.1	6.2	Not Listed
38	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	7	6	12	0.6	50.0	1.2	2.4	2.4	4.8	Not Listed

Table 3.27 Calculation of Species Diversity in Buffer Zone

S. No	Common name	Scientific name	No. of Species	Pi	In (Pi)	Pi x in (Pi)
Tree						
1	Vembu	<i>Azadirachta indica</i>	6	0.03	-3.59	-0.10
2	Pongam oiltree	<i>Pongamia pinnata</i>	7	0.03	-3.44	-0.11
3	Karuvelam	<i>Acacia nilotica</i>	8	0.04	-3.31	-0.12
4	Thennai maram	<i>Cocos nucifera</i>	5	0.02	-3.78	-0.09
5	Arasanmaram	<i>Ficus religiosa</i>	4	0.02	-4.00	-0.07
6	Puliyamaram	<i>Tamarindus indica</i>	7	0.03	-3.44	-0.11
7	Punnai	<i>Calophyllu inophyllum</i>	8	0.04	-3.31	-0.12
8	Athi	<i>Ficus recemosa</i>	7	0.03	-3.44	-0.11
9	Vazhaimaram	<i>Musa</i>	6	0.03	-3.59	-0.10
10	Kadukka puli	<i>Terminalia chebula</i>	5	0.02	-3.78	-0.09
11	Nettilinkam	<i>Polylathia longifolia</i>	7	0.03	-3.44	-0.11
12	Perumungil	<i>Bambusa bambos</i>	8	0.04	-3.31	-0.12
13	Sapota	<i>Manilkara zapota</i>	9	0.04	-3.19	-0.13
14	Eucalyptus	<i>Eucalyptus globules</i>	6	0.03	-3.59	-0.10
15	Navalmaram	<i>Sygygium cumini</i>	7	0.03	-3.44	-0.11
16	Ezhumuchai maram	<i>Citrus lemon</i>	8	0.04	-3.31	-0.12
17	Alamaram	<i>Ficus benghalensis</i>	6	0.03	-3.59	-0.10
18	Panai maram	<i>Borassus flabellifer</i>	5	0.02	-3.78	-0.09
19	Manga	<i>Mangifera indica</i>	9	0.04	-3.19	-0.13
20	Thekku	<i>Tectona grandis</i>	7	0.03	-3.44	-0.11
21	Nelli	<i>Emblica officinalis</i>	6	0.03	-3.59	-0.10
22	Nettilinkam	<i>Polylathia longifolia</i>	8	0.04	-3.31	-0.12
23	Vellai Karuvelam	<i>Vachellia nilotica</i>	7	0.03	-3.44	-0.11
24	Palamaram	<i>Artocarpus heterophyllus</i>	6	0.03	-3.59	-0.10
25	Vadanarayani	<i>Delonix elata</i>	7	0.03	-3.44	-0.11
26	Marudaani	<i>Lawsonia inermis</i>	9	0.04	-3.19	-0.13
27	Pappali maram	<i>Carica papaya L</i>	8	0.04	-3.31	-0.12
28	Nuna maram	<i>Morinda citrifolia</i>	6	0.03	-3.59	-0.10
29	Koyya	<i>Psidium guajava</i>	10	0.05	-3.08	-0.14
30	Seethapazham	<i>Annona reticulata</i>	9	0.04	-3.19	-0.13
31	Moonghil	<i>Bambusa bambo</i>	7	0.03	-3.44	-0.11
H (Shannon Diversity Index) =3.41						
Shrubs						
1	Avarai	<i>Senna auriculata</i>	8	0.10	-2.35	-0.22
2	Sundaika	<i>Solanum torvum</i>	9	0.11	-2.23	-0.24
3	Arali	<i>Nerium indicum</i>	7	0.08	-2.48	-0.21
4	Idlipoo	<i>xoracoc cineia</i>	6	0.07	-2.64	-0.19

5	Neermulli	<i>Hydrophila auriculata</i>	7	0.08	-2.48	-0.21
6	Icham	<i>Phoenix pusilla</i>	8	0.10	-2.35	-0.22
7	Chaturakalli	<i>Euphorbia antiquorum</i>	9	0.11	-2.23	-0.24
8	Kattamanakku	<i>Jatropha curcas</i>	6	0.07	-2.64	-0.19
9	Thuthi	<i>Abutilon indicum</i>	7	0.08	-2.48	-0.21
10	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	9	0.11	-2.23	-0.24
11	Erukku	<i>Calotropis gigantea</i>	8	0.10	-2.35	-0.22
H (Shannon Diversity Index) =2.39						
Herbs, Climber, Creeper, Grass & Cactus						
1	Thumbai	<i>Leucas aspera</i>	9	0.03	-3.48	-0.11
2	Parttiniyam	<i>Parthenium</i>	7	0.02	-3.73	-0.09
3	Thoiya keera	<i>Digeria muricata</i>	8	0.03	-3.60	-0.10
4	Pulliyari	<i>Oxalis corniculata</i>	6	0.02	-3.88	-0.08
5	Mukurathai	<i>Boerhavia diffusa</i>	5	0.02	-4.07	-0.07
6	Thulasi	<i>Ocimum tenuiflorum</i>	10	0.03	-3.37	-0.12
7	Arugampul	<i>Cynodon dactylon</i>	11	0.04	-3.28	-0.12
8	Manjal	<i>Curcuma longa</i>	9	0.03	-3.48	-0.11
9	Manathakkali	<i>Solanumnigrum</i>	7	0.02	-3.73	-0.09
10	Nai kadugu	<i>Celome viscosa</i>	6	0.02	-3.88	-0.08
11	Koraikkilangu	<i>Cyperus articulates</i>	8	0.03	-3.60	-0.10
12	Karisilanganni	<i>Eclipta prostata</i>	9	0.03	-3.48	-0.11
13	Korai	<i>Cyperus rotundus</i>	7	0.02	-3.73	-0.09
14	Kunnakora	<i>Cyperus compressus</i>	6	0.02	-3.88	-0.08
15	Mukurattai	<i>Boerhavia diffusa</i>	8	0.03	-3.60	-0.10
16	Kovai	<i>Coccinia grandis</i>	9	0.03	-3.48	-0.11
17	Perandai	<i>Cissus quadrangularis</i>	10	0.03	-3.37	-0.12
18	Mudakkotan	<i>Cardiospermum helicacabum</i>	6	0.02	-3.88	-0.08
19	Sangupoo	<i>Clitoriatermatia</i>	7	0.02	-3.73	-0.09
20	Malli	<i>Jasminum augustifolium</i>	5	0.02	-4.07	-0.07
21	Vallikeera	<i>Ipomoea aquatica</i>	8	0.03	-3.60	-0.10
22	Siru puladi	<i>Desmodium triflorum</i>	9	0.03	-3.48	-0.11
23	Sithrapaalavi	<i>Euphorbia prostrata</i>	7	0.02	-3.73	-0.09
24	mookuthi poond	<i>Wedelia trilobata</i>	8	0.03	-3.60	-0.10
25	Pullu	<i>Eragrostis ferruginea</i>	11	0.04	-3.28	-0.12
26	Chevvarakupul	<i>Chloris barbata</i>	9	0.03	-3.48	-0.11
27	Nagathali	<i>Opuntia dillenii</i>	8	0.03	-3.60	-0.10
28	Nayuruvi	<i>Achyranthes aspera</i>	7	0.02	-3.73	-0.09
29	Veetukaayapoond	<i>Tridax procumbens</i>	6	0.02	-3.88	-0.08
30	Kaattu piral	<i>Hibiscus hispidissimus</i>	5	0.02	-4.07	-0.07
31	Kuppaimeni	<i>Acalypha indica</i>	9	0.03	-3.48	-0.11
32	Karisilanganni	<i>Eclipta prostata</i>	8	0.03	-3.60	-0.10

33	Korai	<i>Cyperus rotundus</i>	7	0.02	-3.73	-0.09
34	Kumattikkirai	<i>Allmania nodiflora</i>	6	0.02	-3.88	-0.08
35	Kunnakora	<i>Cyperus compressus</i>	7	0.02	-3.73	-0.09
36	Keelaneeli	<i>Phyllanthus niruri</i>	8	0.03	-3.60	-0.10
37	Kanamvazhalai	<i>Commelina benghalensis</i>	9	0.03	-3.48	-0.11
38	Thottalchinungi	<i>Mimosa pudica</i>	7	0.02	-3.73	-0.09
H (Shannon Diversity Index) =3.62						

Table 3.28 Species Richness (Index) in Buffer Zone

Details	H	H max	Evenness	Species Richness
Tree	3.41	3.43	0.99	5.57
Shrubs	2.39	2.40	1.00	2.26
Herbs	3.62	3.64	0.99	6.52

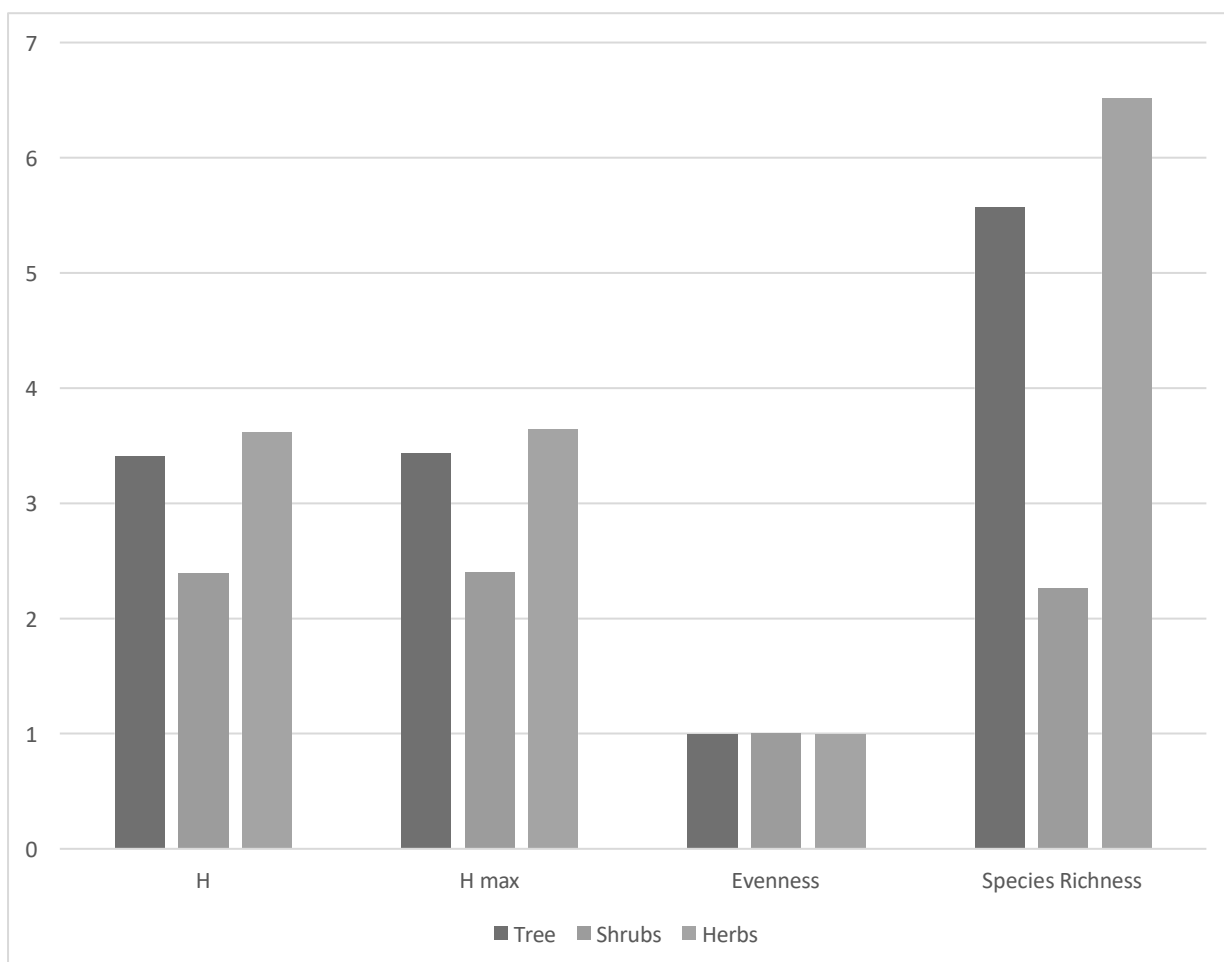


Figure. 3.27 Species Richness (Index) in 10km radius



Prosopis juliflora



Senna siamea



Croton bonplandianus



Wrightia tinctoria



Cissus quadrangularis



Agave sisalana



Stachytarpheta jamaicensis



Tephrosia purpurea



Sida cordifolia L



Hyptis suaveolens



sida acuta



Lantana camara



Albizia amara



Leucas aspera



Azadirachta indica



Annona squamosa



Mangifera indica



Opuntia

Figure 3.28 Flora in Core and Buffer Area

3.7.2 Fauna

The fauna study was both direct & indirect observation methods were used to survey the fauna, the study area was restricted up to 10km radius from the lease area. The study area is divided into two parts as core zone and buffer zone. The data was generated with reference to topography, land use, vegetation pattern, animals etc. Core zone has been considered within the cluster area and buffer zone has been considered outside the cluster area up to 10km from Project boundary. The faunal like was carried out for Mammals, Birds, Reptiles, Amphibians and Butterflies. There are no rare, endangered, threatened (RET) and endemic species present in core area. indirect evidence such as calls, nests, burrows, droppings, scats, tracks etc. All available types of habitats at the site were evaluated and marked.

Table 3.29 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.	Grimmett R (2011)

3.7.2.1 Methodology

Field observations of fauna were carried out. The commonly available mammals, amphibians, reptiles, butterflies, with 10km surroundings were enumerated. The method followed for avifauna survey has been outlined in respective section. To prepare a detailed report on the status of faunal diversity within study area, field studies were conducted. Both direct (sighting) and indirect (evidences) observations methods were used to survey the faunal species around the study area. Further, information towards faunal diversity from secondary sources was collected on interaction with the local people and Forest Dept. officials.

Fauna Composition in the Core Zone

The faunal species observed in the study area are listed in Table 3.22. A total of 25 species were recorded in core zone of the project area. The core zone exhibited fewer species, with only a small number of insects, mammals, and reptiles, whereas the buffer zone showed greater species diversity. Among the 25 species recorded, the distribution was as follows: (10) insects, (03) reptiles, (04) Mammals & (09) Avian. These species were cross-checked against the IUCN Red List Database version 3.1 to identify any threatened species. Data analysis revealed that 8 species are categorized as Least Concern on the Red List, while 17 species were not listed. The analysis indicates that there are no REET species in the core zone of the proposed quarry site.

Fauna Composition in the buffer Zone

The faunal species observed in the study area are listed in Table 3.32. Taxonomically a total of 50 species belonging to 35 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were Birds 15, followed by Insects 13, Reptiles 11, Mammals 5, Avian 50 & Amphibians 03. There are 4 schedule II species and 24 schedule IV species according to Indian wild life Act 1972. Totally, 19 species of bird were sighted in the study area.

Table 3.30 Fauna in Core Zone

S.no	Common Name/English Name	Scientific Name	Family name	IUCN Red List data
Insects				
1	Chocolate pansy	<i>Junonia iphita</i>	Nymphalidae	NA
2	Lime swallowtail	<i>Papilio demoleus</i>	Papilionidae	NA
3	Common Mormon	<i>Papilio polytes</i>	Papilionidae	NA
4	Crimson dropwing	<i>Trithemis aurora</i>	Libellulidae	LC
5	Lemon pansy	<i>Junonia lemonias</i>	Nymphalidae	NA
6	Tawny coster	<i>Acraea terpsicore</i>	Nymphalidae	NA
7	Slender skimmer	<i>Orthetrum sabina</i>	Libellulidae	LC
8	Plains tiger butterfly	<i>Danaus chrysippus</i>	Nymphalidae	LC
9	Mottled emigrant	<i>Catopsilia pyranthe</i>	Pieridae	LC

10	Spotted locust	<i>Aularches miliaris</i>	Pyrgomorphidae	LC
Reptiles				
1	Oriental garden lizard	<i>Calotes uersicolor</i>	Agamidae	LC
2	Fan-Throated Lizard	<i>Sitanaponticeriana</i>	Agamidae	LC
3	Common skink	<i>Mabuya carinatus</i>	Scincidae	LC
Aves				
1	Baya weaver	<i>Ploceus philippinus</i>	Ploceidae	LC
2	White – browed Wagtail	<i>Motacilla maderaspatensis</i>	Motacillidae	LC
3	Great cormorant	<i>Phalacrocorax carbo</i>	Phalacrocoracidae	LC
4	Indian robin	<i>Copsychus fulicatus</i>	Muscicapidae	LC
5	Indian Roller	<i>Coracias benghalensis</i>	Coraciidae	LC
6	Indian paradise flycatcher	<i>Terpsiphone paradisi</i>	Monarchidae	LC
7	Common myna	<i>Acridotheres tristis</i>	Sturnidae	LC
8	European bee- eater	<i>Merops apiaster</i>	Meropidae	LC
9	Black drongo	<i>Dicrurus macrocercus</i>	Dicruridae	LC
Mammals				
1	House mouse	<i>Mus musculus</i>	Muridae	LC
2	Indian hare	<i>Lepus nigricollis</i>	Leporidae	LC
3	Cow	<i>Bos taurus</i>	Bovidae	NA
4	Goat	<i>Capra hircus</i>	Bovidae	NA

*NE- Not Evaluated; LC- Least Concern, NT –Near Threatened, T-Threatened

Table 3.31 Fauna in Buffer Zone

S. No	Common Name/English Name	Scientific Name	Family name	IUCN Red List data
Insects				
1	Chocolate pansy	<i>Junonia iphita</i>	Nymphalidae	NA
2	Lime swallowtail	<i>Papilio demoleus</i>	Papilionidae	NA
3	Common Mormon	<i>Papilio polytes</i>	Papilionidae	NA
4	Crimson dropwing	<i>Trithemis aurora</i>	Libellulidae	LC
5	Lemon pansy	<i>Junonia lemonias</i>	Libellulidae	NA
6	Tawny coster	<i>Acraea terpsicore</i>	Nymphalidae	NA
7	Slender skimmer	<i>Orthetrum sabina</i>	Libellulidae	LC
8	Plaina tiger butterfly	<i>Danaus chrysippus</i>	Nymphalidae	LC
9	Danaid eggfly	<i>Hypolimnas misippus</i>	Nymphalidae	LC

10	Bark blue tiger butterfly	<i>Tirumala septentrionis</i>	Nymphalidae	NA
11	Mottled emigrant	<i>Catopsilia pyranthe</i>	Pieridae	NA
12	Spotted locust	<i>Aularches miliaris</i>	Pyrgomorphidae	NA
13	Ditgh jewel	<i>Brachythemis contaminata</i>	Libellulidae	LC
Reptiles				
1	Oriental garden lizard	<i>Calotes uersicolor</i>	Agamidae	NA
2	Fan-Throated Lizard	<i>Sitanaponticeriana</i>	Agamidae	NA
3	Common skink	<i>Mabuya carinatus</i>	Scincidae	NA
4	Buff striped keelback	<i>Amphiesma stolatum</i>	Colubridae	LC
5	Common bronzeback tree snake	<i>Dendrelaphis tristis</i>	Colubridae	LC
6	Common krait	<i>Bungarus caeruleus</i>	Elapidae	LC
7	Russells wolf snake	<i>Lycodon fasilatus</i>	Colubridae	LC
8	Brahminy blindsnake	<i>Indotyphlope braminus</i>	Typhlopidae	LC
9	Rock dragon	<i>Psammophilus dorsalis</i>	Agamidae	LC
10	Indian vine snake	<i>Ahaetulla oxyrhynca</i>	Colubridae	NA
11	Blotched house gecko	<i>Hemidactylus triedrus</i>	Gekkonidae	LC
Aves				
1	Baya weaver	<i>Ploceus philippinus</i>	Ploceidae	LC
2	White – browed Wagtail	<i>Motacilla maderaspatensis</i>	Motacillidae	LC
3	Great cormorant	<i>Phalacrocorax carbo</i>	Phalacrocoracidae	LC
4	Indian robin	<i>Copsychus fulicatus</i>	Muscicapidae	LC
5	Indian Roller	<i>Coracias benghalensis</i>	Coraciidae	LC
6	Indian paradise flycatcher	<i>Terpsiphone paradis</i>	Monarchidae	LC
7	Red junglefowl	<i>Gallus gallus</i>	Phasianidae	LC
8	Common myna	<i>Acridotheres tristis</i>	Sturnidae	LC
9	European bee- eater	<i>Merops apiaster</i>	Meropidae	LC
10	Black drongo	<i>Dicrurus macrocercus</i>	Dicruridae	LC
11	Black – winged stilt	<i>Himantopus Himantopus</i>	Recurvirostridae	LC
12	Crested serpent eagle	<i>Spilornis cheela</i>	Accipitridae	LC
13	Brahminy kite	<i>Haliastur indus</i>	Accipitridae	LC
13	Spotted owlet	<i>Athene brama</i>	Strigidae	LC
14	Black rumped flameback	<i>Dinopium benghalense</i>	Picidae	LC
15	White -browed bulbul	<i>Pycnonotus luteolus</i>	Pycnonotidae	LC
16	House sparrow	<i>Passer domesticus</i>	Passeridae	LC
17	Grey heron	<i>Ardea cinerea</i>	Ardeidae	LC
18	Indian peafowl	<i>Pavo cristatus</i>	Phasianidae	LC
19	Rose -ringed parakeet	<i>Psittacula krameri</i>	Psittaculidae	LC
20	European bee- eater	<i>Merops apiaster</i>	Meropidae	LC

21	Scaly – breasted munia	<i>Lonchura punctulata</i>	Estrildidae	LC
22	White -throated kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	LC
23	House crow	<i>Corvus splendens</i>	Corvidae	LC
24	Asian koel	<i>Eudynamys scolopaceus</i>	Cuculidae	LC
25	Asian green bee- Eater	<i>Merops orientalis</i>	Meropidae	LC
26	Little cormorant	<i>Microcarbo niger</i>	Microcarbo	LC
27	Painted stork	<i>Mycteria leucocephala</i>	Ciconiidae	NT
28	Shikra	<i>Accipiter badius</i>	Accipitridae	LC
29	Indian robin	<i>Copsychus fulicatus</i>	Muscicapidae	LC
30	Indian roller	<i>Coracias benghalensis</i>	Coraciidae	LC
31	Indian paradise flycatcher	<i>Terpsiphone paradisi</i>	Monarchidae	LC
32	Yellow – billed babbler	<i>Argya affinis</i>	Leiothrichidae	LC
33	Ashy – crowned sparrow lark	<i>Eremopterix griseus</i>	Alaudidae	LC
34	Small pratincole	<i>Glareola lactea</i>	Glareolidae	LC
35	Great egret	<i>Ardea alba</i>	Ardeidae	LC
36	Rock pigeon	<i>Columba livia</i>	Columbidae	LC
37	Eurasian collared – dove	<i>Streptopelia decaocto</i>	Columbidae	LC
38	Eurasian coot	<i>Fulica atra</i>	Rallidae	LC
39	Northern shoveler	<i>Spatula clypeata</i>	Anatidae	LC
40	Black kite	<i>Milvus migrans</i>	Accipitridae	LC
41	Red junglefowl	<i>Gallus gallus</i>	Phasianidae	LC
42	Common kingfisher	<i>Alcedo atthis</i>	Alcedo atthis	LC
43	Common sandpiper	<i>Actitis hypoleucos</i>	Scolopacidae	LC
44	Striated heron	<i>Butorides striata</i>	Ardeidae	LC
45	Laughing dove	<i>Spilopelia senegalensis</i>	Columbidae	LC
46	Red vented bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae	LC
47	Black winked kite	<i>Elanus caeruleus</i>	Accipitridae	LC
48	Common tailorbird	<i>Orthotomus sutorius</i>	Cisticolidae	LC
49	Indian pond -heron	<i>Ardeola grayii</i>	Ardeidae	LC
50	Greater racket tailed drongo	<i>Dicrurus paradiseus</i>	Dicruridae	LC
Mammals				
1	House mouse	<i>Mus musculus</i>	Muridae	LC
2	Indian hare	<i>Lepus nigricollis</i>	Leporidae	LC
3	Jungle cat	<i>Felis chaus</i>	Felidae	LC
4	Cow	<i>Bos taurus</i>	Bovidae	NA
5	Goat	<i>Capra hircus</i>	Bovidae	NA
Amphibians				
1	Asian common toad	<i>Duttaphrynus melanostictus</i>	Bufonidae	LC
2	Chunam tree frog	<i>Polypedates maculatus</i>	Rhacophoridae	LC
3	Common skittering frog	<i>Euphlyctis cyanophlyctis</i>	Dicroglossidae	LC

*NL-Not listed, LC-Least concern, NT-Near threatened.

Aquatic Vegetation

The Field Survey for Assessing the Aquatic Vegetation Was Also Undertaken During the Study Period. The List of Aquatic Plants Observed in The Study Area Is Given in Table 3.34.

Table 3.32 Aquatic Fauna and Flora

Sl. No	Common Name	Scientific name	Family Name	IUCN Red List of Threatened Species
Flora				
1	Water hyacinth	<i>Eichornia crassipes</i>	Pontederiaceae	NA
2	Blue waterlily	<i>Nymphaea nouchali</i>	Nymphaeaceae	LC
3	Cross Grass	<i>Carex cruciata</i>	Cyperaceae	NA
Fauna				
5	Thilopia	<i>Oreochromis niloticus</i>	Cichlidae	LC
6	Catla	<i>Catla catla</i>	Cyprinidae	LC
7	Koravi meen	<i>Channa striata</i>	Channidae	LC
8	Roghu	<i>Labeo rohita</i>	Cyprinidae	LC

*LC- Least Concern, NA-Not yet assessed

Food chain

The food chain in aquatic ecosystems often begins with the algae or phytoplankton producers, and then the zooplankton that feed on them. This type of food chain is found in nearby lakes and rivers with phytoplankton, zooplankton, fish Artiola gray and humans.

Ex: Phytoplankton→Zooplankton→small fish→large fish → Human.

Endangered and endemic species as per the IUCN Red List

There are no rare, endangered and endemic species found in the study area. There are no biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), ecologically sensitive zone in 10km radius.

Agriculture & Horticulture in Krishnagiri district:

Krishnagiri district is one of the potential districts for cultivation of horticultural crops. Total area under cultivation is 1,82,888ha. In that, Horticultural crops have been cultivated in about 80499 ha and the prominent crops under cultivation are Mango, Banana, Tomato, Beans, Cabbage, Cauliflower, Brinjal, Coriander, Potato, Carrot, Beetroot, Knol Khol, Turmeric, Rose, Gerbera, Carnation, Jasmine and Chrysanthemum. Mango is the major crop grown in this district. The average rainfall for the district is 842mm per annum.

To increase the production, productivity and income of farmers, various schemes are being implemented through Department of Horticulture and Plantation crops. Hi-tech production techniques among farmers are being introduced by various schemes like poly-green house construction, shade net house, mulching, distribution of Vegetable portray seedlings of high yielding varieties and Grafted / Seedlings of fruit crops of high yielding

varieties are being Implemented.

Major Agricultural Crops

Major horticulture crops cultivated in this district are vegetables crops like tomato, brinjal, chillies, onion and turmeric. Details of major field crops and horticulture in 1km radius is given in Table. 3.33.

Table 3.33 Major Crops in 1km radius

S. No	Crop	Scientific Name	Family
1.	Paddy	<i>Oryza sativa</i>	Poaceae
2.	Cholam	<i>Sorghum</i>	Poaceae
3.	Bajra	<i>Pennisetum glaucum</i>	Poaceae
4.	Ragi	<i>Eleusine coracana</i>	Poaceae
5.	Redgram	<i>Cajanus cajan</i>	Fabaceae
6.	Bengalgram	<i>Cicer arietinum</i>	Fabaceae
7.	Greengram	<i>Vigna radiata</i>	Fabaceae
8.	Blackgram	<i>Vigna mungo</i>	Fabaceae
9.	Horsegram	<i>Macrotyloma uniflorum</i>	Fabaceae
10.	Ground Nut	<i>Arachis hypogaea</i>	Fabaceae
11.	Cotton	<i>Gossypium</i>	Malvaceae
12.	Sugar cane	<i>Saccharum officinarum</i>	Poaceae

Major Horticulture Crops 1km radius

Horticulture includes cultivation of fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds and non-food crops such as grass and ornamental trees and plants. It also includes plant conservation, landscape restoration, landscape and garden design.

Horticulture 1km radius

Major horticulture crops cultivated in Krishnagiri district are fruit crops like mango, banana, Sapota and guava, vegetables like tomato, brinjal, Veandai, chillies, onion and tapioca, spices like turmeric. Details of major field crops and horticulture cultivation in 1km radius is given in Table 3.34.

Table 3.34 Major Field Crops & Horticulture cultivation in 1km radius.

S. No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1.	Mango	<i>Mangifera indica</i>	Anacardiaceae
2.	Banana	<i>Musa paradisiaca</i> Linn	Musaceae
3.	Tomato	<i>Solanum lycopersicum</i>	Solanaceae
4.	Beans	<i>Phaseolus</i>	Fabaceae
5.	Cabbage	<i>Brassica oleracea</i> var	Brassicaceae
6.	Cauliflower	<i>Brassica oleracea</i>	Brassicaceae
7.	Brinjal	<i>Solanum melongena</i>	Solanaceae
8.	Onion	<i>Allium cepa</i>	Amaryllidaceae

9.	Tapioca	<i>Manihot esculenta</i>	Euphorbiaceae
10.	Coriander	<i>Coriandrum sativum</i>	Apiaceae
11.	Potato	<i>Solanum tuberosum</i>	Solanaceae
12.	Carrot	<i>Daucus carota subsp</i>	Apiaceae
13.	Beetroot	<i>Beta vulgaris</i>	Chenopodiaceae
14.	Turmeric	<i>Curcuma longa</i>	Zingiberaceae
15.	Rose	<i>Rosa rubiginosa</i>	Rosaceae
16.	Carnation	<i>Dianthus caryophyllus</i>	Caryophyllaceae

Results

The biodiversity assessment of the proposed project site has identified no ecologically sensitive areas within the core or buffer zones. The flora and fauna observed in the study area are commonly occurring species, with no IUCN-listed rare, endangered, endemic, or threatened (REET) species present, except for some species classified as of least concern. Additionally, the site is not located on any migratory routes for fauna. Operations at the stone and gravel quarry may generate dust particles. Implementing a green belt composed of native trees could help mitigate the dust effect on nearby flora and fauna. Key recommendations from the assessment include adopting green mining strategies to minimize environmental impact and developing a green belt with native trees to reduce dust movement from mining activities. This small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.7 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in the mining and industrial sector are crucial for economic development and the creation of direct and indirect employment opportunities. These activities also fulfill society's basic and modern needs, ultimately improving the quality of life through advancements in social, economic, health, education, and nutritional status within the project region, state, and country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new developmental projects. Thus, the study of socio-economic environment component incorporating various facets related to prevailing social and cultural conditions and economic status of the mining (rough stone and granite quarry) project region is an important part of EIA study. The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio-economics and parameters of human interest due to the project.

3.7.1 Objectives of the Study

The objectives of the socio-economic impact assessment are as follows:

- a) To study the demographic and socio-economic status of the people living in the study area of the project.

- b) To identify the basic amenities of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- e) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.7.2 Methodology

The study employed cluster sampling to outline two zones around the proposed project site: Zone 1 (Core Zone, 0-1 km radius) and Zone 2 (Low Impact Zone, 1–5 km radius). The primary data collection was conducted through structured interviews, field observation, and focus group discussions with the local people of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State. The secondary data were collected from the Census report 2011 and official records, covering demographics and basic services including information on population, number of households, literacy rates, sex ratios, worker details and the availability of basic services. This study covers the positive and negative impacts of the project's establishment, and provides recommendations for analyzing and mitigating adverse effects. The study area is illustrated in Figure 3.32.

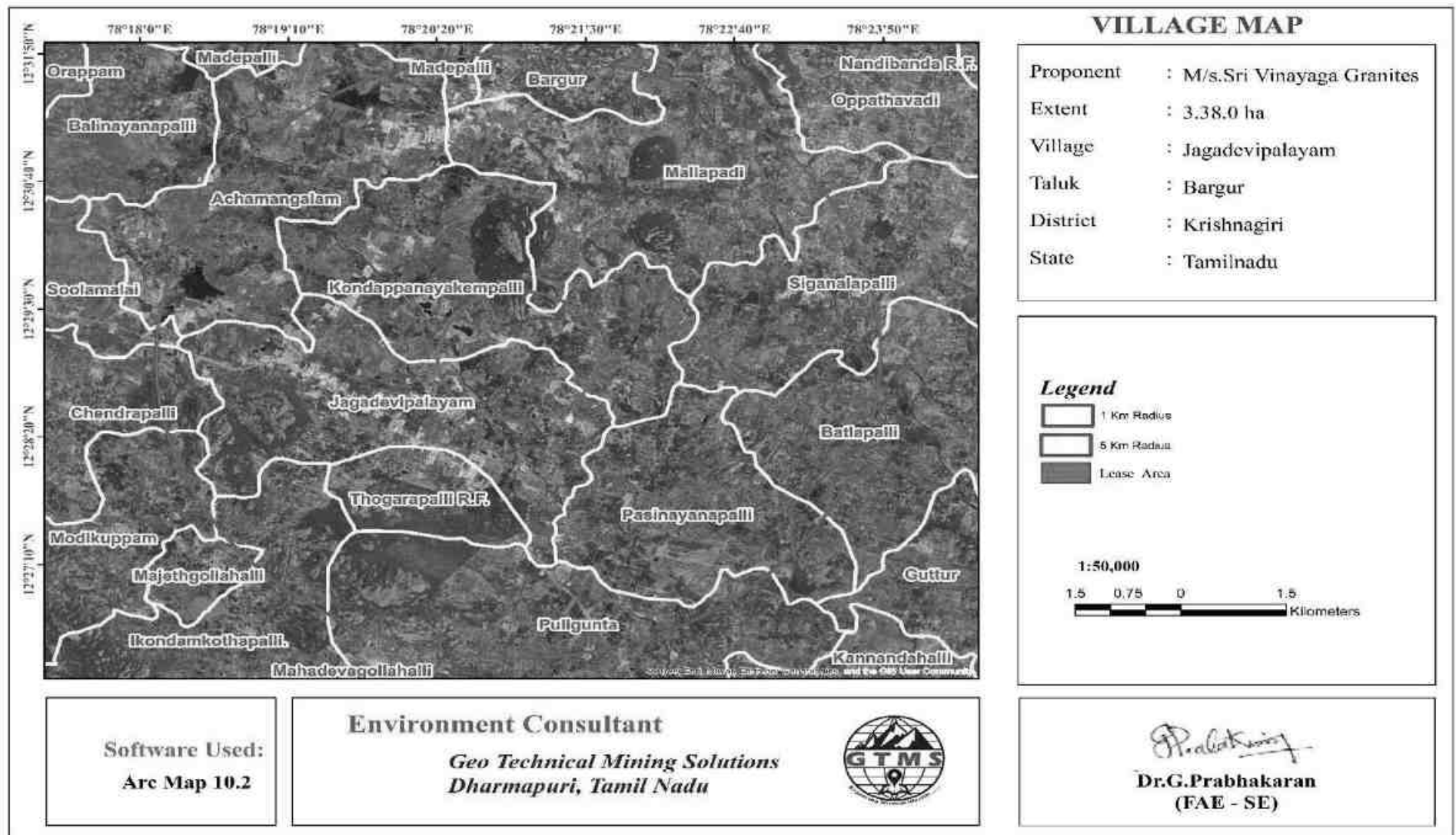


Figure 3.29 Socio Economic Village Boundary Map

3.7.3 Demographic Details of Krishnagiri District

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is 5143 Sq. Kms. The average rainfall is 830 mm per annum. Three languages namely Tamil, Telugu and Kannada are predominantly spoken in this district. Krishnagiri District has 2 Municipalities, 10 Panchayat Unions, 7 Town Panchayats, 352 Village Panchayats and 636 Revenue Villages.

In 2011, Krishnagiri had population of 1,879,809 of which male and female were 960,232 and 919,577 respectively. In 2001 census, Krishnagiri had a population of 1,561,118 of which males were 803,077 and remaining 758,041 were females. Average literacy rate of Krishnagiri in 2011 were 71.46 compared to 71.46 of 2001. If things are looked out at gender wise, male and female literacy were 78.72 and 63.91 respectively. For 2001 census, same figures stood at 72.50 and 51.62 in Krishnagiri District. Total literate in Krishnagiri District was 1,187,958 of which male and female were 667,062 and 520,896 respectively. In 2001, Krishnagiri District had 838,547 in its district.

With regards to Sex Ratio in Krishnagiri, it stood at 958 per 1000 male compared to 2001 census figure of 944. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 926 girls per 1000 boys compared to figure of 869 girls per 1000 boys of 2001 census data. In census enumeration, data regarding child under 0-6 age were also collected for all districts including Krishnagiri. There was total 217,323 children under age of 0-6 against 214,954 of 2001 census. Of total 217,323 male and female were 112,832 and 104,491 respectively. Child Sex Ratio as per census 2011 was 926 compared to 869 of census 2001. In 2011, Children under 0-6 formed 11.56 percent of Krishnagiri District compared to 13.77 percent of 2001. There was net change of -2.21 percent in this compared to previous census of India.

Source: <https://www.census2011.co.in/data/town/803410-krishnagiri-tamil-nadu.html>

3.7.4 Profile of Study Area - Jagadevipalayam Village, Bargur Taluk

The profile of Jagadevipalayam Village covers demographics details including the number of families, population statistics, literacy level, children (0-6), caste and workers details of the villages shows in Table 3.33. Jagadevipalayam is a large village located in Krishnagiri Taluka of Krishnagiri district, Tamil Nadu with total 1607 families residing. The Jagadevipalayam village has population of 6747 of which 3398 are males while 3349 are females as per Population Census 2011. The village population of children with age 0-6 is 787 which makes up 11.66 % of total population of village. Average Sex Ratio of

Jagadevipalayam village is 986 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Jagadevipalayam as per census is 982, higher than Tamil Nadu average of 943. The village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Jagadevipalayam village was 75.07 % compared to 80.09 % of Tamil Nadu. In Jagadevipalayam Male literacy stands at 82.11 % while female literacy rate was 67.93 %.

Table. 3.35 Demographic Details of Jagadevipalayam Village

Particulars	Total	Male	Female
Total No. of Houses	1,607	-	-
Population	6,747	3,398	3,349
Child (0-6)	787	397	390
Schedule Caste	1,602	798	804
Schedule Tribe	447	225	222
Literacy	75.07 %	82.11 %	67.93 %
Total Workers	2,720	1,911	809
Main Worker	2,093	-	-
Marginal Worker	627	345	282

Source: <https://www.census2011.co.in/data/village/643960-jagadevipalayam-tamil-nadu.html>

3.7.5 Details of Working Population - Jagadevipalayam Village, Bargur Taluk

In the village out of total population, 2720 were engaged in work activities. 76.95 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 23.05 % were involved in Marginal activity providing livelihood for less than 6 months. Of 2720 workers engaged in Main Work, 253 were cultivators (owner or co-owner) while 755 were Agricultural labourer.

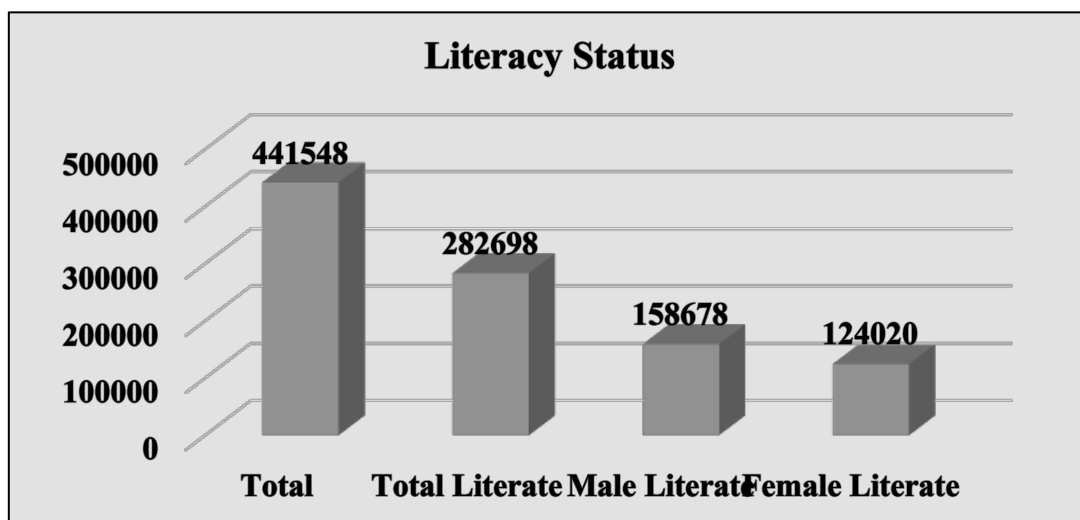
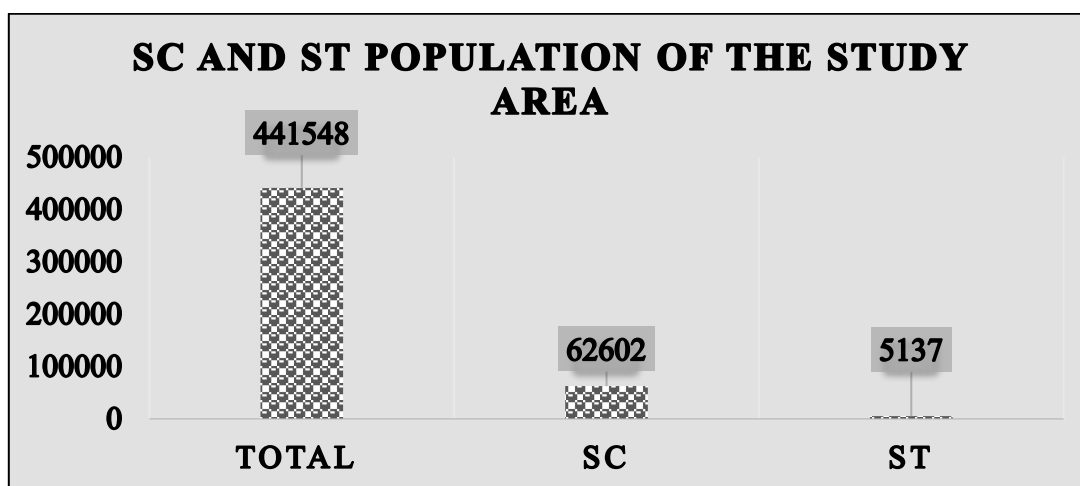
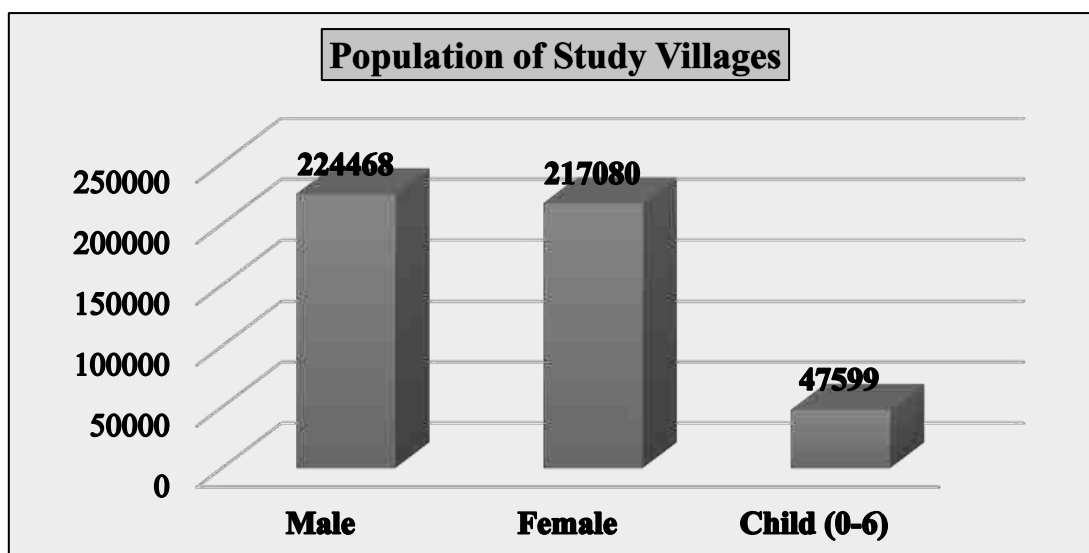
Benefits:

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 medical facilities, conveyance, free education, drinking water supply etc. The number of villages and settlements within a radius of 5 km from the project site along with population, their education level etc. are given in the table 3.34 - 3.35.

Table 3.36 Demographic Details and Literacy Level of Study Area

Village Name	No. of Houses	Total Population		Child (0-6)		Schedule Caste		Schedule Tribe		Literacy		Total Workers	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Achamangalam	974	2150	2029	222	230	314	297	0	0	1634	1187	1310	847
Bargur	92148	194656	188310	21598	19684	26984	26352	2220	2208	137594	107660	113178	69686
Batlapalli	1199	2625	2411	273	227	1065	1012	0	0	1797	1359	1487	824
Chennapalli	905	2005	1884	276	225	62	59	0	0	1195	836	1221	782
Ikondamkothapalli.	977	1982	1982	236	184	189	169	56	55	1376	1108	1179	806
Jagadevipalayam	1607	3398	3349	397	390	798	804	225	222	2464	2010	1911	809
Kondappanayakempalli	846	1903	1750	203	190	48	47	4	3	1331	981	1121	545
Majethgollahalli	395	776	816	87	82	20	12	0	0	551	453	421	311
Mallapadi	1840	3902	3805	402	404	356	368	20	26	2846	2238	2226	982
Modikuppam	662	1277	1248	115	121	106	107	10	13	951	674	734	478
Pasinayanapalli	631	1224	1217	144	128	225	219	18	14	743	651	679	504
Puligunta	2033	4212	4153	466	428	650	662	15	16	2978	2364	2445	1219
Sigaralapalli	1950	4358	4126	474	413	858	819	5	7	3218	2499	2629	1758
Total	106167	224468	217080	24893	22706	31675	30927	2564	2573	158678	124020	130541	79551

Source: <https://www.census2011.co.in/data/town/803410-krishnagiri-tamil-nadu.html>.



**Figure 3.30 Demographic Profile of Surrounding Villages of the Proposed Project —
SC, ST Population and Literacy Status**

Table 3.37 Workers Profile of Study Area

Name of the Villages	Total Worker Population Person	Total Worker Population Male	Total Worker Population Female	Main Working Population Person	Main Cultivator Population Person	Main Agricultural Labourers Population Person	Main Other Workers Population Person	Non-Working Population Person
Achamangalam	2157	1310	847	1688	403	637	469	2022
Bargur	182864	113178	69686	148512	34506	56404	34352	200102
Batlapalli	2311	1487	824	1893	219	836	418	2725
Chennapalli	2003	1221	782	1862	882	346	141	1886
Ikondamkothapalli.	1985	1179	806	1670	283	879	315	1979
Jagadevipalayam	2720	1911	809	2093	253	755	627	4027
Kondappanayakempalli	1666	1121	545	1445	222	701	221	1987
Majethgollahalli	732	421	311	510	133	231	222	860
Mallapadi	3208	2226	982	3015	423	936	193	4499
Modikuppam	1212	734	478	979	191	290	233	1313
Pasinayanapalli	1183	679	504	614	81	324	569	1258
Puligunta	3664	2445	1219	2859	594	827	805	4701
Sigaralapalli	4387	2629	1758	3950	735	1525	437	4097
Total	210092	130541	79551	171090	38925	64691	39002	231456

Source: <https://www.census2011.co.in/data/town/803410-krishnagiri-tamil-nadu.html>

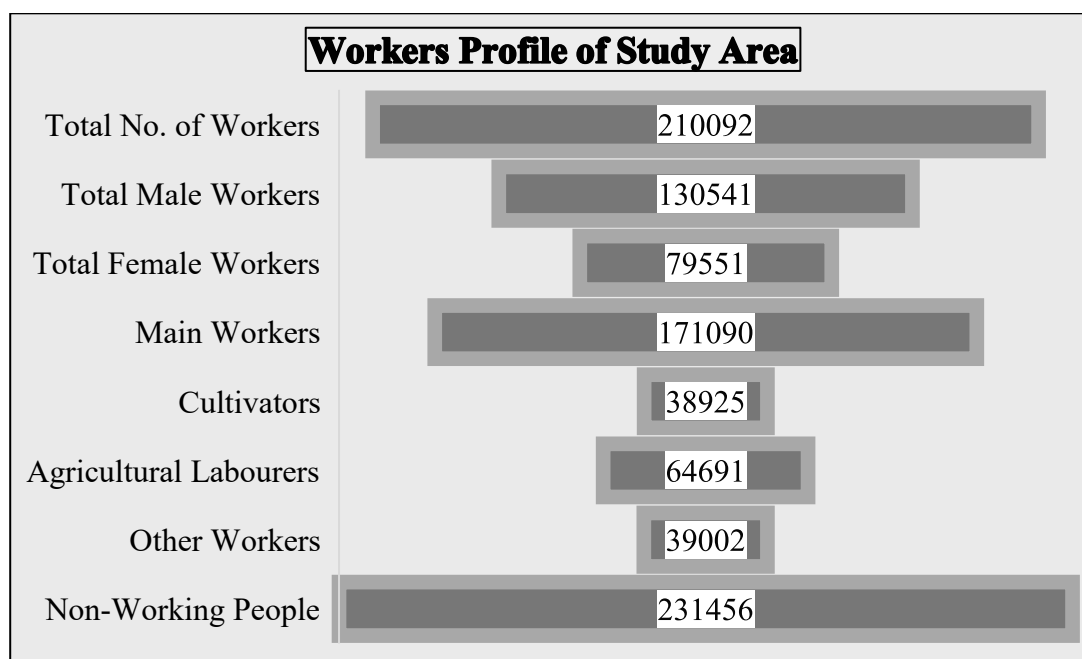


Figure 3.31 Details on the No. of Workers of the Surrounding Villages

As per SEAC recommendation the project proponent should spend minimum of 5 lakhs to the nearby school from the proposed project site as part of CER cost. Also, the village panchayat will get direct benefit from the government through District Mineral Resource fund (DMF) for infrastructure development activities.

Awareness and Opinion of the People About the Project, to assess public awareness and opinions regarding the proposed project, the following key observations were recorded:

- ❖ During the survey, it was observed that only residents of nearby villages were aware of the proposed project, while those in more distant villages were largely unaware.
- ❖ People in the region expressed expectations that the project would generate employment opportunities and lead to improvements in education, transportation, and sanitation facilities provided by the project authorities.

3.7.10 Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- Women empowerment– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.

- Education – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- Agriculture/livestock – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.
- Health – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like common cold, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centres.
- People with disability – Establishment of centre for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While Developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- Connectivity –Transport connectivity to easiness accessibility to the region.

3.7.11 Conclusion

This study was carried out the baseline socio-economic conditions of the study area. It examined parameters including the population, number of households, literacy rate, sex ratio, workforce details, and the availability of essential amenities like transportation, drinking water, road connectivity, and educational facilities. The study revealed both positive and negative socio-economic implications associated with the proposed project and cluster quarries. While potential environmental and social impacts must be addressed, the project will be expected to provide significant economic benefits in terms of local employment and improved livelihood opportunities in directly and indirectly.

Therefore, with the implementation of effective mitigation and management measures, the project can contribute positively to the socio-economic development of the area while minimizing adverse impacts.

3.8 TRAFFIC DENSITY

The traffic survey conducted based on the transportation route of material, the Colour Granite is proposed to be transported mainly through Village Rode and Uthangarai to Krishnagiri NH-77 road as shown in Table 3.38-3.41 and in Figure 3.32 and 500-meter radius residential map shown in Figure 3.38. Traffic density measurements were made continuously for

24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station. During each shift one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Table 3.38 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Rode	1.18 km SW	Village Road
TS2	Uthangarai – Krishnagri NH77	1.89 km SW	Uthangarai – Krishnagri NH77

Source: On-site monitoring by GTMS FAE & TM

Table 3.39 Existing Traffic Volume

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	25	75	32	32	60	30	137
TS2	112	336	78	78	98	49	463

Source: On-site monitoring by GTMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

Table 3.40 Multi Colour Granite Transportation Requirement

Transportation of Grey Granite per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
15 tonnes	8	24

Source: Approved Mining Plan

Table 3.41 Summary of Traffic Volume

Route	Existing traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Village Rode	137	8	145	1200
Uthangarai – Krishnagri NH66	463	8	471	1500

Source: On-site monitoring analysis summary by GTMS FAE & TM

- Due to these projects the existing traffic volume will not exceed the traffic limit. As per the IRC 1960 this existing village road can handle 1,200 PCU in hour and Major district road can handle 1500 PCU in hour. Hence there will not be any conjunction due to this proposed transportation.

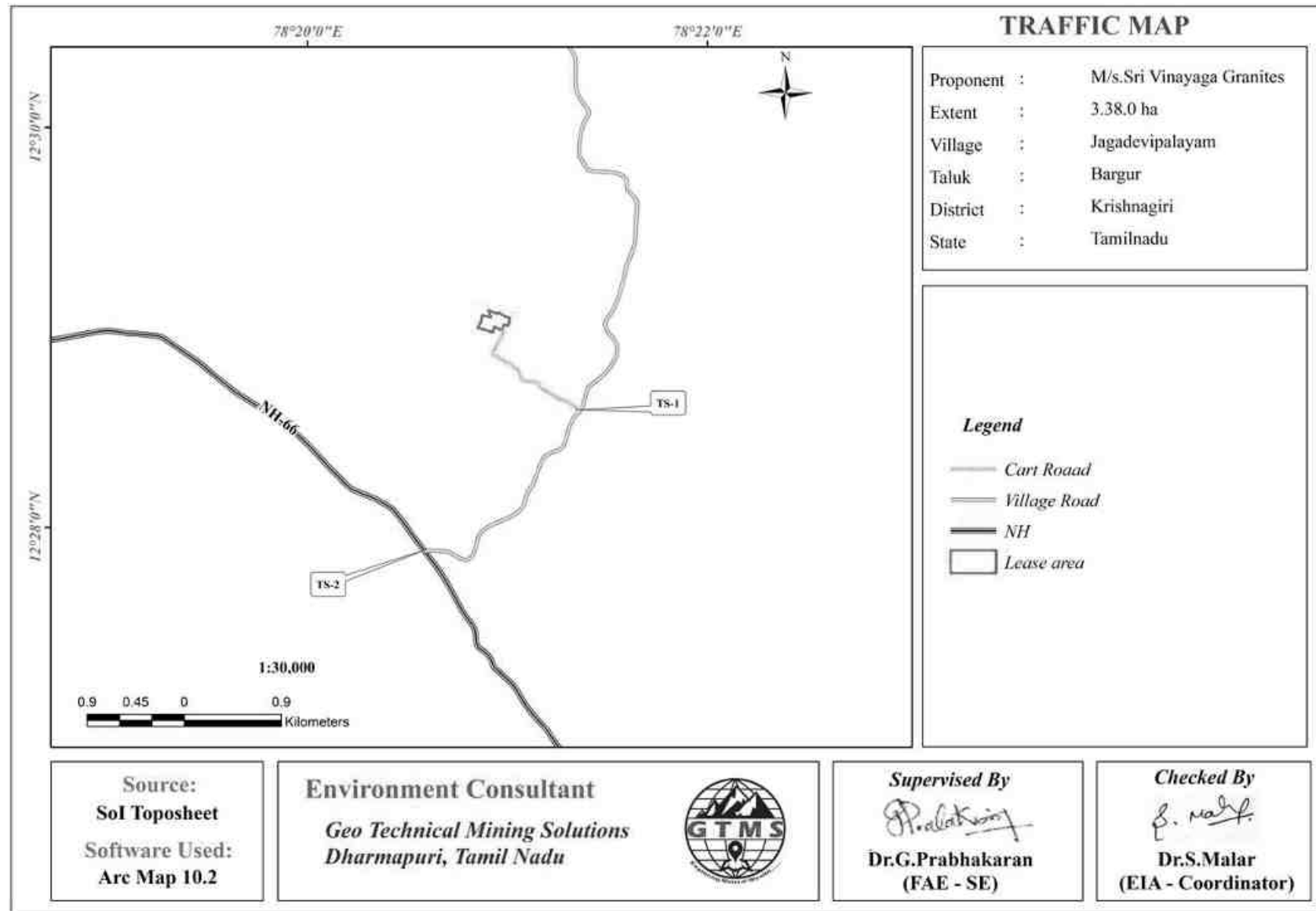


Figure 3.32 Traffic Density Map

3.9 SITE SPECIFIC FEATURES

There are no Wildlife Sanctuaries, National Park within the project area to 10km radius. There is no Protected Forest area within 1 km radius from the proposed project area. Therefore, there will be no need of acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e., 10 km radius and the nearby water bodies are given in the Table 3.42. Field photographs of baseline data collection are shown in Figure 3.33.

Table 3.42 Details of Environmentally Sensitive Ecological Features in the Study Area

S. No	Sensitive Ecological Features	Name	Areal Distance in km from cluster
1	National Park / Wild life Sanctuaries	Koundinya Wildlife sanctuary	23.3km NW
2	Reserve Forest	Togarapalli R.F	2.14km-S
		Togarapalli Extn R.F	3.1m-SW
		Piligunda II R.F	3.95km-S
		Baleguli II R.F	8.6km-SW
		Tattakkal R.F	10.87km-SW
		Chowtahalli R.F	10.95km-SW
		Thalihalli R.F	11.7km-SW
		Pannaeswaeamadam R.F	14.9km-SW
		Sokkadi R.F	18.63km-SW
		Sokkamapatty II R.F	25.0km-SW
		Peddathalapalli R.F	17.48km-NW
		Maharajagadai Extn R.F	15.11km-NW
		Maharajagadai R.F	16.9km-NW
		Naralapalli R.F	18.04km-NW
		Naralapalli Extn R.F	20.75km-NW
		Varatanapalli R.F	7.52km-N
		Bargur R.F	6.62km-NE
		Nandhibanda Extn R.F	8.2km-NE
		Nandhibanda R.F	8.97km-NE
		Neralakotta R.F	10.05km-NE
		Kottur R.F	12.81km-NE
		K.Papparapatti R.F	21.65km-SE
		Kamachiatti R.F	22.02km-SE
		Salamarathupatti R.F	21.53km-SE
		K.Ettipatti R.F	22.37km-SE
		Sundamalai R.F	24.54km-SE
3	Lakes/Reservoirs/	Vathikuttai Eri	1.46km - E

	Dams/Streams/Rivers	River	0.66km - W
		Pakimanur Eri	1.87km-S
		G.Nagamangalam Eri	2.78km-NW
		Srinivasapuram Tank	3.0km- S
		Gollakottai Eri	3.09km-NE
		Venkatapuram Eri	4.61km-NE
		Achamangalam Tank	4.4km-NW
		Biaskhaa Tank	4.17km-W
		Thambalappam Eri	4.48km- E
		Krishnagiri Dam	17.26km-W
		Bargur Ar River	4.1km-NW
4	Tiger Reserve/Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Critically Polluted Areas	None	Nil within 10 km radius
6	Mangroves	None	Nil within 10 km radius
7	Mountains/Hills	None	Nil within 10 km radius
8	Notified Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km radius
10	Defence Installation	None	Nil within 10km radius

Source: Survey of India Toposheet





Figure 3.33 Field Photographs Showing Baseline Data Collection

CHAPTER IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction. This chapter discusses the anticipated impacts on soil, land, water, air, noise, biological, and socioeconomic environments.

4.1 LAND ENVIRONMENT

4.1.1 Anticipated Impact

- ❖ Permanent change on land use and land cover.
- ❖ Change in topography of the mine lease area.
- ❖ Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles.
- ❖ Degradation of the aesthetic environment of the core zone due to quarrying
- ❖ Soil erosion and sediment deposition in the nearby agricultural fields during the rainy season
- ❖ Increase in agricultural productivity of land when mine water is discharged to the surrounding lands for irrigation.

4.1.2 Common Mitigation Measures from Proposed Project

- ❖ Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- ❖ Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt
- ❖ At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir.
- ❖ In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimize dust emissions.
- ❖ Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 SOIL ENVIRONMENT

4.2.1 Anticipated Impact on Soil Environment

- ❖ Deterioration of soil quality in the surrounding area due to runoff from the project area
- ❖ Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

4.2.2 Common Mitigation Measures from proposed project

- ❖ Construction of garland drains, settling pits, and check dams to prevent runoff and siltation
- ❖ Run-off diversion – Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site.
- ❖ Retain existing or re-plant the vegetation will be retained at the site wherever possible.
- ❖ Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.3 WATER ENVIRONMENT

4.3.1 Anticipated Impact

- ❖ Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas
- ❖ As the proposed project acquires 3.2 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

4.3.2 Common Mitigation Measures for the Proposed Project

- ❖ Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes
- ❖ Domestic sewage from site office will be discharged in septic tank and then directed to soak pits
- ❖ Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse

- ❖ The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- ❖ Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted
- ❖ Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program

4.4 AIR ENVIRONMENT

4.4.1 Anticipated Impact from proposed project

- ❖ During mining at various stages of activities such as excavation, drilling and transportation of materials, particular matter (PM), gases such as sulphur dioxide, oxides of nitrogen from vehicular exhaust are the main air pollutants.
- ❖ Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- ❖ The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- ❖ Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

4.4.2 Emission Estimation

Emission resulting from different mining activities is estimated using relevant empirical formulae developed by Chauhya et al., 2001. The equations used for SPM, SO₂, and NO_x emission estimation have been given in Table 4.1.

Table 4.1 Empirical Formula for Emission Rate from Overall Mine

	Pollutant	Source Type	Empirical Equation	Parameters
Overall Mine	SPM	Area	$E = [u^{0.4} a^{0.2} \{9.7 + 0.01p + b/(4 + 0.3b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm ³ /yr); a = Lease area(km ²); E = Emission rate(g/s).

the emission rate thus calculated using the empirical formula is used as one of the inputs in the AERMOD modelling. It is important to note that PM₁₀ emission rate is derived from the SPM estimation in the background that PM₁₀ constitutes 52% of SPM emission. The PM_{2.5} and PM₁₀ emission results have been given in Table 4.2.

Table 4.2 Estimated Emission Rate

Activity	Pollutant	Calculated Value (g/s)	Lease Area in m ²	Calculated Value (g/s/m ²)
Overall Mine	PM _{2.5}	0.03703	33800	1.70431E-05
Overall Mine	PM ₁₀	1.207180237		3.40862E-05

4.4.2.1 Modelling of Incremental Concentration

Anticipated incremental concentration and net increase in emissions due to quarrying activities within 500 m around the project area is predicted by open pit source modelling using AERMOD Software and the incremental values of the air pollutants were added to the base line data monitored at the proposed site to predict total GLC of the pollutants, as shown in Tables 4.3-4.4.

4.4.2.2 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5} (GLC) is given in the table shown below:

Table 4.3 Incremental & Resultant GLC of PM_{2.5}

Station ID	Distance to core area (km)	Direction	PM _{2.5} concentrations(µg/m ³)			Comparison against air quality standard (60 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	1.32	E	17.2	2.0	19.2	Below standard	11.6	Not significant
AAQ2	1.30	NE	15.0	1	16		6.7	
AAQ3	1.92	S	19.8	0.1	19.9		0.5	
AAQ4	2.98	W	21.3	0.1	21.4		0.5	
AAQ5	4.29	SE	20.3	0.1	20.4		0.5	
AAQ6	4.70	NE	17.4	0.1	17.5		0.6	
AAQ7	--	--	21.4	2	23.4		9.3	

Table 4.4 Incremental & Resultant GLC of PM₁₀

Station ID	Distance to core area (km)	Direction	PM ₁₀ concentrations(µg/m ³)			Comparison against air quality standard (100 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	1.32	E	38.5	3	41.5	Below standard	7.8	Not significant
AAQ2	1.30	NE	39.1	1	40.1		2.6	
AAQ3	1.92	S	41.3	0.3	41.6		0.7	
AAQ4	2.98	W	41.8	0.3	42.1		0.7	
AAQ5	4.29	SE	42.5	0.3	42.8		0.7	
AAQ6	4.70	NE	34.1	0.3	34.4		0.9	
AAQ7	--	--	39.7	5	44.7		12.6	

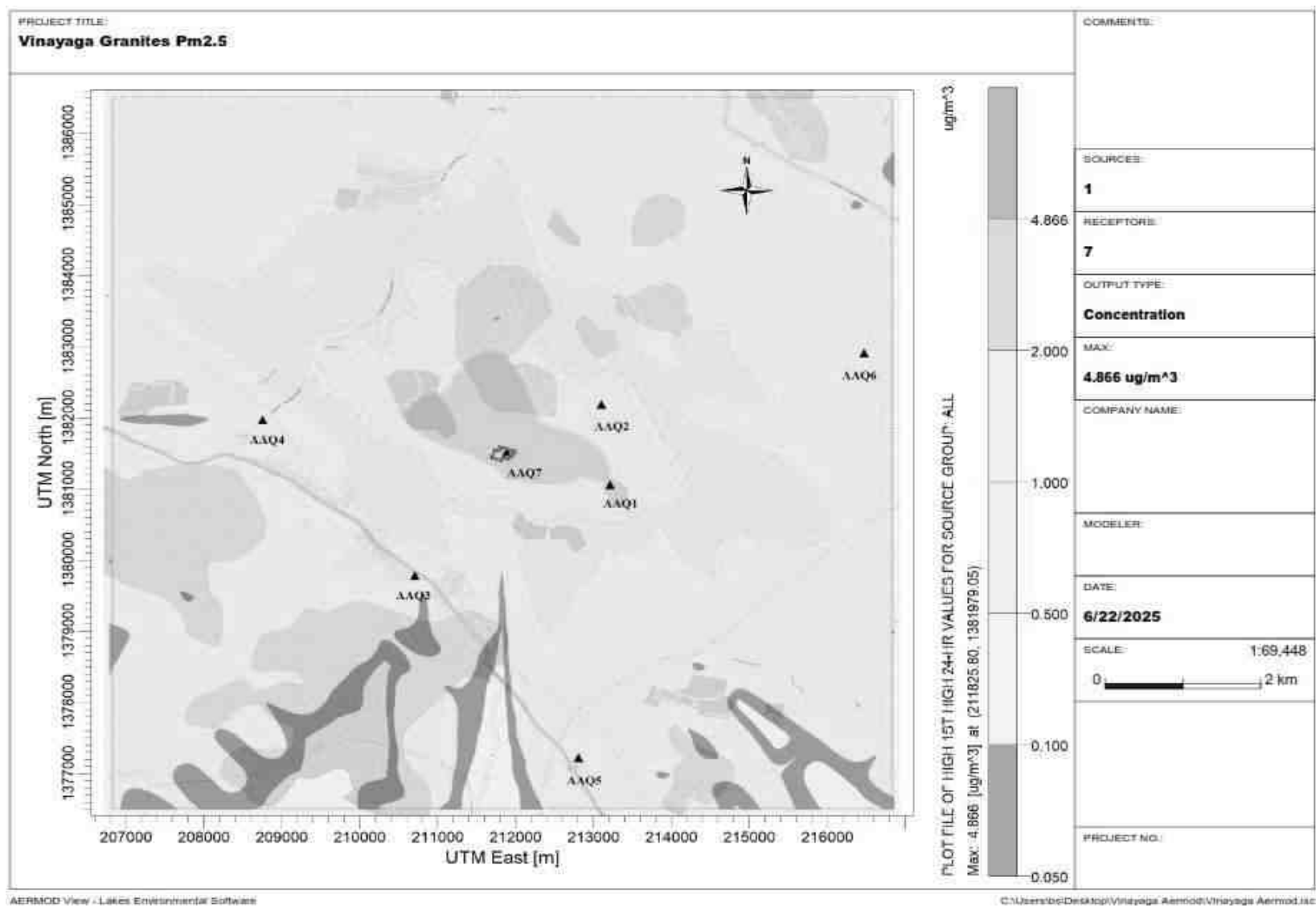


Figure 4.1 Predicted Incremental Concentration of PM_{2.5}

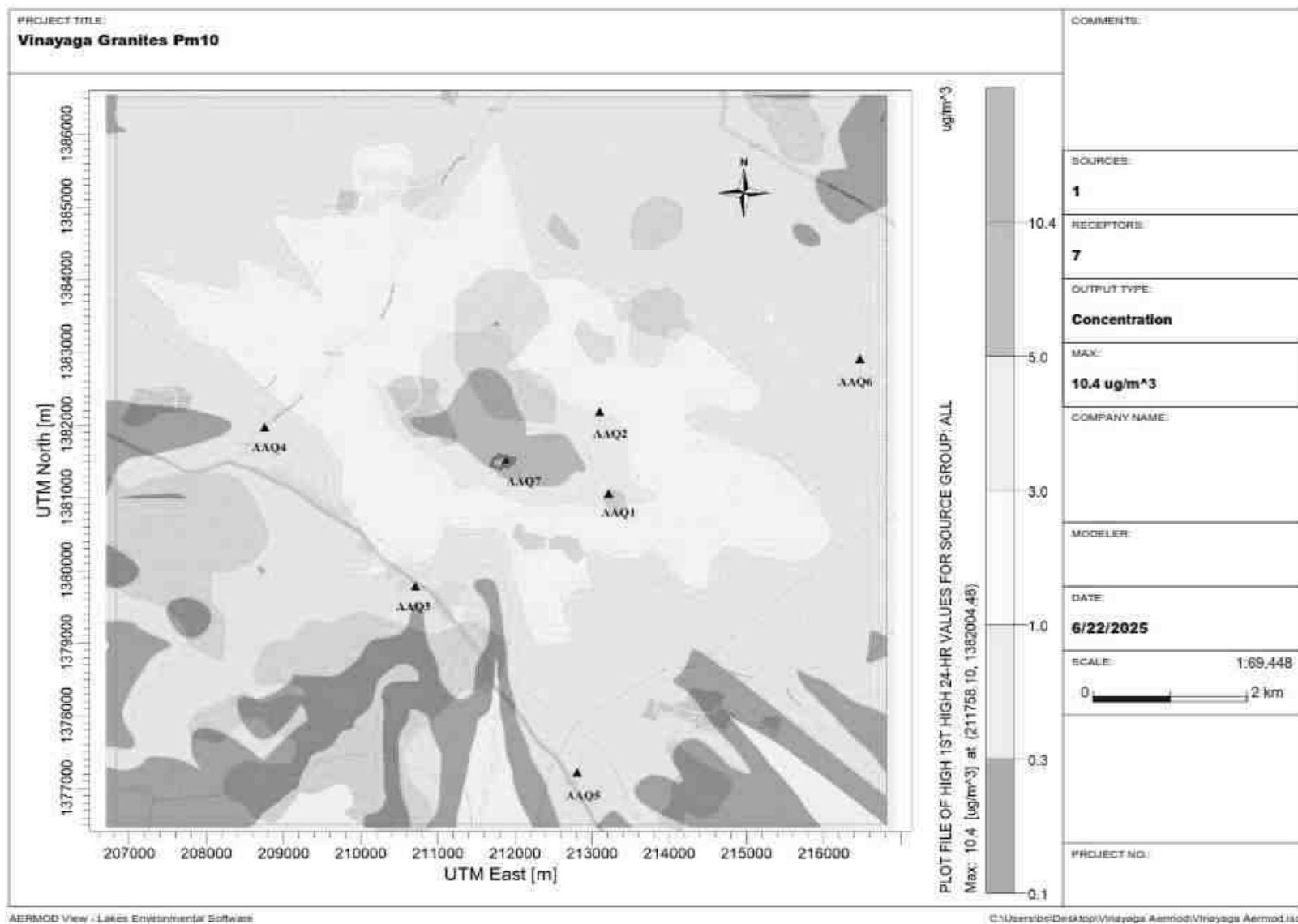


Figure 4.2 Predicted Incremental Concentration of PM₁₀

The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further.

The Air quality results is less or more same as compared to the previous report on the month Oct- 2023 to Dec- 2023 due to vehicle movements, blasting, drilling. Fugitive dust Emission resulting from different mining activities is slightly increased from March to May 2025 study period. it leads to dust generation.

4.5 NOISE ENVIRONMENT

Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves which are propagated outwards from the source through the air at a speed of 1, 100 ft/sec with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A). For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using a mathematical model based on first principle.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - A_{e1,2}$$

Where, L_{p1} & L_{p2} are sound levels at points located at distances r_1 and r_2 from the source; $A_{e1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$L_{p \text{ total}} = 10 \log \{10^{(L_{p1}/10)} + 10^{(L_{p2}/10)} + 10^{(L_{p3}/10)} + \dots\}$$

4.5.1 Anticipated Impact

The attenuation due to several factors including ground reflection, atmosphere, wind speed, temperature, trees, and buildings as 35.5 dB (A), the barrier effect. Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are: source data, receptor data, and attenuation factor. Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4.5.

Table 4.5 Activity and Noise Level Produced by Machinery

S.No.	Machinery / Activity	Impact on Environment	Noise Produced in dB(A) at 50 ft from source*
1	Jack Hammer	Yes	88
2	Compressor	No	81

3	Excavator	No	85
4	Tipper	No	84
Total Noise Produced			91.22

*50 feet from source = 15.24 meters

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining activity is calculated to be 91.22 dB (A). Therefore, we have considered equipment and operation noise levels (max) to be approx. 91.22 dB (A) for noise prediction modelling. The results of noise prediction modelling are shown in Table 4.6.

Table 4.6 Predicted Noise Incremental Values

Noise Monitoring Location	Distance From Project Site(m)	Baseline Noise Level (dBA)m During Day Time	Predicted Noise Level(dBA)	Total(dBA)
Near Core	1340	37.3	21.4	37.4
Kondappanayakempalli	960	43.2	24.3	43.3
Jagadevi	1910	45.6	18.3	45.6
Jagadevi	3030	45.8	14.3	45.8
Billakottai	4350	45.4	11.2	45.4
Sakilnatham	4740	39.5	10.4	39.5
Core	100	40.1	44.0	45.5
NAAQ Standards	Industrial Day Time - 75 dB (A) & Night Time- 70 dB (A) Residential Day Time -55 dB (A) & Night Time- 45 dB (A)			

From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000. Therefore, no impact is anticipated on the noise environment due to the project.

4.5.2 Common Mitigation Measures

The following noise mitigation measures are proposed for control of noise:

- ❖ Usage of sharp drill bits while drilling which will help in reducing noise
- ❖ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- ❖ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- ❖ The blasting will be carried out during favourable atmospheric condition and less

human activity timings by using nonelectrical initiation system

- ❖ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise
- ❖ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise
- ❖ Silencers / mufflers will be installed in all machineries
- ❖ Greenbelt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise
- ❖ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness
- ❖ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.5.3 Ground Vibrations

Major source of ground vibrations due to mining activities is blasting. In this mining project, no explosives are proposed to break the rocks. Instead, cracking powder has been proposed for cracking the solid rock along line of drilling. Therefore, it is not necessary to calculate peak particle velocity.

4.6 ECOLOGY AND BIODIVERSITY

4.6.1 Impact on Ecology and Biodiversity

- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.
- Carbon released from quarrying machineries and tippers during quarrying would be 1211 kg per day, 326887 kg per year and 1634434 kg over five years, as provided in Table 4.7.

Table 4.7 Carbon Released During Five Years of Colour Granite Production

	Per day	Per year	Per five years
Fuel consumption of excavator	53	14319	71597
Fuel consumption of compressor	0	0	0
Fuel consumption of tipper	399	107653	538267
Total fuel consumption in liters	452	121973	609864
Co ₂ emission in kg	1211	326887	1634434

4.6.2 Mitigation Measures on Flora

- ❖ During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.
- ❖ Existing roads will be used; new roads will not be constructed to reduce impact on flora.

Carbon Sequestration

- ❖ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 40519 kg of carbon per year. Therefore, we recommend planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- ❖ As per the greenbelt development plan as recommended by SEAC (Table 4.13), about 1690 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 11932 kg of the total carbon, as provided in Table 4.8.

Table 4.8 CO₂ Sequestration

CO ₂ sequestration in kg	150	40519	202597
Remaining CO ₂ not sequestered in kg	1061	286367	1431837
Trees required for environmental compensation	11932		
Area required for environmental compensation in hectares	24		

Greenbelt Development

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone. Greenbelt development plan and budget required for green belt development plan are given in Tables 4.10-4.11. For greenbelt development, species are recommended, as shown in Table 4.9 on the basis of:

- ❖ Natural growth of existing species and survival rate of various species.
- ❖ Suitability of a particular plant species for a particular type of area.
- ❖ Creating of biodiversity.
- ❖ Fast growing, thick canopy copy, perennial and evergreen large leaf area.
- ❖ Efficient in absorbing pollutants without major effects of natural growth.

Table 4.9 Recommended Species for Greenbelt Development Plan

S. No.	Botanical Name of the Plant	Family Name	Common Name	Category	Dust Capturing Efficiency Features
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	Well distinct thick at both the layer Well distinct in Palisade & Spongy parenchyma. Spongy parenchyma is present at lower epidermis Many vascular bundles arranged almost parallel series
2	<i>Tectona grandis</i>	Lamiaceae	Teak	Tree	
3	<i>Polyalthia longifolia</i>	Annonaceae	Nettilingam	Tree	
4	<i>Albizia lebbek</i>	Fabaceae	Vagai	Tree	
5	<i>Delonix regia</i>	Fabaceae	Cemmayir-konrai	Tree	
6	<i>Bauhinia racemosa</i>	Fabaceae	Aathi	Tree	
7	<i>Cassia fistula</i>	Fabaceae	Sarakondrai	Tree	
8	<i>Aegle marmelos</i>	Rutaceae	Vilvam	Tree	
9	<i>Pongamia pinnata</i>	Fabaceae	Pungam	Tree	
10	<i>Thespesia populnea</i>	Malvaceae	Puvarasu	Tree	

Table 4.10 Greenbelt Development Plan

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered(m ²)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	676	541	6084
	Number of plants outside the mine lease area		
	1014	811	9126
Total	1690	1352	15210

Table 4.11 Budget for Greenbelt Development Plan

Activity	Plantation in the construction phase(3Months)	Cost	Capital Cost (Rs.)	Recurring Cost-per annum
Plantation inside the mine lease area (in safety margins)	676	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	1,35,200	20,280
Plantation outside the area	1014	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	3,04,200	30,420
Total			4,39,400	50,700

4.6.3. Anticipated Impact on Fauna

- ❖ Direct impact is anticipated on fauna of core zone
- ❖ Insignificant impact is anticipated on fauna in the buffer area due to air emissions, noise, vibration, transportation, waste water discharges, and changes in land use

Mitigation Measures on Fauna

- ❖ Fencing will be constructed around the proposed mine lease area to restrict the entry of stray animals
- ❖ The workers shall be trained not to harm any wildlife near the project site

4.6.4 Impact on agriculture and horticulture crops in 1km Radius

- ❖ Problems to agricultural and horticulture land due to dust caused by movement of heavy vehicles.
- ❖ Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season.
- ❖ The fugitive dust released from the mining operations may cause effect on the agricultural and horticulture land who are directly exposed to the fugitive dust.
- ❖ Dust from the quarries is likely to affect reproductive systems in nearby agricultural and horticulture lands.
- ❖ Dust from quarries can affect plant growth and reduce vegetable yields.

4.6.5 Mitigation Measures on agriculture and horticulture crops.

- ❖ The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases.
- ❖ It is a granite quarry, no explosives are used, there is no possibility of vibration and dust, thus there is no possibility of damage to the adjacent agricultural land.
- ❖ Quarry approach roads are sprayed with water 3 times a day to control dust. Thus, the damage to the nearby farmlands is controlled.
- ❖ A green belt will be created in 7.5 safety zone around the quarry to contain the dust from the quarry and prevent the dust from spreading to the adjacent agricultural land.
- ❖ Transportation of material will be carried out during day time and material will be covered with tarpaulin
- ❖ The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust.

4.7 SOCIO ECONOMIC ENVIRONMENT

The socio-economic impacts of mining are many. Impacts of a mine project may be positive or Negative. The adverse impacts attribute to physical displacement due to land acquisition, which is followed by loss of livelihood, mental agony, changes in social structure, and risk to food security etc., People are also directly affected due to pollution. Social Impact Assessment (SIA) is a process of analysis, monitoring and managing the social consequences of a project. Study on Socio-economic status has already been carried out using primary socio-economic survey for generating the baseline data of Socio-economic status.

4.7.1 Anticipated Impact

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

4.7.2 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
- ❖ Air pollution control measure will be taken to minimize the environmental impact within the core zone
- ❖ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules
- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly
- ❖ From above details, the quarry operations will have highly beneficial positive impact in the area

4.8 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety hazards will occur during the operational phase of mining and primarily include the following:

- ❖ Respiratory hazards
- ❖ Noise

- ❖ Physical hazards
- ❖ Occupational Health Survey

4.8.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis. The following measures are proposed:

- ❖ Cabins of excavators and tippers will be enclosed with AC and sound proof
- ❖ Use of personal dust masks will be made compulsory

4.8.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities.

The following measures are proposed for implementation

- ❖ The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- ❖ No employee will be exposed to a noise level greater than 85 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 85 dB(A)
- ❖ Periodic medical hearing checks will be performed on workers exposed to high noise levels

4.8.3 Physical Hazards

The following measures are proposed for control of physical hazards

- ❖ Specific personnel training on work-site safety management will be taken up;
- ❖ Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- ❖ Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- ❖ Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up.

4.8.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting general physical tests, audiometric tests, full chest, X-ray, lung function tests, spiro metric tests, periodic medical examination – yearly, Lung function/ Silicosis test – yearly, those who are exposed to dust and eye test.

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.9 Mine Waste Management

No waste is anticipated from any of the proposed quarries.

4.10 MINE CLOSURE

Mine closure plan is the most important environmental requirement in mineral mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project.

Objective of Mine closure

- ❖ To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public
- ❖ To protect public health and safety of the surrounding habitation
- ❖ To minimize environmental damage
- ❖ To conserve valuable attributes and aesthetics
- ❖ To overcome adverse socio-economic impacts.

4.10.1 Mine Closure criteria

The criteria involved in mine closure are discussed below:

4.10.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods

and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.

4.10.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharge likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc. could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.10.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

- ❖ Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry
- ❖ Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally, e.g., planning for agriculture
- ❖ Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g., development of green barriers
- ❖ The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mining plan and activities of closure shall be carried out as per the process described in mine closure plan (Annexure III).

CHAPTER V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

Consideration of alternatives to a proposed project is a requirement of EIA process. During the scoping process, alternatives to a proposed project 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 environmentally friendly and cost-effective options.

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The proposed project is site specific and has the following advantages:

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease area.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- As the proposed project area falls in seismic zone III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as the mine site is mineral specific.

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The proposed mining lease areas have following advantages:

- ❖ As the mineral deposition is homogeneous and batholith formation, opencast method of working is preferred over underground method.
- ❖ The material will be loaded with the help of excavators into tractors/tippers and transported to the need by customers.
- ❖ Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER VI

ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections. The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA-TN as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTE/CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by respective project proponents. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the respective mine management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in the proposed quarry. The responsibilities of this cell will be:

- ❖ Implementation of pollution control measures
- ❖ Monitoring programme implementation
- ❖ Post-plantation care
- ❖ To check the efficiency of pollution control measures taken
- ❖ Any other activity as may be related to environment

- ❖ Seeking expert's advice when needed.

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports.

The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly by the proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA-TN as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC). The Environmental Monitoring Cell will be formed for the proposed project. The structure of the cell will be as shown in Figure 6.1.

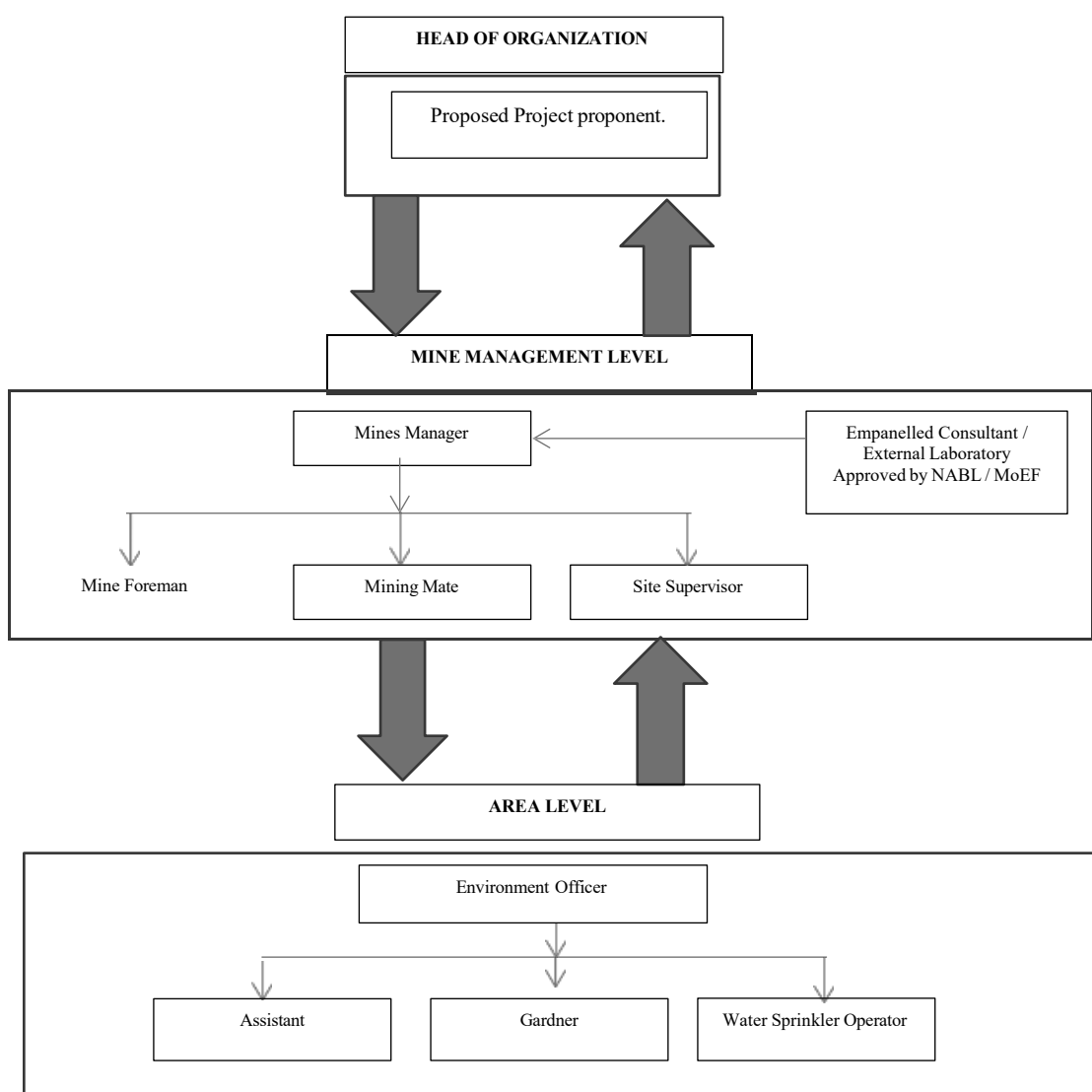


Figure 6.1 Proposed environmental monitoring chart

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in chapter IV will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

Table 6.1 Implementation Schedule for Proposed Project

S. No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

6.3 MONITORING SCHEDULE AND FREQUENCY

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against statutory standards. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The environmental monitoring will be conducted in the mine operations as follows:

- ❖ Air quality
- ❖ Water and wastewater quality
- ❖ Noise levels

- ❖ Soil quality and
- ❖ Greenbelt development

The details of proposed monitoring schedule have been provided in Table 6.2.

Table 6.2 Proposed Monitoring Schedule Post EC for the Proposed Quarry

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

6.4 BUDGETARY PROVISION FOR ENVIRONMENT MONITORING PROGRAM

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL/ MoEF. The proposed recurring cost for Environmental Monitoring Programme is Rs 2,95,000 /- per annum for the proposed project site.

Table 6.3 Environment Monitoring Budget

S. No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	-	Rs 60,000/-
2	Meteorology	-	Rs 15,000/-
3	Water Quality	-	Rs 20,000/-
4	Water Level Monitoring		Rs 10,000/-
5	Soil Quality	-	Rs 20,000/-
6	Noise Quality	-	Rs 10,000/-
7	Vibration Study	-	Rs 1,50,000/-
8	Greenbelt	-	Rs 10,000/-
Total		-	Rs 2,95,000 /-

Source: Field Data

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to:

- ❖ MoEF & CC – Half yearly status report
- ❖ TNPCB - Half yearly status report
- ❖ Department of Geology and Mining: quarterly, half yearly annual reports

Besides the Mines Manager/Agent of respective project will submit the periodical reports to:

- ❖ Director of mines safety
- ❖ Labour enforcement officer
- ❖ Controller of explosives as per the norms stipulated by the department.

CHAPTER - VII

ADDITIONAL STUDIES

7.0 GENERAL

Additional studies deal with:

- ❖ Public Consultation for Proposed Project
- ❖ Risk Assessment
- ❖ Disaster Management Plan
- ❖ Cumulative Impact Study
- ❖ Plastic Waste Management

7.1 PUBLIC CONSULTATION FOR PROPOSED PROJECT

Application to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district was made and the public opinions on the proposed project will be updated in the final EIA/EMP report.

7.2 RISK ASSESSMENT FOR PROPOSED PROJECT

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The methodology for the risk assessment is based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

Factors of risks involved due to human induced activities in connection with these proposed mining & allied activities with detailed analysis of causes and control measures for the mine is given in Table 7.1.

Table 7.1 Risk Assessment & Control Measures for Proposed Project

S. No.	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries.	Improper handling and unsafe working practice	✓ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. ✓ Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited. ✓ Fire-fighting and first-aid provisions in the mine office complex and mining area. ✓ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ✓ Working of quarry, as per approved plans and regularly updating the mine plans. ✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut. ✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager. ✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.

2	Drilling	Improper and unsafe practices; Due to high pressure of compressed air, hoses may burst; Drill Rod may break;	✓ Safe operating procedure established for drilling (SOP) will be strictly followed. ✓ Only trained operators will be deployed. ✓ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ✓ Operator shall regularly use all the personal ✓ protective equipment.
3	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin	✓ Before commencing work, drivers personally check the truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ✓ Concave mirrors should be kept at all

		when it is loaded.	corners. ✓ All vehicles should be fitted with reverse horn with one spotter at every tipping point ✓ Loading according to the vehicle capacity ✓ Periodical maintenance of vehicles as per operator manual
4	Natural calamities	Unexpected happenings	✓ Escape Routes will be provided to prevent inundation of storm water ✓ Fire Extinguishers & Sand buckets
5	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.

Source: Analysed and proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN FOR PROPOSED PROJECT

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone II. The area is far away from the sea. Hence, the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- ❖ Rescue and medical treatment of casualties;
- ❖ Safeguard other people;
- ❖ Minimize damage to property and the environment;
- ❖ Initially contain and ultimately bring the incident under control;
- ❖ Secure the safe rehabilitation of affected area; and
- ❖ Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations. Structure of the team has been shown in Figure 7.1.

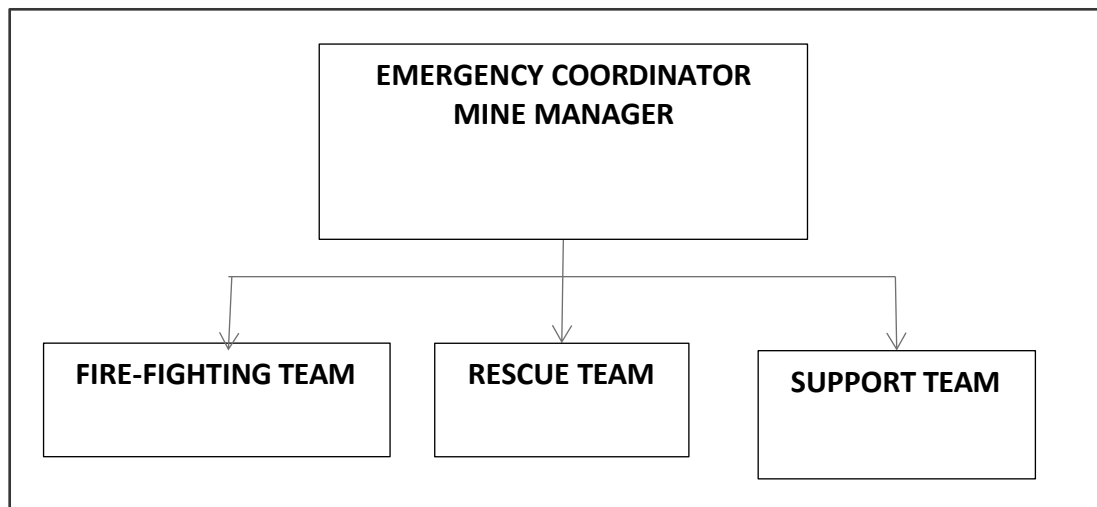


Figure 7.1 Disaster management team layout for proposed project

7.3.1 Emergency Control Procedure

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- ❖ On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- ❖ Emergency security controller will commence his role from main gate office
- ❖ Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- ❖ Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.

- ❖ He will receive information continuously from incident controller and give decisions and directions to:
- ❖ Incident controller
- ❖ Mine control rooms
- ❖ Emergency security controller

7.4 CUMULATIVE IMPACT STUDY

The cumulative impact on air & noise environment is mainly anticipated due to drilling, excavation, movement of HEMM and transportation activities in all the quarries (proposed and existing) within the cluster. For this cumulative study, One proposed and One Existing Projects, known as P1&E1. are taken into consideration. The details of P1 have been given in Table 1.2 and the detail of E1 is given in the Table 7.2.

Table 7.2 Salient Features of Proposed Project Site “E1”

Name of the Quarry	TVL.AGA Enterprises Grey granite		
S.F.No.	301/3C1B (P), 304/4A (P), 304/4D (P) and 305/2C(P)		
Land Type	Patta land		
Extent	4.41.51ha		
Existing Depth	30 m		
Toposheet No	57 L/07		
Latitude between	12°29'04.37"N to 12°29'13.83"N		
Longitude between	78°20'44.22"E to 78°20'54.74"E		
Highest Elevation	460 m ASML		
Topography	Flat Topography		
Geological Reserves	Granite 35% (Tons)	Granite 65% (Tons)	Top Soil (Tons)
	1062119	1972506	176560
Mineable Reserves	Granite 35% (Tons)	Granite 65% (Tons)	Top Soil (Tons)
	496796	922617	136884
Proposed production for 5 years	Granite 35% (Tons)	Granite 65% (Tons)	Top Soil (Tons)
	33495	62205	118292
Method of Mining	The quarrying operation is carried out by Open cast semi mechanized mining method with 5.0 m vertical bench with a bench width of 5.0 m.		
Machinery	Jack Hammer	6	
	Compressor	2	
	Tippers	2	

proposed	Excavator	1
Proposed manpower deployment	34	
Project cost	Rs.2,38,04,000/-	
CER cost	Rs. 10,00,000/-	
Proposed Water Requirement	3.3 KLD	

7.4.1 Air Environment

Calculation of the cumulative production load of granite from the 2 proposed project within the cluster have been given in the Table.7.3.

Table 7.3 Cumulative Production Load of Granite

Quarry	Grey Granite @40% recovery in Tons				Granite Waste @ 60% in Tons				Weathered Rock in Tons			
	5 years in Tons	Per Year in Tons	Per Day in Tons	Lorry Load Per day	5 years in Tons	Per Year in Tons	Per Day in Tons	Lorry Load Per day	5 years in Tons	Per Year in Tons	Per Day in Tons	Lorry Load Per day
P1	177628	35526	132	8	266442	53288	197	12	93440	46720	173	10
E1	33495	6699	25	2	62205	12441	46	3	222016	74005	274	17
Total	211123	42225	157	10	328647	65729	243	15	315456	120725	447	27

The overall production of Cluster is of about granite recovery is 157 Tons per day with a capacity of 10 trips per day, about granite waste is 243 Tons per day with a capacity of 15 trips and weathered rock is of 447 Tons per day with a capacity of 27 trips per day.

7.4.1.1 Cumulative Impact of Air Pollutants

The results on the cumulative impact from the two proposed projects on air environment of the cluster have been provided in Table 7.4. The cumulative values resulting from the two projects for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.4 Incremental and Resultant Ground Level Concentration from the Cluster

Pollutants	Baseline Data($\mu\text{g}/\text{m}^3$)	Incremental Values($\mu\text{g}/\text{m}^3$)		Cumulative Value ($\mu\text{g}/\text{m}^3$)
		P1	E1	
PM _{2.5}	18.5	9.8	8.5	36.8
PM ₁₀	39.5	15.2	12.9	67.6

Source: Emission Calculations

7.4.2 Noise Environment

Noise pollution is mainly due to operation like drilling plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius.

Table 7.5 Predicted Noise Incremental Values from Cluster

Location ID	Distance (m)	Direction	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	420	N	43.2	26.91	43.30	45-55 dB(A)
Habitation Near E1	420	N	43.2	26.91	43.30	
Cumulative Noise (dB(A))					46.31	

Source: Lab Monitoring Data

The cumulative analysis of noise due to two proposed project shows that habitation near P1 will receive about 46.31dB (A), as shown in Table 7.5. The cumulative results for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time.

7.4.3 Socio Economic Environment

Socio Economic benefits of the Cluster projects were calculated and the results have been shown in Table 7.6 and the 2 projects together will contribute Rs.20,00,000 towards CER fund.

Table 7.6 Socio Economic Benefits from Cluster

Location ID	Project Cost	CER Cost
P1	Rs. 60,50,000/-	Rs. 10,00,000
E1	Rs.2,38,04,000/-	Rs. 10,00,000
Grand Total	Rs.2,98,54,000	Rs. 20,00,000

Table 7.7 Employment Benefits from Cluster

Location ID	Employment
P1	22
E1	34
Grand Total	56

A total of 56 people will get direct employment in cluster

7.4.4 Ecological Environment

Table 7.8 Greenbelt Development Benefits

ID	No of Trees proposed to be planted	Area to be Covered(m ²)	Name of the Species	No. of Trees expected to be grown @ 80% survival rate
P1	1690	15210	Azadirachta indica, Albizia lebbeck, Delonix regia, Techtona grandis, etc.,	1352
E1	2208	19868		1766
Total	3898	35078		3118

Cumulative studies show that the two proposed projects will plant about 3898 native tree species like Neem, Teak, etc both inside and outside the lease area. It is expected that 80 % of trees, i.e., 3118 trees will survive in this green belt development program.

7.4.5 Traffic Density

The proposed project will add 52 truckloads per day, accounting for an increase of 156 PCUs to the nearby roads.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR PROPOSED PROJECT

All the Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

7.5.1 Objective

- ❖ To investigate the actual supply chain network of plastic waste.
- ❖ To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste

- ❖ Preparation of a system design layout, and necessary modalities for implementation and monitoring.

A detailed action plan to manage plastic waste has been provided in Table 7.9.

Table 7.9 Action Plan to Manage Plastic Waste

S. No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance.	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste.	Mines Manager
3	Collection of plastic waste.	Mines Foreman
4	Setting up of Material Recovery Facilities.	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities.	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers.	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction.	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility.	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance.	Mine Owner

Source: Proposed by FAEs and EC

CHAPTER VIII

PROJECT BENEFITS

8.0 GENERAL

The proposed project at Jagadevipalayam Village aims to produce 177628 Tons of grey granite over a period of 5 years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits:

- ❖ Increase in Employment Potential
- ❖ Improvement in Socio-Economic Welfare
- ❖ Improvement in Physical Infrastructure
- ❖ Improvement in Social infrastructure

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 22 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be an opportunity for indirect employment to about 15 persons in the form of contractual jobs, business opportunities, and service facilities etc. Because of this, the economic status of the local people will improve.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry project is located in Jagadevipalayam Village, Bargur Taluk and Krishnagiri District of Tamil Nadu. The area has already well-established communications roads and other facilities. The following physical infrastructure facilities will further improve due to proposed project.

- ❖ Road transport facilities
- ❖ Communications
- ❖ Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily

temporary or contractual and involvement of unskilled labour will be more. 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. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

The proposed mine is likely to have other tangible benefits as given below.

- ❖ Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation for supply of goods and services to the mine and other community services
- ❖ Additional housing demand for rental accommodation will increase
- ❖ Cultural, recreation and aesthetic facilities will also improve
- ❖ Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity
- ❖ The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

8.6 CORPORATE SOCIAL RESPONSIBILITY

Individual Project Proponents will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 5 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- ❖ Health Services
- ❖ Social Development
- ❖ Infrastructure Development
- ❖ Education & Sports
- ❖ Self-Employment
- ❖ CSR Cost Estimation
- ❖ CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Jagadevipalayam Village. CSR budget is allocated.

8.7 CORPORATE ENVIRONMENT RESPONSIBILITY

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III dated 01.05.2018. As per para 6 (II) of the office memorandum, being a green field project & capital investment is ≤ 100 crores, the proposed project shall contribute 5% of capital investment towards CER as per directions of EAC/SEAC. However, the SEAC has suggested to allocate CER fund on the basis of the extent of the project. Therefore, **Rs. 10,00,000** is allocated for CER. The proposed utilization of the budget of CER activities is given in Table 8.1.

Table 8.1 CER Action Plan

S. No.	Activity	Budget (Rs.in Lakh)
1	The applicant Indents to involve in corporate environment responsibilities (CER) activities such as renovation of existing toilet, plantation within the school premises, donating environment related books to the nearby school library, etc.	Rs.10,00,000
	Total	Rs.1,00,000

Source: Field survey conducted by FAE in consultation with project proponent

8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about **Rs. 27,46,50,466** to the state government through various ways, as provided in Table 8.2.

Table 8.2 Project Benefits to the State Government

Particulars	Budget (Rs.)	
	Granite Recovery @40%	Granite Waste @60%
CER	10,00,000	---
Seigniorage @ Rs.3133/m ³ of Granite Recovery & @ Rs.265/m ³ of Granite Waste	20,23,66,736	2,56,75,320
District Mineral Foundation Tax @ 10% of Seigniorage	2,02,36,673	25,67,532
Green Tax @ 10% of Seigniorage	2,02,36,673	25,67,532
Total	24,38,40,082	3,08,10,384

CHAPTER IX
ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

CHAPTER X

ENVIRONMENTAL MANAGEMENT PLAN

10.0 GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of environmental management plan will ensure to keep all the environmental parameters of the project in respect of ambient air quality, water quality, socio economic improvement standards. Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 ENVIRONMENTAL POLICY

The project proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance. The Proponent, **M/s.Pranita Granites** will:

- ❖ Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities.
- ❖ Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- ❖ Allocate necessary resources to ensure the implementation of the environmental policy.
- ❖ Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.
- ❖ Implement monitoring programs to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- ❖ Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

10.1.1 Description of the Administration and Technical Setup

The environment monitoring cell discussed under chapter VI will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through mine management level of each proposed quarry. The said team will be responsible for:

- ❖ Monitoring of the water/ waste water quality, air quality and solid waste generated.
- ❖ Analysis of the water and air samples collected through external laboratory.

- ❖ Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- ❖ Co-ordination of the environment related activities within the project as well as with outside agencies.
- ❖ Collection of health statistics of the workers and population of the surrounding villages.
- ❖ Green belt development.
- ❖ Monitoring the progress of implementation of the environmental monitoring program.
- ❖ Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the company for execution of Environmental Management Plan. The Table 10.1 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

Table 10.1 EMP Budget for Proposed Project

Attribute	Mitigation measures	Provision for Implementation	Capital Cost (Rs.)	Recurring Cost/annum (Rs.)
Air Environment	Compaction, gradation and drainage on both sides	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare and yearly maintenance @ Rs. 10,000/- per hectare	33800	33800
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed sprinkler installation and new water tanker cost for capital; and water sprinkling (thrice a day) cost for recurring	800000	50000
	Air quality will be regularly monitored as	Yearly compliance as per CPCB norms	0	50000

	per norms within ML area & ambient area			
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin to avoid escape of fines to the atmosphere	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of speed Governors @ Rs. 5000/- per tipper/dumper deployed	10000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of exhaust fumes	0	2500
	Regular sweeping and maintenance of roads for at least about 200 m from quarry entrance	Provision for 2 labours @ Rs.10,000/labour (Contractual)	0	67600
	Installing wheel wash system near exit gate of quarry	Installation + Maintenance + Supervision	50000	20000
Total Air Environment			993800	253900

Noise Environment	Source of noise will be transportation vehicles, and HEMM. For this, proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done.	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implementations that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0

	Provision for portable blaster shed	Installation of portable blasting shelter	0	0
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 tons of blasted material	0	0
Total Noise Environment			0	0
Water Environment	Water Management	Provision for garland drain @ Rs. 10,000/- per hectare with maintenance of Rs. 5,000/- per annum	33800	16900
Total Water Environment			33800	16900
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency (capital cost, recurring cost for collection /disposal).	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Total Waste Environment			30000	22000
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed display board at the quarry entrance as permanent structure	10000	1000
Total Implementation of EC, Mining Plan			10000	1000

Occupational Health and Safety	Workers will be provided with Personal Protective Equipment	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	88000	22000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	22000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	13520
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	676000	33800
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	169000	33800
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 /	0	780000

		34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate		
Total Occupational Health and Safety			973000	912120
Development of Green Belt	Green belt development - 500 trees per hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	135200	20280
		Avenue plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	304200	30420
Total Development of Green Belt			439400	50700
Mine Closure Activity	Closure includes 10% of the amount allotted for Greenbelt development, wire fencing, and garland drainage (Rule 27 in MCDR 2017 for Cat B mines will pay 2 lakhs per hectare or minimum amount of financial assurance of 5 lakhs)		114920	0

Green fund	G.O.(Ms). No.23, Dated: 28.09.2021	Section IVA of TNMMCR 1959 (@10% of Seigniorage Fee) (Seigniorage Fee for granite waste = Rs.3133 and for granite recovery = Rs.265)	20236674	0
Total EMP Budget			22831594	1256620 (Exclude. Mine Closure Cost)

Table 10.2 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation

Ist Year	IInd Year	IIIrd Year	IVth Year	Vth Year (Including Mine Closure Cost)	Total Recurring Cost	Total EMP Cost
1256620	1319451	1385424	1454695	1527429	6943619	29775212

In order to implement the environmental protection measures, an amount of Rs.22831594 as capital cost and Rs.1256620 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the total recurring cost over 5 years is Rs.6943619 and the overall EMP cost for 5 years will be Rs.29775212, as shown in Table 10.2.

10.3 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER XI

SUMMARY AND CONCLUSION

11.1 INTRODUCTION

As the proposed colour mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 7.79.51 ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No's. 331/1A (P), 332/1,332/2,332/3,332/4,332/5 (P), and 332/6 over the extent of 3.38.0 ha is situated in the cluster falling in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District and Tamil Nadu. The quarries involved in the calculation of cluster extent are one proposed quarry and One Existing Quarry.

11.2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 12°28'58.47570"N to 12°29'5.11330"N and a longitude of 78°20'51.00141"E to 78°21'0.77090"E in jagadevipalayam Village, Bargur Taluk, Krishnagiri District, and Tamil Nadu State. According to the approved mining plan, about **177628 Tons** of Grey granite will be mined up to the ultimate depth of 35 m in the five years. The quarrying operation is proposed to be carried out by opencast semi mechanized mining method involving drilling, blasting, and formation of benches of the prescribed dimensions.

11.3 DESCRIPTION OF THE ENVIRONMENT

Baseline data were collected to evaluate the existing environmental condition in the core and buffer areas during October to December, 2023 as per CPCB guidelines. The data were collected by both the FAEs and NABL accredited and MoEF notified **Excellence Laboratory & Greenlink Analytical and Research Laboratory (India) Private Ltd** for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic, and socio-economy.

11.3.1 Land Environment

Land use pattern of the area of 5 km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 11.1.

Table 11.1 LULC Statistics of the Study Area

S. No	Classification	Extent (ha)	Area (%)
1	Water	63.8	0.73
2	Trees	402.31	4.62
3	Crops	3046.24	35.00
4	Built area	2993.96	34.40
5	Mining/Industrial area	167.32	1.92
6	Bare Groung	5.15	0.06
7	Range land	2025.66	23.27
Total		8704.44	100.0

Source: Sentinel II Satellite Imagery

11.3.2 Soil Environment

Physical characteristics of soils were determined through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity, texture are presented in Table 3.4.

Texture:

In lease area the soil is red calcareous. They are mostly sandy to loamy and characterised by the hard and compact layer of lime. In other places the soil found is brown in colour.

Structure:

The grain size is greater than 2mm in the lease area and in other places where the samples collected ranges from 0.002mm to 2mm.

Porosity:

The porosity of the soils is significantly impacted by the degree of weathering and fracture development in the underlying bedrock. The 500m radius cluster consists of Charnockite formations affect the porosity found in this study.

Density:

The soil samples collected within 5km radius are generally characterized by higher bulk densities typically ranging from <0.1 to $<0.1\text{g/cm}^3$. This is due to the presence of red sandy and in some areas with red loamy soil. The dominant soil types include red calcareous and red non-calcareous. Sandy soils have larger pore spaces between them compared to finer-grained soils like silt and clay.

Consistence:

Coarse (sandy) soils may require slightly higher moisture content while fine (clay) soils may require slightly lower. A soil moisture content is very low generally considered optimal for plant growth in medium-textured soils (like loams). This range falls within the 25-50% available water zone where plants are at risk of stress if a water deficit is prolonged.

Chemical Characteristics of Soil

Chemical characteristics of soils through selected parameters viz. pH, soluble cations and anions, exchangeable cations, organic content and fertility status in the form of NPK values and organic matter are presented in Table 3.5. 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. Variation in the pH of the soil in the study area is presented in Table 3.5 and it is found to be from slightly acidic to neutral (6.2 – 7.8) in reaction. Electrical conductivity a measure of soluble salts in the soil is in the range of 45- 560 $\mu\text{S/cm}$ as shown in Table 3.5.

The important water-soluble cations in the soil are nitrogen, phosphorus, potassium, calcium and magnesium whose concentration levels ranged from core zone- N- 212.0kg⁻¹/ha, P-7.89. mg/kg⁻¹, K-740.0 kg⁻¹/ha & buffer zone- N- 0.8% to 1.4%, P- 0.03% to 0.09%,K- 0.018% to 0.055%, Cu- 3.3mg/Kg to 13.0mg/Kg & M- 26mg/kg⁻¹ to 120mg kg⁻¹ respectively.

The soil samples in the study area show loamy textures varying between Silt Loam and sandy loam. pH of the soil varies from 6.8 – 7.6 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 45– 560µS/cm.

11.3.3 Water Environment

Colour:

- Value observed in Project Site (True/Apparent Color): 1 Hazen unit.
- Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as “*Standards*” from herein).

Odour & Taste:

- The water is odour less. The taste of the water is slightly salty which is due to the presence of hardness in water which is attributed to the presence of calcium and magnesium in the water. As per the standards the odour and taste should be agreeable.

pH:

- Value observed in the Project Site: Min. 7.1 & Max. 7.8 mg/L.
- Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is neutral in nature.

Turbidity:

- Value observed in the Project Site: less than 1.
- Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplankton and other sediments.

Total Dissolved Solids:

- Value observed in the Project Site: Min. 642 & Max. 1144 mg/L.
- Acceptable and permissible limits: 500mg/L and 2000 mg/L respectively.
- TDS is the presence of inorganic salts and small amounts of organic matter present in the water.

3.3.1.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

- Value observed in Min. 110 & Max. 175 mg/L.
- Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.
- Calcium is an essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

- Value observed in Min. 5.8 & Max. 49 mg/L.
- Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.
- The value of Magnesium in the project site is below in acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

Chloride

- Value observed in Min. 95 & Max. 202 mg/L.
- Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.
- The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as CaCO₃:

- Value observed in Avg. 272 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides, which will impart soda taste to the water. The value of the total alkalinity is within acceptable and permissible limits in the project site.

Hardness:

- Value observed in Min. 326 & Max. 533 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- The value of Hardness in the project site is higher than acceptable limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

11.3.4 Air Environment

As per the monitoring data, PM_{2.5} ranges from 16.1 µg/m³ to 22.8 µg/m³; PM₁₀ from 36.2 µg/m³ to 43.8 µg/m³; SO₂ from 7.6 µg/m³ to 10.9 µg/m³; NO₂ from 16.2 µg/m³ to 21.6 µg/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

11.3.5 Noise Environment

The Table 3.19 shows that noise level in core zone was 40.1dB (A) Leq during day time and 37.7 dB (A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 39.5 to 45.8 dB (A) Leq and during night time from 35.8 to 43.3 dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

11.3.6 Biological Environment

The study found that there is no endemic, endangered migratory fauna found in the area. This area is not also a migratory path of any faunal species. Hence, this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

11.3.7 Socio Economic Environment

The proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area, thus leading to the improvement of people's standard of living.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.4.1 Land Environment

Anticipated Impact

- Change in land use and land cover and topography of the mine lease area
- Problems to human habitations due to dust and noise caused by movement of heavy vehicles
- Soil erosion and sediment deposition in the nearby water bodies during the rainy season
- Siltation of water course due to wash off from the exposed working area
- Deterioration of soil quality in the surrounding area due to runoff from the project area
- Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

Mitigation Measures

- Construction of garland drains, settling pits, and check dams to prevent runoff and

siltation

- Runoff water will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site
- The vegetation will be retained at the site wherever possible
- Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

11.4.2 Water Environment

Anticipated Impact

- Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas
- As the proposed project acquires 3.2 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

Mitigation Measures

- Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes
- Domestic sewage from site office will be discharged in septic tank and then directed to soak pits
- Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse
- The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted
- Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program

11.4.3 AIR ENVIRONMENT

Anticipated Impact

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software. The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further

Mitigation Measures

- To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar
- Controlled blasting will be carried out using suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone
- Blasting will be restricted to a particular time of the day i.e., at the time of lunch hours
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored
- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- The un-metalled haul roads will be compacted weekly before being put into use
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Haul roads and service roads will be graded to clear accumulation of loose materials
- Planting of trees all along main mine haul roads and around the project site will be practiced to prevent the generation of dust

11.4.4 Noise Environment

Anticipated Impact

Total noise level in all the sampling areas is well below the CPCB standards for industrial and residential areas.

Mitigation Measures

- The blasting operations in the cluster quarries will use shallow holes and delay detonators to reduce the ground vibrations
- Proper quantity of explosives, suitable stemming materials and appropriate delay system will be used during blasting
- Adequate safe distance from blasting will be maintained as per DGMS guidelines
- Blasting shelter will be provided as per DGMS guidelines
- Blasting operations will be carried out only during day time
- During blasting, other activities in the immediate vicinity will be temporarily stopped
- Drilling parameters like depth, diameter and spacing will be properly designed to give

proper blast

- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimize vibration effects
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

11.4.5 Biological Environment

Anticipated Impact

- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.
- Carbon released from quarrying machineries and tippers during quarrying would be 1211 kg per day, 326887 kg per year and 1634434 kg over five years.

Mitigation Measures

- During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time
- Quarry approach roads are sprayed with water 3 times a day to control dust. Thus, the damage to the nearby farmlands is controlled
- Existing roads will be used; new roads will not be constructed to reduce impact on flora
- To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 40519kg of

carbon per year. Therefore, we recommend 1690 planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc

11.4.6 About 1690 trees will be planted within three months from the beginning of mining.

These trees, when grown up would sequester carbon of about 11932kg of the total carbon. Socio Economic Environment

Anticipated Impact

- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area
- Approach roads can be damaged by the movement of tippers
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

Mitigation Measures

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

11.4.7 Occupational Health

- All the persons will undergo pre-employment and periodic medical examination
- Employees will be monitored for occupational diseases by conducting medical tests: General physical tests, Audiometric tests, Full chest, X-ray, Lung function tests, Spirometric tests, Periodic medical examination – yearly, Lung function test – yearly, those who are exposed to dust and Eye test
- Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost.
- The first aid box will be made available at the mine for immediate treatment. First aid

training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

11.5 Environment Monitoring Program

Table 11.2 Environment Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

11.6 ADDITIONAL STUDIES

11.6.1 Risk Assessment

The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

11.6.2 Disaster Management Plan

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- Rescue and treat casualties;
- Safeguard other people;

- Minimize damage to property and the environment; Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

11.6.3 Cumulative Impact Study

The results on the cumulative impact of the cluster projects on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.

- The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time
- The cluster projects will allocate Rs. 20,00,000/- towards CER as recommended by SEAC
- The cluster projects will directly provide jobs to 56 local people, in addition to indirect jobs
- The cluster projects will plant 3898 about trees in and around the lease area
- The cluster projects will add 52 PCU per day to the nearby roads.

11.7 Project Benefits

Various benefits are envisaged due to the proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- Direct employment to 56 local people
- Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,
- Strengthening of existing community facilities through the Community Development Program
- Skill development & capacity building like vocational training.
- Rs. 20,00,000 will be allocated for CER

11.8 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of Rs.22831594 as capital cost and Rs.1256620 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the total recurring cost over 5 years is Rs.6943619 and the overall EMP cost for 5 years will be Rs.29775212.

CHAPTER XII

DISCLOSURES OF CONSULTANT

The Project Proponent, **M/s. Sri Vinayaga Granites** has engaged **Geo Technical Mining Solutions**, a NABET accredited consultancy for carrying out the EIA study as per the ToR issued.

Address of the consultancy:

No: 1/213B Natesan Complex,
Oddapatti, Dharmapuri – 636705,
Tamil Nadu, India.
Email: info.gtmsdpi@gmail.com
Web: www.gtmsind.com
Phone: 04342 232777.

The accredited experts and associated members who were engaged in this EIA study are given below:

S. No	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
Approved Functional Area Experts & EC					
1	Dr. S. Malar	EIA Coordinator (EC) In-house	1(a)(i)	WP	B
2	Dr. G. Prabakaran	In-house, FAE	1(a)(i)	SE	B
3	P. Venkatesh	In-house, FAE	1(a)(i)	AQ	B
4	J.N. Manikandan	Empanelled FAE	1(a)(i)	RH, SHW	B
7	Dr. S. Malar	In-house, FAE	1(a)(i)	WP	B
8	G. Umamaheswaran	In-house, FAE	1(a)(i)	HG, LU, GEO	B
9	C. Kumaresan	In-house, FAE	1(a)(i)	NV	B
10	P. Venkatesh	In-house, FAE	1(a)(i)	AP	B
11	Dr. D.Kalaimurugan	In-house, FAE	1(a)(i)	SC, EB	B
Approved Functional Area Associates					
12	K. Prithiviraj	FAA	1(a)(i)	HG, GEO	B
13	R. Srikrishna	FAA	1(a)(i)	LU, LC	B
14	Moorthi	FAA	1(a)(i)	AP, AQ	B
15	V. Malavika	FAA	1(a)(i)	NV, SHW	B
Abbreviations					
EC	EIA Coordinator	NV	Noise and Vibration		

FAE	Functional Area Expert	SE	Socio Economics
FAA	Functional Area Associates	HG	Hydrology, ground water and water conservation
TM	Team Member	SC	Soil conservation
GEO	Geology	RH	Risk assessment and hazard management
WP	Water pollution monitoring, prevention and control	SHW	Solid and hazardous wastes
AP	Air pollution monitoring, prevention and control	MSW	Municipal Solid Wastes
LU	Land Use	ISW	Industrial Solid Wastes
AQ	Meteorology, air quality modelling, and prediction	HW	Hazardous Wastes
EB	Ecology and bio-diversity	GIS	Geographical Information System

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA & EMP

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA & EMP report.

Signature : 

Date :

Name : **Dr. S. Malar**

Designation : EIA Coordinator

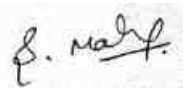
Name of the EIA Consultant Organization : Geo Technical Mining Solutions

Period of Involvement : Till date

We, the FAEs and FAAs hereby declare that information furnished in this EIA/EMP report for **M/s. Sri Vinayaga Granites** Grey Granite quarry project with the extent of 3.38.0 ha situated in the cluster with the extent of **7.79.51** ha in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District of Tamil Nadu is true and correct to the best of our knowledge.

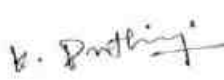
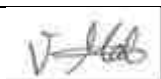
List of Functional Area Experts Engaged in this Project

S. No.	Functional Area	Involvement	Name of the Experts	Signature
1	AP	○ Identification of different sources of air pollution due to the proposed mine activity		

		○ Prediction of air pollution and propose mitigation measures / control measures	P.Venkatesh	
2	WP	○ Suggesting water treatment systems, drainage facilities ○ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr.S. Malar	
3	HG	○ Interpretation of ground water table and predict impact and propose mitigation measures. ○ Analysis and description of aquifer Characteristics	G. Uma Maheswaran	
4	GEO	○ Field Survey for assessing the regional and local geology of the area. ○ Preparation of mineral and geological maps. ○ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	G. Uma Maheswaran	
5	SE	○ Revision in secondary data as per Census of India, 2011. ○ Impact Assessment & Preventive Management Plan ○ Corporate Environment Responsibility.	Dr. G. Prabhakaran	
6	EB	○ Collection of Baseline data of Flora and Fauna. ○ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ○ Impact of the project on flora and fauna. ○ Suggesting species for greenbelt development.	Dr. D. Kalaimurugan	

7	RH	○ Identification of hazards and hazardous substances ○ Risks and consequences analysis ○ Vulnerability assessment ○ Preparation of Emergency Preparedness Plan ○ Management plan for safety.	J.N. Manikandan	
8	LU	○ Construction of Land use Map ○ Impact of project on surrounding land use ○ Suggesting post closure sustainable land use and mitigative measures.	G. Uma Maheswaran	
9	NV	○ Identify impacts due to noise and vibrations ○ Suggesting appropriate mitigation measures for EMP.	C. Kumaresan	
10	AQ	○ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ○ Recommending mitigations measures for EMP	P.Venkatesh	
11	SC	○ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. D.Kalaimurugan	
12	SHW	○ Identify source of generation of non-hazardous solid waste and hazardous waste. ○ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	J.N. Manikandan	

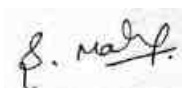
List of Functional Area Associate Engaged in this Project

S.No.	Name	Functional Area	Involvement	Signature
1	R. Srikrishna	LU, LC	○ Site visit with FAE ○ Provide inputs & Assisting FAE for LU and HG	
2	K. Prithiviraj	HG & GEO	○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection	
3	Moorthi	AP	○ Site visit with FAE ○ Assistance to FAE in collection of both primary and secondary data	
4	V. Malavika	NV, SHW	○ Site visit along with FAE ○ Assistance in report preparation	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, **Dr. S. KARUPPANNAN**, Managing Partner, **Geo Technical Mining Solutions**, hereby, confirm that the above-mentioned functional area experts and team members prepared the EIA/EMP report for **M/s. Sri Vinayaga Granites** Grey Granite quarry project with the extent of 3.38.0 ha situated in the cluster with the extent of **7.79.51** ha in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District of Tamil Nadu is true and correct to the best of my knowledge.

Signature :



Date :

Name : **Dr. S. Malar**

Designation : EIA Coordinator

Name of the EIA Consultant Organization : Geo Technical Mining Solutions

NABET Certificate No & Issue Date : **NABET/EIA/23-26/RA 0319**

Validity : **Till 31.12.2026.**



File No: 12115
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 17/06/2025



To,

Thiru.J Manivasagam
 SRI VINAYAGA GRANITES
 M/s. Sri Vinayaga Granites, #01/504E, Maruthi Nagar, Jagadevipalayam Village & Post, Bargur Taluk
 KRISHNAGIRI, TAMIL NADU, 635203
 gsrivinayaga@gmail.com

Subject: Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006-as amended regarding.

Sir/Madam,

Sub:SEIAA-TN Proposed Grey Granite Quarry over an extent of 3.38.0. Ha in S.F.No's: 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) & 332/6, Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu by M/s. Sri Vinayaga Granites - under project category – “B1” and Schedule S.No.1(a) “Mining of Minerals Projects” of EIA Notification, 2006, as amended – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/530384/2025 Dated 30/04/2025.
2. Your application submitted for Terms of Reference dated: 30.04.2025.
3. Minutes of the 564th SEAC meeting held on 13.05.2025.
4. Minutes of the 836th SEAC meeting held on 06.06.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO25B0108TN5937243N
(ii) File No.	12115
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Jagadevipalayam Village Grey Granite Quarry
(viii) Name of Company/Organization	SRI VINAYAGA GRANITES
(ix) Location of Project (District, State)	KRISHNAGIRI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by (SEIAA) Appraisal Committee of SEIAA in the meeting held on 06.06.2025. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference for instant proposal of M/s. Sri Vinayaga Granites under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
9. This issues with the approval of the Competent Authority.
10. The TORs with public hearing 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.
- 11.

Copy To

1. The Additional Chief Secretary to Government, Environment & 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 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests &CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Krishnagiri District.
6. Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions:

S. No	Terms of Reference
1.1	The authority noted that the subject was placed in the 564 th SEAC-I meeting held on 13.05.2025.

S. No	Terms of Reference
	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing for the RoM of 2,18,110m³ of Grey Granite which includes recovery of 64,592m³ @ 40% and 96,888m³ of Rejects @ 60% for an ultimate depth of mining of 35m BGL as per the approved mining plan, 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-I & normal conditions & the conditions mentioned below.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 3. The Geo referenced Boundary pillars to be erected on the field as per the mine rules and the evidence should be submitted along with the EIA report. 4. Since water bodies are situated nearby, the PP shall carry out the hydrological study including the details of water flow pattern to determine the impacts of the mining operation in the water bodies. 5. The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report. 6. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 7. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 8. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 9. 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. 10. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall. 11. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. 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. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. 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. 7. 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 the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, 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. 9. 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. 10. 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. 11. 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. 12. 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, 13. What was the period of the operation and stoppage of the earlier mines with last work permit

S. No	Terms of Reference
	issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. 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). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. 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. 18. 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. 19. 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 the 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. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater 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. 21. 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. 22. 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. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. 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. 25. 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. 26. 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,

S. No	Terms of Reference
	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. 27. 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. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. 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. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. 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. 32. 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. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly 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 34. 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. 35. 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. 36. 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. 37. 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. 38. 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. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. 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. 41. 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. 42. 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. 43. Concealing any factual information or submission of false/fabricated data and failure to

S. No	Terms of Reference
	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.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	<u>Cluster Management Committee</u> - 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. - The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., - 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. - 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. - The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals 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. - 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 in the EIA Report. - 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 committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. <u>Agriculture & Agro-Biodiversity</u> - Impact on surrounding agricultural fields around the proposed mining Area. - Impact on soil flora & vegetation around the project site. - Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. - The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. - Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. - The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. <u>Forests</u> - The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. - The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. - The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. - The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

S. No	Terms of Reference
	<u>Water Environment</u> 19. 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. 20. Erosion Control measures. 21. 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. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. 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. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: - Hydrothermal/Geothermal effect due to destruction in the Environment. - Bio-geochemical processes and its foot prints including Environmental stress. - Sediment geochemistry in the surface streams. <u>Energy</u> 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. <u>Climate Change</u> 29. 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. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. <u>Mine Closure Plan</u> 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. <u>EMP</u> 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. <u>Risk Assessment</u> 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. <u>Disaster Management Plan</u> 36. 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

S. No	Terms of Reference
	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. <u>Others</u> 37. 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. 38. 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. 39. 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.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	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
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	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
1.4	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 proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	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
1.6	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
1.7	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

S. No	Terms of Reference
	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
1.8	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
1.9	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
1.10	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
1.11	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
1.12	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 State Expert Appraisal Committees
1.13	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
1.14	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
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	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
1.17	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

S. No	Terms of Reference
1.18	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 alongwith 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
1.19	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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	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)
1.21	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
1.22	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
1.23	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
1.24	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
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided

S. No	Terms of Reference
1.26	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
1.27	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
1.28	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 State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	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
1.30	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
1.31	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
1.32	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
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	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
1.35	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
1.36	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

S. No	Terms of Reference
1.37	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
1.38	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
1.39	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
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	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
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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. g) 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. h) 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. i) 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

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 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) 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 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 with respect to 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 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 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.
- 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 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.

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. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental

- increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
 15. A specific study on agriculture & livelihood shall be carried out and reported.
 16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
 17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
 18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
 20. Likely impact of the project on air, water, land, flora-fauna and nearby population
 21. Emergency preparedness plan in case of natural or in plant emergencies
 22. Issues raised during public hearing (if applicable) and response given
 23. CER plan with proposed expenditure.
 24. Occupational Health Measures
 25. Post project monitoring plan
 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
 30. Reserve funds should be earmarked for proper closure plan.
 31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action 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. 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. 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.
- e. 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 with public hearing 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.

From
Dr. P.Jayapal, M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
M/s. Sri Vinayaga Granites,
No.01/504E, Maruthi Nagar,
Jagadevipalayam Village and Post,
Bargur Taluk, Krishnagiri District-
635203.

Roc.No.1541/2023/Mines

dated 18.03.2025

Sir,

Sub Mines and Minerals – Minor Mineral – Grey Granite - Krishnagiri District – Bargur Taluk – Jagadevipalayam Village-S.F.No.332/1, 332/2, 332/3, 332/4, 332/5(P), 332/6 & 331/1A(P) over an extent of 3.38.00 ha of Patta lands - M/s. Sri Vinayaga Granites preferred application -Mining plan approved - Details of quarries situated within 500m radial distance requested – Quarry details furnished - Reg.

Ref:

1. Quarry lease application Preferred by M/s. Sri Vinayaga Granites, dated 14.07.2023.
2. The Government letter No. 6551607/MME-2/2023-1, dated 29.10.2024 (Precise area communication).
3. The Commissioner of Geology and Mining vide Rc.No. 7196/MM4/2023 dated 10.02.2025.
4. Letter from M/s. Sri Vinayaga Granites, dated 28.02.2025 (Mining plan approval).

Kind attention is invited to the references cited above.

2. M/s. Sri Vinayaga Granites vide the reference 1st cited has preferred an application for the grant of quarry lease for quarrying grey granite over an extent of 3.38.00 hectares of Patta land in S.F.No. 332/1, 332/2, 332/3, 332/4, 332/5(P), 332/6 & 331/1A(P) of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19(A) of Tamil Nadu Minor Mineral Concession Rules, 1959.
3. The Mining plan for the subject Grey Granite quarry lease was approved by the Commissioner of Geology and Mining vide Rc.No. 7196/MM4/2023 dated 10.02.2025.
4. At this juncture, the applicant has requested details of granite quarries situated within 500m radial distance from the subject quarry vide letter dated 28.02.2025.

5. As requested by the applicant details of the quarries situated within 500m radial distance from the subject quarry lease area is furnished as follows:

i) Details of Existing Quarries

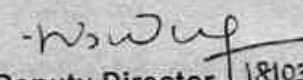
S. No.	Name of the Lessee and address	GO. No. & Date	Taluk & Village	S.F.No.	Extent in ha	Period of lease
1	AGA Enterprises, Jagadevipalayam, Bargur.	G.O.(3D) No.02 Ind. (MME.2) Dept. Dt. 16.02.2022	Bargur Taluk & Jagadevipalayam Village	301/3C1, etc.,	4.41.51	04.03.2022 to 03.03.2042

ii) Details of Expired/ Abandoned Quarries

S. No.	Name of the Lessee and address	GO No & Date	Village & Taluk	S.F.No.	Extent in ha	Period of lease
1.	B.V.Thimmichetti, 2/20, Madras Main Road, Near Hotel Tamilnadu, Krishnagiri.	G.O.(2D) No.153 Ind. (MME.2) Dept. Dt. 12.11.1995	Bargur Taluk & Jagadevipalayam Village	288/2A1, 288/23,288/2D	0.81.0	06.11.1995 to 05.11.2005

iii) Details of Proposed / Applied Quarries

S. No.	Name of the Lessee and address	GO No. & Date.	Village & Taluk	S.F.No.	Extent in ha	Period of lease
1	M/s. Sri Vinayaga Granites, Bargur.	---	Bargur Taluk & Jagadevipalaya m Village	332/1,332/2,332/3,332/4,332/5(P),332/6 & 331/1A(P)	3.38.0	Applied Area


 Deputy Director, 18/03/2024
 Dept. of Geology and Mining,
 Krishnagiri.

Copy to:

The Chairman,
 Tamil Nadu State Environment Impact Assessment Authority,
 3rd Floor, Panakal Maligai, No. 1 Jeenes Road,
 Saidapet, Chennai -15.



COMMISSIONERATE OF GEOLOGY AND MINING

From

Thiru.E.Saravanelraj, I.A.S.,
Commissioner,
Department of Geology and Mining,
Guindy, Chennai - 600 032.

To

M/s.Sri Vinayaga Granites,
No.01/504E, Maruthi Nagar,
Jagadevipalayam Village & Post,
Bargur Taluk,
Krishnagiri -635 203.

Rc. No.7196/MM4/2023, dated: 10.02.2025

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite -
Krishnagiri district - Bargur taluk - Jagadevipalayam
village - over an extent of 3.38.00 ha of patta lands -
S.F.Nos.332/1(0.17.00), 332/2 (0.20.00), 332/3
(0.17.00), 332/4 (0.70.50), 332/5(P) (0.87.00), 332/6
(0.26.50) & 331/1A(P) (1.00.00) - Quarry lease
application preferred by M/s.Sri Vinayaga Granites,
Krishnagiri - Precise area communicated by the
Government - Mining Plan submitted by M/s.Sri
Vinayaga Granites, Krishnagiri - Recommended by the
Deputy Director (G&M), Krishnagiri - Approval
accorded.

- Ref: 1. The Commissioner of Geology and Mining original
file No. Rc.No.7196/MM4/2023 dated 22.12.2023
forwarded under single file system.
2. The Government letter No.
6551607/MME.2/2023-1 dated 29.10.2024.
3. Draft Mining plan submitted by M/s.Sri Vinayaga
Granites, Krishnagiri dated .04.11.2024.
4. This office even Lr. No. 7196/MM4/2023, dated
18.12.2024.
5. The Deputy Director of Geology and Mining,
Krishnagiri letter Rc.No.1541/2023 (Mines), dated
07.01.2025.

Kind attention is invited to the above references cited

2) A quarry lease application preferred by M/s. Sri Vinayaga
Granites, Krishnagiri for quarrying grey granite over an extent of 3.38.00 ha of
patta lands in S.F.Nos.332/1(0.17.00), 332/2 (0.20.00), 332/3 (0.17.00),
332/4 (0.70.50), 332/5(P) (0.87.00), 332/6 (0.26.50) & 331/1A(P) (1.00.00) of
Jagadevipalayam village, Bargur taluk, Krishnagiri district was forwarded to
the Government by the Commissioner of Geology and Mining vide reference 1st

1

cited for grant of quarry lease under rule 19-A of TNMMCR, 1959. Now, the Government letter dated 29.10.2024 have communicated the precise area to an extent of 3.38.00 ha and requested the applicant to submit the approved mining plan through the Director of Geology and Mining and to produce environmental clearance obtained from the competent authority for the subject area within a period of 3 months for grant of quarry lease.

3) In the reference 4th cited the draft mining plan was returned back to the office of Deputy Director, Krishnagiri with a direction to prepare the mining plan as prescribed in precise area communication.

4) Accordingly, Deputy Director, (G&M), Krishnagiri had forwarded and recommended the mining plan was re-submitted by M/s. Sri Vinayaga Granites, Krishnagiri vide reference 5th cited for the subject area for approval.

5) The report of the Deputy Director (G&M), Krishnagiri, and the Mining plan were scrutinized. The Deputy Director (G&M), Krishnagiri has reported that,

- i. The corrected draft mining plan has been prepared by the Recognized Qualified Person on the lines of the direction issued by the Commissioner of Geology and Mining.
- ii. The corrected mining plan has been examined with reference to the field condition and found correct.
- iii. The details such as geological reserves, mineable reserves, year wise production and development program have been incorporated in the corrected draft mining plan.
- iv. The conditions imposed in the precise area communication are also incorporated in the corrected draft mining plan.
- v. The proposed year wise production:

Year	ROM (cbm)	Production (m ³) @ 40% Recovery	Granite Waste @ 60% cbm	Weathered Rock (m ³)	Top Soil (m ³)
1 st year	68000	13830	20745	20055	13370
2 nd year	59060	14342	21513	13923	9282
3 rd year	40610	16244	24366	--	--
4 th year	25230	10092	15138	--	--
5 th year	25210	10084	15126	--	--
Total	218110	64592	96888	33978	22652

[Handwritten signature]

- vi. As per the Mining plan the ROM for the first scheme period is 218110 cbm and the proposed production for the mining plan period is 64592 cbm @ 40% recovery for a depth of 35 m.
- vii. As per the mining plan, it is proposed to dump the waste on the western side of the lease boundary area.
- viii. The Deputy Director (G&M), Krishnagiri has recommended and forwarded the mining plan submitted by M/s.Sri Vinayaga Granites, Krishnagiri for quarrying multi-colour granite over an extent of 4.05.30 ha in S.F.Nos.332/1(0.17.00), 332/2 (0.20.00), 332/3 (0.17.00), 332/4 (0.70.50), 332/5(P) (0.87.00), 332/6 (0.26.50) & 331/1A(P) (1.00.00) of Jagadevipalayam village, Bargur taluk, Krishnagiri district to the Commissioner of Geology and Mining, Chennai for approval.

6) The mining plan submitted by M/s.Sri Vinayaga Granites, Krishnagiri and report of the Deputy Director (G&M), Krishnagiri have been examined with reference to the provisions of Rule 12, 13 and 15 of Granite Conservation and Development Rules, 1999 read with G.O.(Ms). No. 87, Industries (MMC.1), Department dated: 22.02.2001. Based on the recommendation of the Deputy Director (G&M), Krishnagiri the mining plan submitted by M/s.Sri Vinayaga Granites, Krishnagiri is hereby approved subject to the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government.

- i. This 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. The 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 there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

- iii. This mining plan including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite conservation and Development Rules, 1999 made there under shall be complied with.
- vi. Environment Clearance should be obtained from the competent authority in respect of the subject area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
- vii. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
- viii. If anything is found to be concealed as required by the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- ix. No blasting and transportation of materials in vehicles should be carried out from 6.00 PM to 6.00AM.
- x. A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 250 seedlings all along the boundary the area.
- xi. No hindrance shall be caused to the adjacent Patta lands and Government poramboke lands while quarrying and transportation of granite.
- xii. The applicant shall strictly adhere to the statutory and safety requirements and the applicant should ensure the periodical medical checkup to the quarry workers to safeguard them from quarry related diseases.



- xiii. The waste materials generated during the course of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per rule 31 of GCDR, 1999.
- xiv. The applicant shall submit Scheme of Mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above as per GCDR, 1999 rules.
- xv. The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows.
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2 m with a distance between two pillars shall not be more than 3mts.
 - The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - A soft copy of the digitized map with DGPS readings should be submitted in CD to the Deputy Director (G&M), Krishnagiri.
- xvi. The boundary stone should be fixed for the subject quarry should be fixed and the district administration / Geology and Mining Department should ensure that the quarrying operation should be restricted only within the area granted for lease.
- xvii. As per rule 12 (v) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xviii. The conditions mentioned in G.O No. 79 Industries Department dated 06.04.2015 should be complied with.
- xix. The applicant may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid license under explosive Acts and Rules.
- xx. If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules 1959 and other rules and act in force will attract.
- xxi. Child labour should not be engaged in the quarry works and the quarry workers should be registered in the Tamil Nadu Construction Labour Welfare Board.
- xxii. The applicant should remit the Stamp Duty as per the approved modified mining plan during the currency of the lease period.



- xxiii. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
- xxiv. The applicant shall remit the penalty / cost of mineral / other dues if any as arrived by the District Collector / Deputy Director (G&M), Krishnagiri district.
- xxv. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.
- xxvi. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines, Order No.11/02/2020, dated.14.01.2020 issued as per the Order of the Hon'ble Supreme Court of India, dated.08.01.2020 states that, "The Mining lease holders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc".
- xxvii. The applicant should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019, using the agencies empaneled by the CGM on 01.03.2023, 08.03.2023, 17.03.2023 and 18.03.2023.

Encl: 2 Copies of Approved
Mining Plan.

Sd/- E.Saravanelraj
Commissioner of Geology and Mining
Forwarded / By Order
[Signature]
10/02/2024
Assistant Director

Copy to:

1. The Additional Chief Secretary
to Government,
Natural Resources Department,
4th Floor, Secretariat, Chennai-9.

2. The Director of Mines Safety,
3rd Floor, Left Wing,
New Additional Building,
CGO Complex, Shastri Bhawan,
Nungambakkam, Chennai - 06
3. The District Collector,
Krishnagiri District.

Ch. L. Srinivas

MINING PLAN

FOR JAGADEVIPALAYAM VILLAGE GREY GRANITE QUARRY MINING
LEASE WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta- Ryotwari land/Opencast, Semi-Mechanized Mining/Non - Forest/
Non-captive use 'B' Category

Lease period 20 Years from the date of lease execution
(For the ensuring mining plan prepared for the period of first five years)

(Prepared under rule 12 & 13 of Granite Conservation and Development Rules, 1999)



LOCATION OF THE LEASE AREA

STATE : TAMILNADU
DISTRICT : KRISHNAGIRI
TALUK : BARGUR
VILLAGE : JAGADEVIPALAYAM
S.F. No's : 331/1A (Part), 332/1, 332/2, 332/3,
332/4, 332/5 (Part) and 332/6
EXTENT : 3.38.0 HECTARES

ADDRESS OF THE APPLICANTS

M/s.Sri Vinayaga Granites,
#01/504E, Maruthi Nagar,
Jagadevipalayam Village & Post,
Bargur Taluk,
Krishnagiri District - 635203.

PREPARED BY

Dr.S.KARUPPANNAN, M.Sc., Ph.D.,
QUALIFIED PERSON

GEO TECHNICAL MINING SOLUTIONS

(A NABET Accredited & ISO Certified Company)
No: 1/213 -B, Ground Floor, Natesan Complex,
Oddapatti, Collectorate Post office,
Dharmapuri -636705. Tamil Nadu.
Mob. : +91 9443937841, +917010076633,
E-mail: info.gtmsdpi@gmail.com ,
Website: www.gtmsind.com



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CONTENTS

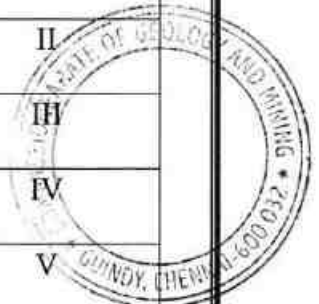
Sl. No.	Description	Page No.
-	Certificates	5-8
-	Introductory notes	9
1.0	General	12
2.0	Location and Accessibility	13
	<u>PART-A</u>	
3.0	Geology and Mineral reserves	17
4.0	Mining	23
5.0	Blasting	30
6.0	Mine drainage	31
7.0	Stacking of mineral rejects and disposal of waste	32
8.0	Uses of mineral	33
9.0	Others	33
10.0	Mineral processing/Beneficiations	34
	<u>PART-B</u>	
11.0	Environmental management plan	36
12.0	Progressive mine closure plan	42
13.0	Financial assurance	44
14.0	Certificates	44
15.0	Plan and sections, etc	44
16.0	Any other details intend to furnish by the applicant	44
17.0	CSR Expenditure	45



Page

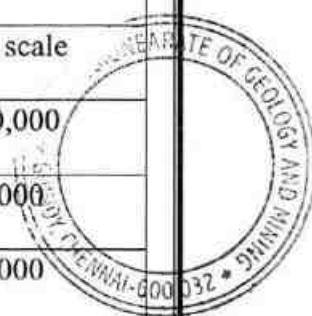
ANNEXURES

Sl. No.	Description	Annexure No.
1.	Copy of The Additional Chief Secretary to Government of Tamil Nadu communication letter	I
2.	Copy of FMB (Field Measurement book)	II
3.	Copy of village map	III
4.	Copy of Combine Sketch	IV
5.	Copy of A-Register	V
6.	Copy of Chitta & Adangal	VI
7.	Copy of Consent Document	VII
8.	Copy of Partnership deed document	VIII
9.	Photocopy of the lease area	IX
10.	Copy of ID Proof of the authorized signature	X
11.	Copy of Qualified Person Certificate	XI



LIST OF PLATES

Sl. No.	Description	Plate No.	Scale
1	Key Map	I	Not to scale
2	Location Plan	I-A	Not to scale
3	Toposheet Map	I-B	1:1,00,000
4	Satellite Imagery Map	I-C	1: 5,000
5	Environmental Plan	I-D	1: 5,000
6	Lease plan	II	1:1000
7	Surface plan	III	1:1000
8	Geological plan	IV	1:1000
9	Geological Section	IVA	Section HOR 1:1000 VER 1:500
10	Conceptual plan	V	1:1000
11	Conceptual Section	VA	Section HOR 1:1000 VER 1:500
12	Quarry layout & Land Use Pattern Plan	VI	1:1000
13	Progressive Quarry Closure Plan	VII	1:1000
14	Progressive Quarry Closure Sections	VIIA	Section HOR 1:1000 VER 1:500
15	Year wise Development & Production plan	VIII	1:1000
16	Year wise Development & Production Sections	VIIIA	Section HOR 1:1000 VER 1:500



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-171-

M/s.Sri Vinayaga Granites,
#01/504E, Maruthi Nagar,
Jagadevipalayam Village & Post,
Bargur Taluk,
Krishnagiri District - 635203.

CONSENT LETTER FROM THE LESSEE

The Mining Plan in respect of Grey granite quarry lease in S.F.No's : 332/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5(Part) and 332/6, over an extent of 3.38.0 hectares of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. S. KARUPPANNAN. M.Sc., Ph.D. QUALIFIED PERSON
(Under rule 13 (1) of Granite Conservation and Development Rules, 1999)

I request "The Commissioner, Department of Geology and Mining, Guindy, Chennai-600032" to make further correspondence regarding modifications of the mining plan with the said Qualified Person on this following address

Dr. S.KARUPPANNAN.M.Sc.,Ph.D.,
QUALIFIED PERSON
GEO TECHNICAL MINING SOLUTIONS
(A NABET Accredited & ISO Certified Company)
No: 1/213-B, Ground Floor, Natesan Complex,
Oddapatti, Collectorate Post office, Dharmapuri-636705
Ph: +91 9443937841, 7010076633,
E-mail: info.gtmsdpi@gmail.com,
Website: www.gtmsind.com

I hereby undertake that all modifications so made in the mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Place: Krishnagiri, TN

Date: 26.12.2024


Signature of the applicant
(M/s.Sri Vinayaga Granites)

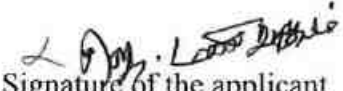
M/s.Sri Vinayaga Granites,
#01/504E, Maruthi Nagar,
Jagadevipalayam Village & Post,
Bargur Taluk,
Krishnagiri District - 635203.

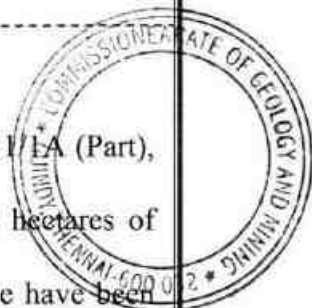
DECLARATION

The Mining Plan in respect of grey granite quarry lease in S.F.No's : 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 over an extent of 3.38.0 hectares of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State have been prepared with my consultation and I have understood and agree the contents to implement in accordance with the Granite Conservation & Development Rules, 1999.

Place: Krishnagiri, TN

Date: 24.12.2024


Signature of the applicant
(M/s.Sri Vinayaga Granites)





Dr.S.KARUPPANNAN,M.Sc.,Ph.D.

QUALIFIED PERSON

GEO TECHNICAL MINING SOLUTIONS

(ISO certified Company)

No: 1/213-B, Ground Floor, Natesan Complex,
Oddapatti, Collectorate Post office, Dharmapuri-636705

Ph: +91 9443937841, +917010076633,

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

CERTIFICATE

This is to certify that, the provisions of under rule **12 & 13 of Granite Conservation and Development Rules, 1999** have been observed in the Mining plan for grey granite quarry lease in S.F.No's: 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 over an extent of 3.38.0hectares of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State prepared to **M/s.Sri Vinayaga Granites**, Krishnagiri.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central governments for granting such permissions etc.

Place: Dharmapuri, TN

Date: 24.12.24

Signature of the Qualified Person

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.,

Qualified Person

GEO TECHNICAL MINING SOLUTIONS

A NABET Accredited and ISO Certified Company

1/213-B, Ground Floor, Natesan Complex,

Collectorate Post Office, Oddapatti,

Dharmapuri-636705, TamilNadu, India

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.

QUALIFIED PERSON

GEO TECHNICAL MINING SOLUTIONS

(ISO certified Company)

No: 1/213-B, Ground Floor, Natesan Complex,
Oddapatti, Collectorate Post office, Dharmapuri-636705

Ph: +91 9443937841, +917010076633,

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

CERTIFICATE

I certify that, in preparation of Mining plan in respect of grey granite quarry lease in S.F.No's : 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 over an extent of 3.38.0 hectares of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State prepared to **M/s.Sri Vinayaga Granites**, Krishnagiri, Covers all the provisions of Mines Act, Rules, and Regulations etc made therein and if any specific permissions required the applicant should approach "**The Director General of Mines and Safety**", **Chennai**. The standards prescribed by DGMS with respect to mines health will be strictly implemented.

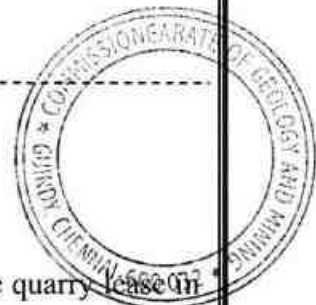
Place: Dharmapuri, TN

Date: 24.12.24



Signature of the Qualified Person

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.,
Qualified Person
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India



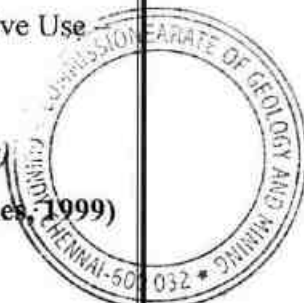

MINING PLAN

FOR JAGADEVIPALAYAM VILLAGE GREY GRANITE MINING LEASE WITH
PROGRESSIVE QUARRY CLOSURE PLAN

Patta- Ryotwari land /Opencast-Semi Mechanized Mining/Non-Forest/Non-Captive Use
"B" Category

Lease Period 20 Years from the date of lease execution
(For the ensuring mining plan prepared for the period of first five years)

(Prepared under rule 12 & 13 of Granite Conservation and Development Rules, 1999)

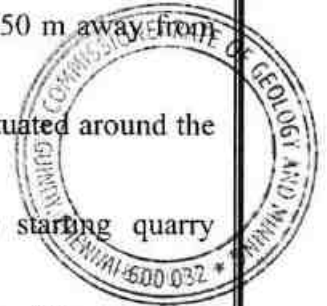


INTRODUCTORY NOTES:

- a) **Introduction:** The Mining plan with progressive quarry closure plan is prepared for M/s.Sri Vinayaga Granites office at #01/504E, Maruthi Nagar, Jagadevipalayam Village & Post, Bargur Taluk, Krishnagiri – 635203 and filed with application for new proposal has requested to grant the quarrying lease for grey granite in S.F.No's. 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 over an extent of 3.38.0 hectares of Jagadevipalayam Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State to the District Collector, Krishnagiri dated 07.10.2023 and forwarded to the Director, Department of Geology and Mining, Guindy, Chennai vide letter no.7196/MM4/2023, Dated 22.12.2023.
- b) **Letter of Additional Chief Secretary of Tamil Nadu:** The Additional Chief Secretary to Government of Tamil Nadu has directed to the applicant M/s.Sri Vinayaga Granites through his precise area communication letter No.6551607/MME.2/2023-1, Dated 29.10.2024, to furnish approved mining plan through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of rule 19-A of the TamilNadu Minor Mineral Concession Rules, 1959 and to produce Environmental Clearance obtained from competent authority for the quarrying lease grey granite at Tamil Nadu State, Krishnagiri District, Bargur Taluk, Jagadevipalayam Village in S.F.No's. 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 over an extent of 3.38.0hectares has grant of quarrying lease for 20 (Twenty) years under rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959, subject to the following conditions: -

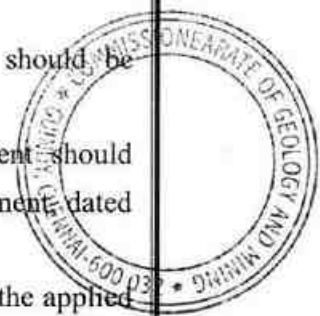
[Signature]

- 1) A safety distance of 7.5 m shall be maintained for the adjacent patta lands.
- 2) A safety distance of 10.0 m shall be maintained for the Government land in S.F.No.302 situated on the north and north west side of the applied area.
- 3) A safety distance of 50 m should be provided for the power line situated at distance of 16 m in 332/5(P) and an open well situated at the distance 20 m in 332/5(P) on the south eastern boundary.
- 4) The electric line passing in north to south direction situated on the western side of the applied area in S.F.Nos.332/3, 332/1 should be shifted 50 m away from the applied area before execution of the lease deed.
- 5) The applicant firm should not damage the Government land situated around the applied area.
- 6) The applicant firm should fence the applied area before starting quarry operation.
- 7) Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority before granting quarry lease as per rule 42 of Tamil Nadu Minor Minerals Concession Rules, 1959.
- 8) The quarrying operation should be restricted only in the area granted on lease.
- 9) The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
- 10) As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect, maintain and keep in repair all the boundary pillars with DGPS readings.
- 11) Quarry activity should be carried out from 6.00 a.m. to 6.00 p.m. only
- 12) A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity over an extent of 3.38.0. hectares in S.F.Nos.332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P) (0.87.0), 332/6 (0.26.5), 331/1A(P) (1.00.0) of Jagadevipalayam Village of Bargur Taluk of Krishnagiri District by planting at least 500 seedlings of Neem and Pungan all around the area.
- 13) Quarried materials should be transported only with permits issued by the Assistant Director/Deputy Director (G&M) and they should be produced before the forest check post officials and necessary entries should made in the register.
- 14) Compound wall / Barbed wire fencing should be erected all around the proposed quarrying area.
- 15) The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:



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- a) The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - b) The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the minimizing plan.
 - c) A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.
- 16) The District administration and Geology and Mining Department should ensure the conditions imposed in G.O.Ms.No.79, Industries Department, dated 06.04.2015.
 - 17) No pollution should be caused to the water bodies situated near by the applied area if any.
 - 18) The applicant firm should use mild explosives during quarrying.
 - 19) As per the Hon'ble Supreme court of India order dated: 08.01.2020 in W.P(C)No.144/ 2014 after ceasing quarrying operation re-grassing the quarry area and any other area which may have been disturbed due to the quarrying activity and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
 - 20) The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019, dated 01.02.2018 and subsequent corrigendum dated 13.8.2019 using the agencies empaneled by the Commissioner of Geology and Mining on 01.03.2023, 08.03.2023, 17.03.2023 and 18.03.2023 before execution of quarry lease.
 - 21) Child labourers should not be engaged for quarry works and all the quarry labourers should be registered with the Labour Welfare Board of Government of Tamil Nadu and should be enrolled in the Group Insurance Scheme.
- c) **Preparation and submission of mining plan:** The Mining Plan with progressive quarry closure plan is prepared under rule 12 & 13 of Granite Conservation and Development Rules, 1999 and the conditions mentioned in the The Additional Chief Secretary of Tamil Nadu letter No. 6551607/MME.2/2023-1, Dated 29.10.2024.
- d) **Geological resources and Mineable reserves:** Geological resource of total Rom is estimated to be 1690200m^3 including the resources of safety zone. Of which, grey granite is about 608472m^3 at the recovery of 40%, granite rejects are 912708m^3 at the recovery of 60%, Weathered rock is 101412m^3 and topsoil is 67608m^3 (Refer Plate No's. IVA). The mineable reserve of total Rom is estimated to be 599590m^3 by



[Signature] 11 | Page

deducting the reserve safety zone, block in benches from the total Geological resources. Of which, grey granite is about **186694m³** at the recovery of 40%, granite rejects are **280041m³** at the recovery of 60%, Weathered rock is **79713m³** and topsoil is **53142m³** upto a depth of 50m below the ground level. (Refer Plate No's. VA)

- e) **Proposed production schedule:** Total proposed production of Rom is about **218110m³**. Of which, grey granite is about **64592m³** at the recovery of 40%, granite rejects are **96888m³** at the recovery of 60%, Weathered rock is **33978m³** and topsoil is **22652m³** up to a depth of 35m below the ground level for first five years mining plan period. Annual Peak production is **16244m³** of grey granite (Refer Plate No. VIIIA).

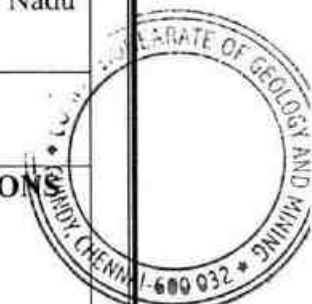
f) **Environmental sensitivity of the lease area: -**

1. **Interstate Boundary:** There is no interstate boundary situated around 10km radius from the lease area.
2. **Wildlife Sanctuaries any:** There is no wild life animal sanctuary within radius of 10Km from the project site area under the Wildlife (Protection) Act, 1972.
3. **Forest (conservation) Act, 1980:** There is no Reserved Forest is situated around 60m radius from the lease area.
4. **CRZ Notification, 2019:** There is no Sea coastal zone found within radius of 10km and this project site doesn't attract CRZ Notification, 2019.

1.0 GENERAL:

a.	Name of the Applicant	M/s.Sri Vinayaga Granites
	Applicant address	: #01/504E, Maruthi Nagar, Jagadevipalayam Village & Post, Bargur Taluk,
	District	: Krishnagiri
	State	: Tamil Nadu
	Pin code	: 635203
	Phone	:
	Fax	: Nil
	Gram	: Nil
	Telex	: Nil
	E-mail	: --
b.	Status of the applicant	
	Private individual	: ---
	Cooperative Association	: ---
	Private company	: Private company
	Public Company	: ---
	Public Sector Undertaking	: ---
	Joint Sector Undertaking	: ---

	Other (pl. specify)	:	---
c.	Mineral(s) Which are occurring in the area and which the applicant intends to mine	:	Grey granite quarry lease
d.	Period for which the mining lease granted /renewed/ proposed to be applied	:	Mining lease granted for the period of 20 (Twenty) years under rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959
e.	Name of the QP preparing the Mining Plan	:	Dr. S.KARUPPANNAN, M.Sc.,Ph.D.
	Address	:	GEO TECHNICAL MINING SOLUTIONS No: 1/213-B, Ground Floor, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Ph: +91 9443937841, +917010076633, E-mail: info.gtmsdpi@gmail.com, Website: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
	Fax	:	Nil
	e-mail	:	info.gtmsdpi@gmail.com
	Telex	:	Nil
	Registration Number	:	Nil
	Date of grant/renewal	:	Nil
	Valid upto	:	Nil
f.	Name of the prospecting agency	:	The Commissioner, Department of Geology and Mining
	Address	:	Thiru.Ve.Ka.Industrial Estate,Guindy, Chennai-600032
	Phone	:	----
g.	Reference No. and date of consent letter from the State government	:	The Additional Chief Secretary to Government, Government of Tamilnadu, Letter.No. 6551607/ MME.2/2023-1, Dated 29.10.2024



2.0 LOCATION AND ACCESSIBILITY:

a.	Details of the Area:	:	Refer plate no: IA & IB
	District & State	:	Krishnagiri, Tamil Nadu
	Taluk	:	Bargur
	Village	:	Jagadevipalayam

[Signature]

Khasra No./ Plot No./ Block Range / Felling Series etc.:						
Survey No.	Sub division	Total Extent in Hect	Patta No	Name of the Land Owner	Mine lease Applied S.F. No.	Mine lease Applied Area out of total area in hect.
331	1A	1.22.0	630	Mr.K.Ramasamy S/o.Kevaran	331/1A (Part)	1.00.0
332	1	0.17.0	922	1.Mr.Govindasamy 2.Mr.Kuppusamy 3.Mr.Kattu Raja	332/1	0.17.0
332	2	0.20.0	2147	Mr.Sivananthan	332/2	0.20.0
332	3	0.17.0		S/o. Chakkaravarthy	332/3	0.17.0
332	4	0.70.5	922	1.Mr.Govindasamy 2.Mr.Kuppusamy 3.Mr.Kattu Raja	332/4	0.70.5
332	5	1.19.0	1824	Mr.Kirubananthan S/o.Chakkaravarthy	332/5 (Part)	0.87.0
332	6	0.26.5	922	1.Mr.Govindasamy 2.Mr.Kuppusamy 3.Mr.Kattu Raja	332/6	0.26.5
Total Extent		3.92.0		Total lease area extent		3.38.0
Lease area (hectares)				: 3.38.0 hectares		
Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)				: The proposed lease area is recorded as patta land. (Ref. Anne. No: V)		
Ownership / Occupancy				: This is a patta land S.F.No's: 331/1A (Part), 332/1, 332/2, 332/3, 332/4, 332/5 (Part) and 332/6 is registered on the name of Mr.K.Ramasamy S/o.Kevaran, 1.Mr.Govindasamy, 2.Mr.Kuppusamy, 3.Mr.Kattu Raja, Mr.Sivananthan, S/o. Chakkaravarthy, Mr.Kirubananthan S/o.Chakkaravarthy as vide patta No.630, 922, 2147, 1824 (Ref. Annex. No:VI).		
Existence of Public Road / Railway line if any nearby and approximate distance				: ✓ Exploited grey granite materials will be transported to the approach road is situated on the east side. ✓ There is a NH-77 road situated about 1.85km radius away on the		

	southwest side of the lease area. ✓ There is a SH-131 road situated about 5.35km radius away on the eastern side of the lease area. ✓ There is no railway line situated around 5km radius from the lease area.
Toposheet No. with latitude and longitude	Toposheet No. 57 L/07 Latitude : From 12°28'58.47570"N To 12°29'5.11330"N longitude: From 78°20'51.00141"E to 78°21'0.77090"E



Geo-Coordinates of the lease boundary:

ID	Latitude (Global)	Longitude (Global)	Feature Code
1	12° 29' 2.90934" N	78° 21' 0.77090" E	Boundary Pillar
2	12° 29' 2.37182" N	78° 21' 0.63906" E	Boundary Pillar
3	12° 29' 1.55604" N	78° 21' 0.46464" E	Boundary Pillar
4	12° 29' 0.56737" N	78° 21' 0.11345" E	Boundary Pillar
5	12° 29' 0.88441" N	78° 20' 58.90472" E	Boundary Pillar
6	12° 28' 59.93753" N	78° 20' 58.70067" E	Boundary Pillar
7	12° 28' 59.70641" N	78° 20' 58.59878" E	Boundary Pillar
8	12° 28' 59.05597" N	78° 20' 58.50535" E	Boundary Pillar
9	12° 28' 59.75496" N	78° 20' 57.01119" E	Intermediate Pillar
10	12° 29' 0.18540" N	78° 20' 56.09076" E	Boundary Pillar
11	12° 28' 58.64241" N	78° 20' 55.56867" E	Intermediate Pillar
12	12° 28' 58.47570" N	78° 20' 55.51228" E	Boundary Pillar
13	12° 28' 59.05554" N	78° 20' 53.96619" E	Intermediate Pillar
14	12° 28' 59.35231" N	78° 20' 53.17455" E	Boundary Pillar
15	12° 28' 59.69852" N	78° 20' 51.55764" E	Intermediate Pillar
16	12° 28' 59.81765" N	78° 20' 51.00141" E	Boundary Pillar
17	12° 29' 1.23366" N	78° 20' 51.81507" E	Intermediate Pillar
18	12° 29' 1.63583" N	78° 20' 52.04608" E	Boundary Pillar
19	12° 29' 3.24111" N	78° 20' 52.30947" E	Intermediate Pillar
20	12° 29' 3.60074" N	78° 20' 52.36845" E	Boundary Pillar
21	12° 29' 3.41316" N	78° 20' 53.47077" E	Boundary Pillar
22	12° 29' 3.07913" N	78° 20' 55.00228" E	Boundary Pillar
23	12° 29' 4.62021" N	78° 20' 54.47415" E	Intermediate Pillar
24	12° 29' 5.11330" N	78° 20' 54.30521" E	Boundary Pillar
25	12° 29' 4.51862" N	78° 20' 55.84534" E	Intermediate Pillar
26	12° 29' 4.20938" N	78° 20' 56.64625" E	Boundary Pillar
27	12° 29' 4.39694" N	78° 20' 57.58017" E	Boundary Pillar
28	12° 29' 3.46078" N	78° 20' 58.93315" E	Intermediate Pillar
29	12° 29' 3.28854" N	78° 20' 59.18214" E	Boundary Pillar

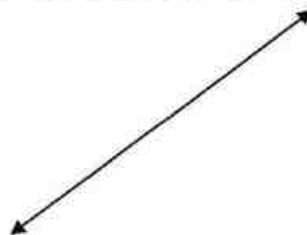
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	Land use pattern (Forest, Agricultural, Grazing, Barren etc.)	:	It is a fresh quarry lease area.
b).	<i>Attach a general location and vicinity map showing area boundaries and existing and proposed access routs. It is preferred that the area to be marked on a survey of India topographical map or a cadastral map or forest map as the case may be. However if none of these are available, the area should be shown on an accurate sketch map on scale of 1 : 5000.</i>	:	Refer plate no-IA & IB



i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Bandaseemanur	2.4Km	Southeast
b.	Nearest police station	Bargur	6.6Km	North
c.	Nearest fire station	Bargur	7.0Km	North
d.	Nearest medical facility	Jagadevi	3.3Km	Southeast
e.	Nearest school	Kondapanayanapalli	1.5Km	Northeast
f.	Nearest railway station	Kakangarai	18.9Km	East
g.	Nearest port facility	Chennai	222Km	Northeast
h.	Nearest airport	Salem	83Km	South
i.	Nearest DSP office	Bargur	6.8Km	North
j.	Nearest villages	Gundalakuttai	2.6km	North
		Bagimanur	0.7km	East
		Jittappanahalli	1.7km	South
		Jagadevipalayam	2.9km	West



PART – A

3.0 GEOLOGY AND MINERAL RESERVES:

(a) Briefly describe the topography and general geology and local/mine geology of the mineral deposit including drainage pattern:

(i)	Topography	:	The lease area exhibits a flat terrain and maximum altitude of about 495m AMSL. The slope is towards southern side and falls in Toposheet no. 57 L/07.
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(ii) **General Geology of the District:**

The geological formations of the district belong mainly to Archean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartz feldspathic gneiss and hornblends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Epiphaniically. Following this there are basic intrusions occurring as dykes.

The Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the district mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

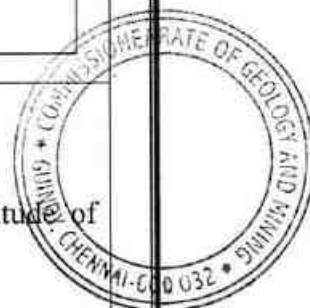
Order of superposition as under,

Age	Group	Rock Formation
Recent to Sub recent	----	Top Soil (2m Thick)



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	Archean to Lower Proterozoic	Migmatite complex	Pegmatite and Quartz/veins Dolerite dyke Peninsular gneisses and Migmatites
	Archean	Charnockite Group	Charnockite, Garnetiferous quartzo-feldspathic, Biotite gneisses
(iii)	Local / Mine Geology of The Mineral Deposit: a) Topography of the proposed lease area: The lease area exhibits a flat topography and maximum altitude of about 495m AMSL. The grey granite is covered with 2m thickness of reddish gravelly soil, 3m thickness of Weathered rock and followed by fresh grey granite. The grey granite is medium to coarse grained with feldspar and quartz is major constituents, Garnet, Biotite and other mafic minerals area accessories. The gneissic formation is having wavy pattern of alternate layer which adds the austenitic beauty for the rock. This grey granite is commercially called as "Paradiso" which is widely used for slabs, Tiles and monuments after cutting and polishing. The surface plan showing elevation, contour, accessibility road and Geological map was prepared the lease area. b) Mode of origin: Grey granite is a coarse – grained (phaneritic) intrusive igneous rock composed mostly of quartz, alkali feldspar, and plagioclase. It forms from magma with a high content of silica and alkali metal oxides that slowly cools and solidifies underground. c) Physiography of the rocks: • It has very dense silica content. Since the rock is made largely of silica from magma, it contains a large amount of silica. • Due to the large presence of silica in its composition, granite is highly resistant to decay. • Granite is an easily quarried stone. This is due to the presence of mural joint. • Similar to the quarrying, the rift and the grain that are present in		



abundance in granite make its dressing easy for utilizing in various purposes.

- The igneous property of granite makes it incredibly polishable for construction purposes as a polished and hard surface can last relatively longer than other stones.
- Granite offers a reasonable resistance to fire due to the presence of fewer minerals.
- Similarly, Granite also offers a reasonable resistance to frost due to the presence of fewer minerals.
- Granite is relatively free from fractures.

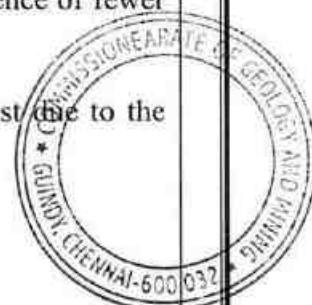
d) Chemical composition of rocks:

Granite is a grey-coloured plutonic rock found throughout the continental crust, most commonly in mountainous areas. It consists of coarse grains of quartz (10-50%), potassium feldspar, and sodium feldspar. These minerals make up more than 60% of the rock. Other common minerals include mica (muscovite and biotite) and hornblende.

Order of superposition of rocks in the proposed site:

Age	Group	Rock Formation
Recent to Sub recent	---	Topsoil
Archaean to lower Proterozoic	--	Grey granite

(iv)	Drainage Pattern	:	There are no major water bodies like rivers, etc., located within a radius of 50m and the drainage is sub-dendritic in general.
(b)	<i>The topographic plan of the lease area prepared on a scale of 1 : 1000 or 1 : 2000 with contour interval of 3 to 10m depending upon the topography of the area should be taken as the base plan for preparation of geological plan. The details of exploration already carried out including evidences of mineral existence should be shown on the geological plan:</i>		
	a. Present status:		QP along with hydrogeologists and DGPS team of Geotechnical Mining Solutions, Dharmapuri analyzed the lease area for mining plan preparation. The proposed lease area is a fresh lease area. Hence, QP



		personally examined during mining survey.																														
	b. Surface Plan	: Surface plan showing elevation, contours and accessibility road was prepared at the scale of 1: 1000, as shown in Plate No.III.																														
	c. Geological sections should be prepared at suitable intervals on a scale of 1: 1000 / 1: 2000:	: Longitudinal and transverse geological cross sections were prepared at the horizontal scale of 1: 1000 and at the vertical scale of 1:500, as shown in Plate No. IVA.																														
c)	<i>Broadly indicate the Yearwise future programme of exploration, taking into consideration the future production programme planned in next five years as in table below :-</i> <table border="1"> <thead> <tr> <th>Year</th> <th>No.of boreholes</th> <th>Total meterage</th> <th>No.of Pits and Dimensions</th> <th>No.of Trenches and Dimensions</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>II</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>III</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>IV</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>V</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> </tbody> </table> No future programmed proposed in this area. It's a fresh quarry lease. Hence exploration proposal is not required and its homogeneous parent rock to this mining project.		Year	No.of boreholes	Total meterage	No.of Pits and Dimensions	No.of Trenches and Dimensions	I	N.A	---	---	N.A	II	N.A	---	---	N.A	III	N.A	---	---	N.A	IV	N.A	---	---	N.A	V	N.A	---	---	N.A
Year	No.of boreholes	Total meterage	No.of Pits and Dimensions	No.of Trenches and Dimensions																												
I	N.A	---	---	N.A																												
II	N.A	---	---	N.A																												
III	N.A	---	---	N.A																												
IV	N.A	---	---	N.A																												
V	N.A	---	---	N.A																												

(d) Indicate geological and recoverable reserves and grade, duly supported by standard method of estimation and calculations along with required sections (giving split up of various categories i.e. proved, probable, possible). Indicate cut-off grade. Availability of resources should also be indicated for the entire leasehold.

The geological resources were computed by cross section method with respect to the boundaries of the lease area. In this method, the lease area was divided into two longitudinal and three transverse) sections to calculate the volume of material up to the depth of 50m (which is 2m topsoil + 3m Weathered Rock + 45m grey granite) below the ground level. The longitudinal and transverse cross sections were assigned XY-AB, XY-CD & XIYI-EF using the cross-sectional method, total Rom is estimated to be **1690200m³** including the resources of safety zone. Of which, grey granite is about **608472m³** at the rate of 40%, granite rejects are **912708m³** at the recovery of 60%, Weathered rock is **101412m³** and Topsoil is **67608m³**. (Refer Plate No. IVA).



Geological Resources									
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rom in M ³	Grey Granite 40% Recovery in m ³	Grey Granite 60% Rejects in m ³	Weathered rock in m ³	Top Soil in m ³
XY-AB	I	115	134	2	30820	.....	.....	.....	30820
	I	115	134	3	46230	.....	.....	46230	.....
	II	115	134	5	77050	30820	46230	.....	.....
	III	115	134	5	77050	30820	46230	.....	.....
	IV	115	134	5	77050	30820	46230	.....	.....
	V	115	134	5	77050	30820	46230	.....	.....
	VI	115	134	5	77050	30820	46230	.....	.....
	VII	115	134	5	77050	30820	46230	.....	.....
	VIII	115	134	5	77050	30820	46230	.....	.....
	IX	115	134	5	77050	30820	46230	.....	.....
	X	115	134	5	77050	30820	46230	.....	.....
TOTAL					770500	277380	416070	46230	30820
XY-CD	I	56	74	2	8288	.....	.....	.....	8288
	I	56	74	3	12432	.....	.....	12432	.....
	II	56	74	5	20720	8288	12432	.....	.....
	III	56	74	5	20720	8288	12432	.....	.....
	IV	56	74	5	20720	8288	12432	.....	.....
	V	56	74	5	20720	8288	12432	.....	.....
	VI	56	74	5	20720	8288	12432	.....	.....
	VII	56	74	5	20720	8288	12432	.....	.....
	VIII	56	74	5	20720	8288	12432	.....	.....
	IX	56	74	5	20720	8288	12432	.....	.....
	X	56	74	5	20720	8288	12432	.....	.....
TOTAL					207200	74592	111888	12432	8288
X1Y1-EF	I	114	125	2	28500	.....	.....	.....	28500
	I	114	125	3	42750	.....	.....	42750	.....
	II	114	125	5	71250	28500	42750	.....	.....
	III	114	125	5	71250	28500	42750	.....	.....
	IV	114	125	5	71250	28500	42750	.....	.....
	V	114	125	5	71250	28500	42750	.....	.....
	VI	114	125	5	71250	28500	42750	.....	.....
	VII	114	125	5	71250	28500	42750	.....	.....
	VIII	114	125	5	71250	28500	42750	.....	.....
	IX	114	125	5	71250	28500	42750	.....	.....
	X	114	125	5	71250	28500	42750	.....	.....
TOTAL					712500	256500	384750	42750	28500
GRAND TOTAL					1690200	608472	912708	101412	67608

(c) Indicate mineable reserves by slice plan / level plan method, as applicable, as per the proposed mining parameters:

The mineable reserves of total Rom are estimated to be **599590m³** by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth 50m from the below the ground level. Of which, grey granite is about **186694m³** at the recovery of 40%, granite rejects are **280041m³** at the recovery of 60%, Weathered rock is **79713m³** and Top soil is **53142m³**. The commercially viable grey granite has been prepared on 1:1000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:500 as vertical axis (Refer plate no. VA).

MINEABLE RESERVES									
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rom in M ³	Grey Granite 40% Recovery in m ³	Grey Granite 60% Rejects in m ³	Weathered rock in m ³	Top Soil in m ³
XY-AB	I	105	119	2	24990	.....	.....	.....	24990
	I	105	119	3	37485	.....	.....	37485	.....
	II	100	109	5	54500	21800	32700	.....	.....
	III	95	99	5	47025	18810	28215	.....	.....
	IV	90	89	5	40050	16020	24030	.....	.....
	V	85	79	5	33575	13430	20145	.....	.....
	VI	75	69	5	25875	10350	15525	.....	.....
	VII	65	59	5	19175	7670	11505	.....	.....
	VIII	55	49	5	13475	5390	8085	.....	.....
	IX	45	39	5	8775	3510	5265	.....	.....
	X	35	29	5	5075	2030	3045	.....	.....
TOTAL					310000	99010	148515	37485	24990
XY-CD	I	45	56	2	5040	.....	.....	.....	5040
	I	45	56	3	7560	.....	.....	7560	.....
	II	40	46	5	9200	3680	5520	.....	.....
	III	35	36	5	6300	2520	3780	.....	.....
	IV	30	26	5	3900	1560	2340	.....	.....
TOTAL					32000	7760	11640	7560	5040
XIYI-EF	I	107	108	2	23112	.....	.....	.....	23112
	I	107	108	3	34668	.....	.....	34668	.....
	II	101	98	5	49490	19796	29694	.....	.....
	III	96	88	5	42240	16896	25344	.....	.....
	IV	86	78	5	33540	13416	20124	.....	.....
	V	76	68	5	25840	10336	15504	.....	.....
	VI	66	58	5	19140	7656	11484	.....	.....
	VII	56	48	5	13440	5376	8064	.....	.....
	VIII	46	38	5	8740	3496	5244	.....	.....
	IX	36	28	5	5040	2016	3024	.....	.....
	X	26	18	5	2340	936	1404	.....	.....
TOTAL					257590	79924	119886	34668	23112
GRAND TOTAL					599590	186694	280041	79713	53142

4.0 MINING:

a.	Briefly describe the existing / proposed method for developing / working the deposit with all design parameters. (Note: In case of pocket deposits, sequence of development/ working may be indicated on the same plan)	: It is a fresh quarry lease and its works for open cast, semi-mechanized methods are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all open cast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 5m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal. Doesn't any change of mining method in future.
----	--	--

- b. *Indicate quantum of development and tonnage and grade of production expected pit wise as in table below.*

Total proposed production of Rom is about **218110m³**. Of which, grey granite is about **64592m³** at the recovery of 40% and granite rejects are **96888m³** at the recovery of 60%, Weathered rock is **33978m³** and topsoil is **22652m³** up to a depth of 35m below the ground level for first five years mining plan periods. Annual peak production is **16244m³** of grey granite.

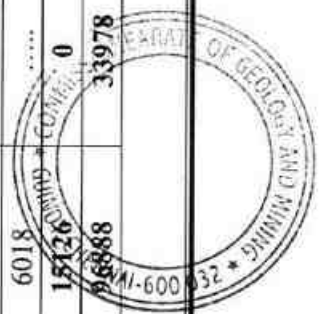
Year	Pit No.(s)	Topsoil (m ³)	ROM (m ³)	Saleable grey granite @ 40% (m ³)	grey granite Rejects @ 60% (m ³)	Weathered rock in (m ³)	Saleable Gravel (m ³)	Overburden / grey granite ratio
I	I	13370	68000	13830	20745	20055	---	1 : 3.9
II	I	9282	59060	14342	21513	13923	---	1 : 3.1
III	I	---	40610	16244	24366	---	---	1 : 1.5
IV	I	---	25230	10092	15138	---	---	1 : 1.5
V	I	---	25210	10084	15126	---	---	1 : 1.5
Total	---	22652	218110	64592	96888	33978	---	1 : 2.3

- c. *Composite plans and Year wise sections (In case of 'A' class mines):*
- : Not applicable. It is a "B" category of quarry lease

Composite plans and Year wise sections (In case of 'B' category of quarry lease):

YEARWISE PRODUCTION RESERVES												
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Rom in M ³	Grey Granite 40% Recovery in M ³	Grey Granite 60% Rejects in M ³	Weathered rock in M ³	Top Soil in M ³		
XY-CD	I-YEAR	I	45	56	2	5040	.....	.....	.....	5040		
		I	45	56	3	7560	.....	.....	7560	.....		
		II	40	46	5	9200	3680	5520	.....	.....		
		III	35	36	5	6300	2520	3780	.....	.....		
		I	35	119	2	8330	.....	.....	.....	8330		
XY-AB		I	35	119	3	12495	.....	.....	12495	.....		
		II	35	105	5	19075	7630	11445	.....	.....		
		TOTAL						68000	13830	20745	20055	13370
XY-AB	II-YEAR	I	39	119	2	9282	.....	.....	.....	9282		
		I	39	119	3	13923	.....	.....	13923	.....		
		II	34	109	5	18530	7412	11118	.....	.....		
		III	35	99	5	17325	6930	10395	.....	.....		
		TOTAL						59060	14342	21513	13923	9282
XY-AB	III-YEAR	III	29	99	5	14355	5742	8613	.....	.....		
		IV	59	89	5	26255	10502	15753	.....	.....		
XY-CD	IV-YEAR	TOTAL						40610	16244	24366	0	0
		IV	30	26	5	3900	1560	2340				
		XY-AB	V	54	79	5	21330	8532	12798			
XY-AB	V-YEAR	TOTAL						25230	10092	15138	0	0
		VI	44	69	5	15180	6072	9108				
		VII	34	59	5	10030	4012	6018				
		TOTAL						25210	10084	15126	0	0
GRAND TOTAL						218110	64592	96888	33978	22652		

[Signature]



d.	Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc.	: Composite plan not prepared in this proposed lease area. It is "B" category of quarry lease.																																		
e.	Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected: At this rate of production, the expected life of quarry is calculated for periods and production details are given as below: - Grey granite: <table> <tr> <td>Mineable reserves of grey granite @ 40%</td> <td>=</td> <td>186694m³</td> </tr> <tr> <td>Five years production @ 40%</td> <td>=</td> <td>64592m³</td> </tr> <tr> <td>Annual peak production of grey granite</td> <td>=</td> <td>16244m³</td> </tr> <tr> <td>Remaining mineable reserves are</td> <td>=</td> <td>122102m³</td> </tr> </table> The regular working of the quarry and its production depends upon the demand from the market. Accordingly, there is a possibility to increase or decrease the production. The year wise production, anticipated the life of quarry etc., are only a tentative figure.		Mineable reserves of grey granite @ 40%	=	186694m ³	Five years production @ 40%	=	64592m ³	Annual peak production of grey granite	=	16244m ³	Remaining mineable reserves are	=	122102m ³																						
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Annual peak production of grey granite	=	16244m ³																																		
Remaining mineable reserves are	=	122102m ³																																		
f.	Attach a note furnishing a conceptual mining plan for the entire lease period (for "B" category mines) and upto the life of the mine (for "A" category mines) based on the geological, mining and environments considerations:																																			
(i)	Time frame of completion of mineral exploration program in leasehold area: Give broad description identified potential areas to be covered in the given time frame:	: Consider the indefinite depth the grey granite deposit is proved beyond the workable limits about a depth 50m (which is 2m topsoil + 3m weathered rock + 45m grey granite) below the ground level.																																		
(ii)	Whether ultimate pit limit has been determined and demarcated on surface and geological plan:- The ultimate pit limit has been determined and demarcated at conceptual plan periods as given below <table border="1"> <thead> <tr> <th colspan="5">ULTIMATE PIT - SECTION (XY-AB)</th> </tr> <tr> <th>Bench</th> <th>Overburden/ Mineral</th> <th>L (m)</th> <th>W (m)</th> <th>D (m)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">I</td> <td>Top Soil</td> <td>105</td> <td>119</td> <td>2</td> </tr> <tr> <td>Weathered Rock</td> <td>105</td> <td>119</td> <td>3</td> </tr> <tr> <td>II</td> <td>Grey Granite</td> <td>100</td> <td>109</td> <td>5</td> </tr> <tr> <td>III</td> <td>Grey Granite</td> <td>95</td> <td>99</td> <td>5</td> </tr> <tr> <td>IV</td> <td>Grey Granite</td> <td>90</td> <td>89</td> <td>5</td> </tr> </tbody> </table>		ULTIMATE PIT - SECTION (XY-AB)					Bench	Overburden/ Mineral	L (m)	W (m)	D (m)	I	Top Soil	105	119	2	Weathered Rock	105	119	3	II	Grey Granite	100	109	5	III	Grey Granite	95	99	5	IV	Grey Granite	90	89	5
ULTIMATE PIT - SECTION (XY-AB)																																				
Bench	Overburden/ Mineral	L (m)	W (m)	D (m)																																
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IV	Grey Granite	90	89	5																																

V	Grey Granite	85	79	5
VI	Grey Granite	75	69	5
VII	Grey Granite	65	59	5
VIII	Grey Granite	55	49	5
IX	Grey Granite	45	39	5
X	Grey Granite	35	29	5
Total depth				50m

ULTIMATE PIT – SECTION (XY-CD)				
Bench	Overburden/ Mineral	L (m)	W (m)	D (m)
I	Top Soil	45	56	2
	Weathered Rock	45	56	3
II	Grey Granite	40	46	5
III	Grey Granite	35	36	5
IV	Grey Granite	30	26	5
Total depth				20m

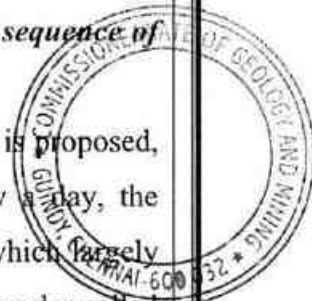
ULTIMATE PIT – SECTION (X1Y1-EF)				
Bench	Overburden/ Mineral	L (m)	W (m)	D (m)
I	Top Soil	107	108	2
	Weathered Rock	107	108	3
II	Grey Granite	101	98	5
III	Grey Granite	96	88	5
IV	Grey Granite	86	78	5
V	Grey Granite	76	68	5
VI	Grey Granite	66	58	5
VII	Grey Granite	56	48	5
VIII	Grey Granite	46	38	5
IX	Grey Granite	36	28	5
X	Grey Granite	26	18	5
Total depth				50m

- (iii) Whether the site for disposal of waste rock or an un-saleable material have/ has been examined for adequacy of land and suitability of long term use in the event of continuation of mining activity:-
- : The grey granite rejects are **96888m³** (up to 60%) and Weathered rock is **33978m³** (Totally **130866m³**) will be removed and dumped in the west side of the lease area average dimensions of (L110m X W77m X H 15.4m) for the period of five years. The topsoil is **22652m³** will be removed and stacked for earth bund in the south side of the lease area to prevent inherent entry of cattle's and human as per rules 106, Metalliferous Mines Regulations, 1961. If grey granite may be unsold will be keep within the lease boundary.

(iv)	Whether back filling of pits after recovery of mineral upto techno-economically feasible depth envisaged. If so, describe the broad features of the proposal:-	As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.
(v)	Whether post mining land use envisaged:-	At the end of mining activities over the quarry pit may be utilized fish culture or storage of rain water reservoir used for irrigation purposes.
g.	Open cast Mines:	
(i)	Describe briefly giving salient features of the mode of working (Mechanized, Semi-Mechanized, manual)	The mining operation is open-cast, semi-mechanized methods are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all open cost workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 6m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.
(ii)	Describe briefly the layout of mine workings, the layout of faces and sites for disposal of overburden/waste. A reference to the plans enclosed under 4(b) and 4(d) will suffice	The Grey Granite is proposed to quarry at 5m bench height & width conventional open cast method. i) Drill hole diameter 32mm ii) Depth and inclination of drill hole: generally drilled vertically in an alignment, however in primary cutting in the absence of sheet joints to bottom level, horizontal holes also are drilled. iii) Spacing and burden: The spacing shall be about 0.1m to 0.3m from hole to hole and burden goes up to 1.6m for the splitting of the rock.

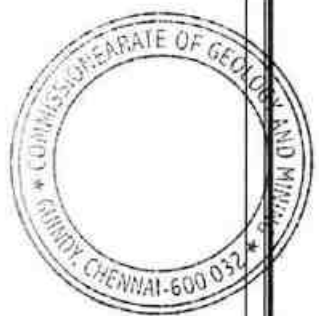
		The intrusive body will be tackled with latest technology by deploying diamond wire saw cutting for obtaining the good recovery factor of sizeable blocks.																					
a. Details of Topsoil/ Overburden	:	The topsoil is 22652m³ will be removed and stacked for earth bund in the south side of the lease area to prevent inherent entry of cattle's and human as per rules 106, Metalliferous Mines Regulations, 1961. If grey granite may be unsold will be keep within the lease boundary.																					
b. Mineral waste and side burden waste: -	:	The grey granite rejects are 96888m³ (up to 60%) and Weathered rock is 33978m³ (Totally 130866m³) will be removed and dumped in the west side of the lease area average dimensions of (L110m X W77m X H 15.4m) for the period of five years																					
h. Underground Mines:	:	It is an open cast quarry operation only																					
i. Extent of mechanization:		Being a fresh quarry lease, opencast semi- mechanized methods of mining adopted. Deployment of drills, compressors, excavators, tipper, Diamond wire saw, and line drilling machineries are deployed depending upon the size of the quarry, rate of production, etc. There will not continue or regular work to the above machinery. Hence, most of the quarry operations engage this equipment on hire basis. The following machinery already deployed in this quarry by project proponent: - (1) (a) Drilling Machines: <table border="1"> <thead> <tr> <th>Type</th> <th>No</th> <th>Dia of hole (mm)</th> <th>Size / Capacity</th> <th>Make</th> <th>Motive power</th> <th>H.P.</th> </tr> </thead> <tbody> <tr> <td>Jack Hammer</td> <td>4</td> <td>32 mm</td> <td>Hand held</td> <td>---</td> <td>Compressor Air</td> <td>--</td> </tr> <tr> <td>Compressor</td> <td>2</td> <td>---</td> <td>Air</td> <td>---</td> <td>Diesel/ Electrical</td> <td>--</td> </tr> </tbody> </table> (1) (b) Cutting equipment's: i. Diamond wire saw machine = 2 no's ii. Line drilling machinery = 1 no's	Type	No	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.	Jack Hammer	4	32 mm	Hand held	---	Compressor Air	--	Compressor	2	---	Air	---	Diesel/ Electrical	--
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		the quarry, rate of production, etc. There will not continue or regular work to the above the machinery.
5.	BLASTING: <i>a) Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing, etc.</i> Blasting pattern: It is an Eco-friendly quarry operation, no blasting is proposed, Diamond wire saw cutting method is adopted by the lessee. Now a day, the splitting within the sheet rock is affected by diamond wire-sawing, which largely reduces the use of explosives in granite mining. Besides, chemical powder called as "Rock breaking Powder" [Ca (OH)₂] are also used for splitting. Many adverse effects of blasting are avoided and hence diamond wire cutting will substantially increase the recovery. Since primary cutting comprising splitting from the sheet rock is affected by diamond wire-sawing there will not be any drilling or blasting involved. Hence, there will not any adverse effects and vibration due to this type of mining operation. Chemical Blasting Method: The grey Granite operations should not be conducted with any blasting. This will totally damage the possible output by inducing cracks in the rock. For this reason, Chemical explosives are not used for this process. Inserted the rock is split with help of chemical powder which is an expander of the rock. The process is as under long jack hammer holes of around 3 to 6 meters are drilled in close spacing. The spacing is generally 5 to 10mm after the entire line is drilled, it is plugged to prevent any foreign materials entering the hole, later two vertical and one bottom cut are made with slotters and wire saw machines. After these operations are complete, the holes are loaded with chemical generates a crack which is through the holes drilled. The crack is expanded any hydraulic bags are used to pull the rock.	
	b) Miscellaneous: Apart from the above, the following tools and tackles already provided by lessee in quarry leased area for quarry operations. a) For operation: 1. Drill rods 0.4m, 0.5, 0.6m, 0.75m, 1.65m, 2.25m, 3m and 3.6m. 2. Steel alloy chains of sufficient length of 12mm, 16mm, 18mm sizes. 3. "D" Shackles to link the chain length.	



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	4. Rubber hose of required length, 5. Hose clamps to link the compressor delivery hoses, 6. Feather and wedges of 6" and 12" sizes, utilized for splitting the block from the mother rock. This is an important tool in the operation of the quarry. 7. Crow bars, 8. Spades, 9. Sludge hammer, 10. Iron pans, 11. Pitcher hammer, 12. Chisels, 13. Consumables, such diesel, Hydraulic oil, etc	
	c) Powder factor in ore and overburden / waste / development heading / stope	: Not applicable
	d) Whether secondary blasting is needed, if so describe it briefly	: Not applicable
	e) Storage of explosives (like capacity and type of explosive magazine)	: 1. The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/mines manager. 2. First Aid Box will be keeping ready at all the time. 3. Necessary precautionary announcement will be carried out before the blasting operation.
6.	MINE DRAINAGE	
	a) Likely depth of water table based on observations from nearby wells and water bodies	: The ground water table is reported as of 65m in summer and 60m in rainy season from the general ground level in the adjacent bore wells of the area.
	b) Workings expected to be _____ m. above / reach below water table by the year _____	: Ultimate mining depth is 50m below ground level. So, the present mine lease will be proposed above the water table



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		and hence, quarrying may not affect the ground water.																												
	c) Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 Lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor.																												
7.	STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE:																													
(a)	Indicate briefly the nature and quantity of top soil, overburden / waste and mineral rejects likely to be generated during the next five years:																													
	<table border="1"> <thead> <tr> <th>Year</th> <th>Topsoil/ Overburden (m³)</th> <th>Weathered rock (m³)</th> <th>Mineral rejects/Waste</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>13370</td> <td>20055</td> <td>20745</td> </tr> <tr> <td>II</td> <td>9282</td> <td>13923</td> <td>21513</td> </tr> <tr> <td>III</td> <td>---</td> <td>---</td> <td>24366</td> </tr> <tr> <td>IV</td> <td>---</td> <td>---</td> <td>15138</td> </tr> <tr> <td>V</td> <td>---</td> <td>---</td> <td>15126</td> </tr> <tr> <td>Total</td> <td>22652</td> <td>33978</td> <td>96888</td> </tr> </tbody> </table>		Year	Topsoil/ Overburden (m ³)	Weathered rock (m ³)	Mineral rejects/Waste	I	13370	20055	20745	II	9282	13923	21513	III	---	---	24366	IV	---	---	15138	V	---	---	15126	Total	22652	33978	96888
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Total	22652	33978	96888																											
(b)	Land chosen for disposal of waste with proposed justification	: The granite rejects are dumped on west side.																												
(c)	Attach a note indicating the manner of disposal and configuration, sequence of buildup of dumps along with the proposals for the stacking of sub-grade ore, to be indicated year wise.	: The grey granite rejects are 96888m ³ (up to 60%) and Weathered rock is 33978m ³ (Totally 130866m ³) will be removed and dumped in the west side of the lease area average dimensions of (L110m X W77m X H 15.4m) for the period of five years. The topsoil is 22652m ³ will be removed and stacked for earth bund in the south side of the lease area to prevent inherent entry of cattle's and human as per rules 106, Metalliferous Mines Regulations, 1961.																												

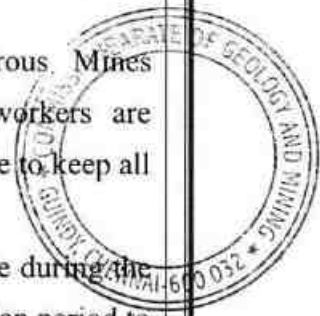
[Signature]

		If grey granite may be unsold will be keep within the lease boundary.
8.	USES OF MINERAL:	
(a)	Describe briefly the end-use of the mineral (sale to intermediary parties, captive consumption, export, industrial use)	: The quarried grey granite blocks are used to make floors, monuments etc.
(b)	Indicate physical and chemical specifications stipulated by buyers	: The materials produced at this quarry are grey granite which is used in floors, furniture, counter tops and monuments. The properties of granite which are normally valued for exploitation are compressive strength, tensile strength, density, p-wave velocity, etc. For marketability, other requirements like colour, texture, granularity, size, water absorption, porosity, hardness, moisture content, etc. are also essential. Raw blocks should be free from normal defects like fractures, joints, shears, hairline cracks, segregation, veins, etc.
(c)	Give details in case blending of different grades of ores is being practiced or is to be practiced at the mine to meet specifications stipulated by buyers.	: No blending process is involved in quarry. Blocks approved for export are shipped from harbor to exporter's designations.
9.	OTHERS	
(a)	Describe briefly the following Site services	: Infrastructure required for such mines like office, stores, canteen, first aid station, shelter latrine and bath rooms have been provided as per the Metalliferous Mines Regulations, 1961 as a welfare amenity for mine laborers. No manual mine or stack of spares,

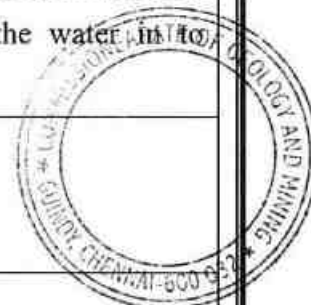


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		lubricant and fuels are required to be maintained at the mine site. Approach road is available from the mine road to the site.																																				
(b)	Employment potential: As per Mines safety under the provisions of Metalliferous Mines Regulations, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision. The following man power is proposed for quarrying grey granite during the five years period the same manpower will be utilize for this Mining Plan period to achieve the proposed production and to comply the provisions of the MMR, 1961 norms. <table border="1"> <tr> <td rowspan="4">1.</td> <td rowspan="4">Highly Skilled</td> <td>Quarry Manager</td> <td>1No.</td> </tr> <tr> <td>Mines Forman</td> <td>1No</td> </tr> <tr> <td>Mechanical Engineer</td> <td>1No</td> </tr> <tr> <td>Accountant cum & admin</td> <td>1No.</td> </tr> <tr> <td rowspan="4">2.</td> <td rowspan="4">Skilled</td> <td>Earth moving Operator</td> <td>1No</td> </tr> <tr> <td>Line drilling Operator</td> <td>1 Nos.</td> </tr> <tr> <td>Wire saw Operator</td> <td>2 No.</td> </tr> <tr> <td>Driver</td> <td>1No</td> </tr> <tr> <td>3.</td> <td>Semi – skilled</td> <td>Helpers, Greaser's</td> <td>1 No</td> </tr> <tr> <td>4.</td> <td>Unskilled</td> <td>Cutter</td> <td>4Nos</td> </tr> <tr> <td></td> <td></td> <td>Musdoor / Labours</td> <td>8 Nos</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total =</td> <td>22Nos</td> </tr> </table>		1.	Highly Skilled	Quarry Manager	1No.	Mines Forman	1No	Mechanical Engineer	1No	Accountant cum & admin	1No.	2.	Skilled	Earth moving Operator	1No	Line drilling Operator	1 Nos.	Wire saw Operator	2 No.	Driver	1No	3.	Semi – skilled	Helpers, Greaser's	1 No	4.	Unskilled	Cutter	4Nos			Musdoor / Labours	8 Nos	Total =			22Nos
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10	MINERAL PROCESSING/BENEFICIATIONS:																																					
(a)	If processing / beneficiations of the ore or minerals mined is planned to be conducted on site or adjacent to the extraction area, briefly describe the nature of the processing /beneficiation. This should indicate size and grade of feed material and concentrate (finished marketable product), recovery rate.	: Excavated grey Granite raw blocks shall be directly sale to the needy buyers.																																				
(b)	Explain the disposal method for tailings or waste from the processing plant (quantity and quality of tailings	: No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources.																																				



	proposed to be discharged, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailing dam).	Some stagnation of rain water in the pit shall be used for drilling and spraying haul roads. Therefore, need for tailing dam doesn't arise. But tailing control of rain water flow during rainy season has to be done by decanting the SPM in a pit before passing the water into natural system.
(c)	A flow sheet or schematic diagram of the processing procedure should be attached.	: Not applicable
(d)	Specify quantity and type of chemicals to be used in the processing plant.	: Not applicable
(e)	Specify quantity and type of chemicals to be stored on site / plant.	: Not applicable
(f)	Indicate quantity (KLD per day) of water required for mining and processing and sources of supply of water. Disposal of water and extent of recycling.	: Drinking is 0.500KLD, utilized water is 0.7KLD, Dust suppression is 1.0KLD and Green Belt is 1.0KLD. Minimum quantity of water 3.2KLD per day has to be maintained as per the Mines Rules, 1952. Drinking water will be bought to authorized vendor of the nearby the village. The dust suppression and green belt development will be bought to water tanker. The sewage water to a tune of 0.7KLD generated from the mine office toilet and mine labour toilet will be diverted to the septic tank followed by soak pit.

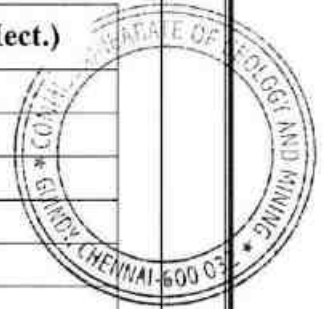


PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

a) Attach a note on the statuts of Baseline information with regard to the Following :

11.1	Existing land use pattern indicating the area already degraded due to quarrying /pitting, dumping, roads, processing plant, workshop, township etc in a tabular form. The present land use pattern is given as below.	<table border="1"> <thead> <tr> <th>S. No.</th><th>Land Use</th><th>Present area (Hect.)</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Area under Mining</td><td>Nil</td></tr> <tr> <td>2</td><td>Waste dump</td><td>Nil</td></tr> <tr> <td>3</td><td>Office (Infrastructure)</td><td>Nil</td></tr> <tr> <td>4</td><td>Road</td><td>Nil</td></tr> <tr> <td>5</td><td>Green Belt</td><td>Nil</td></tr> <tr> <td>6</td><td>Unutilized area</td><td>3.38.0</td></tr> <tr> <td colspan="2">Total =</td><td>3.38.0</td></tr> </tbody> </table>	S. No.	Land Use	Present area (Hect.)	1.	Area under Mining	Nil	2	Waste dump	Nil	3	Office (Infrastructure)	Nil	4	Road	Nil	5	Green Belt	Nil	6	Unutilized area	3.38.0	Total =		3.38.0
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11.2	Water Regime	: Water table in this area is noticed at a depth of 65m in summer and 60m in rainy season from the general ground level and presently the quarrying of grey granite is ultimate up to a depth of 50m bgl. Hence, it will not affect the ground water depletion of this area.																								
11.3	Flora and Fauna	: There is no major flora observed in this area and except acacia bushes, no other valuable trees are noticed in the lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.																								
11.4	Quality of air, ambient noise level and water	: Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. In this quarry, the machinery operations like jack hammer drilling compressor and																								



		excavators will generate sound pollution. The sound level should be within the limits of 58dBA. To minimize this sound pollution within the permissible limits, the machinery will be operated at different places and time. The sound pollution can be reduced periodical maintenance of the mining equipment. However, periodical noise level monitoring will be carried out every six months around the quarry site.																									
11.5	Climatic conditions: Krishnagiri, India weather forecasted for the maximum temperature of 29°C / 84°F. Min temperature will be 18°C/64°F. Most precipitation falling will be 8.20mm/0.32inch. Windiest day is expected to see wind of upto 17kmph/ 11mph.																										
11.6	Human Settlement: The nearest villages are found in the buffer zone with population as per 2011 census.																										
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11.7	Public buildings, places of worship and monuments	: No infrastructure like residential building, places of special interest like archeological monuments, Sanctuaries, etc., are found around 10km radius.																									
11.8	Attach plans showing the locations of sampling stations	: The proposed Ambient air quality, Water quality Ambient noise level and vibration are periodically tested for every season (6 months once) around 5km radius as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.																									



11.9	Does area (partly or fully) fall under notified area under Water (Prevention & Control of Pollution), Act, 1974	: The lease area doesn't fall under notified area under Water (Prevention & Control of Pollution), Act, 1974 within the radius of 1km.
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a) *Attach an Environmental Impact Assessment Statement describing the impact of Mining and beneficiation on environment on the following over the next five years (and upto conceptual plan period for 'A' category mines)*

i)	Land area indicating the area likely to be degraded due to quarrying / pitting, dumping, roads, workshop, processing plant, township etc: The details of the land use pattern, during the ensuing plan period and till lease period is shown in the tabular form: <table border="1"> <thead> <tr> <th>S. No.</th><th>Land Use</th><th>Area in use during the quarrying period (Hect.)</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Under quarrying area</td><td>1.11.27</td></tr> <tr> <td>2</td><td>Infrastructure</td><td>0.02.0</td></tr> <tr> <td>3</td><td>Roads</td><td>0.05.0</td></tr> <tr> <td>4</td><td>Waste dump</td><td>0.84.7</td></tr> <tr> <td>5</td><td>Green belt</td><td>0.62.89</td></tr> <tr> <td>6</td><td>Drainage & Settling Tank</td><td>0.09.0</td></tr> <tr> <td>7</td><td>Unutilized</td><td>0.63.14</td></tr> <tr> <td colspan="2">Total</td><td>3.38.0</td></tr> </tbody> </table>		S. No.	Land Use	Area in use during the quarrying period (Hect.)	1.	Under quarrying area	1.11.27	2	Infrastructure	0.02.0	3	Roads	0.05.0	4	Waste dump	0.84.7	5	Green belt	0.62.89	6	Drainage & Settling Tank	0.09.0	7	Unutilized	0.63.14	Total		3.38.0
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ii).	Air Quality	Air or dust expected to be generated from drilling process, hauling roads, places of excavation, etc., will be suppressed by periodical wetting of land by water spraying.
iii).	Water quality	A water sample from the open/bore wells was tested to NABL approved lab to assess hardness, Salinity, colour, Specific gravity, etc.
iv).	Noise levels	Quarrying of grey granite will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.

v).	Vibration levels (due to blasting)	It is an Eco-friendly quarry operation, no blasting is proposed, Diamond wire saw cutting method is adopted by the lessee. Now days, the splitting within the sheet rock is affected by diamond wire-sawing, which largely reduces the use of explosives in granite mining. Besides, chemical powder called as "Rock breaking Powder" $[Ca(OH)_2]$ are also used for splitting. Many adverse effects of blasting are avoided and hence diamond wire cutting will substantially increase the recovery. Since primary cutting comprising splitting from the sheet rock is affected by diamond wire-sawing there will not be any drilling or blasting involved. Hence, there will not any adverse effects and vibration due to this type of mining operation. The maximum peak particles velocity shall be recorded using mini seismograph devises as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.
vi).	Water regime	Drinking water will be bought to authorized vendor of the nearby the village. The dust suppression and green belt development will be bought to water tanker.
vii).	Socio-economics	1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.
viii).	Historical monuments etc.	There are no historical monuments, etc found around 10km radius.

c) Attach an Environmental Management Plan (supported by appropriate plans and sections) defining the time bound action proposed to be taken with sequence & timing in the following areas (or diagrams should be used):



i).	Temporary storage and utilization of topsoil	: The topsoil is 22652m³ will be removed and stacked for earth bund in the lease hold area to prevent inherent entry of cattle's and human as per rules 106, Metalliferous Mines Regulations, 1961. If grey granite may be unsold will be keep within the lease boundary.
ii).	Yearwise proposal for reclamation of land affected by abandoned quarries and other mining activities during first five years (and upto conceptual plan period for 'A' category mines) clarifying the extent of back filling and re-contouring and / or alternative use of unfilled / partially filled excavations / road sides / slopes and mine. In case abandoned quarries/ pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given.	: The present mining is proposed to a depth of 35m below ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of open cast working with S1 fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the grey granite persist still at deeper level.
iii).	<i>Programme of afforestation, Yearwise for the initial five years (and upto conceptual plan period for 'A' category mines) indicating the number of plants with name of species to be afforested under different areas in hectares.</i> Safety barrier, nearby school area and Nearest Panchayat approach Roads has been identified to be utilized for Greenbelt appropriate native species of Neem, Pungan and other regional trees will be planted in a phased manner as described below	



Year	Place	Area in Sq.m	No. of Plants	Rate of survival	Rate	Amount in Rs
First	Lease Boundary	6289	700	80%	@100 Rs Per sapling	70,000/-
Second	Approach road and Nearby Village Road	--	400	80%		40,000/-
Third	Schools	--	200	80%		20,000/-
Total						1,30,000/-

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iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the first five years (and upto conceptual plan period for 'A' category mines).	:	The grey granite rejects are 96888m ³ (up to 60%) and Weathered rock is 33978m ³ (Totally 130866m ³) will be removed and dumped in the west side of the lease area average dimensions of (L110m X W 77m X H 15.4m) for the period of five years.
v).	Measures to control erosion / sedimentation of water courses.	:	No soil erosion takes place in this quarrying activity.
vi).	Treatment and disposal of water from mine.	:	It will not be harmful and it does not require any treatment before discharging into the natural courses.
vii).	Measures for minimizing adverse effects on water regime.	:	There is no water to be pumped out will be very pure and portable and therefore, it will not affect any water regime surrounding the quarry.
viii).	Protective measures for ground vibrations / air blast caused by blasting,	:	It is a small "B" category open cost, semi mechanized mining and no heavy machinery shall be used. The only smooth blasting is proposed, therefore no change for ground vibration or noise from the quarry.
ix).	Measures for protecting historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity.	:	No historical monuments and for rehabilitation of human settlements doesn't to be disturbed during mining activity.
x).	Socioeconomic benefits arising out of mining.	:	The nearest villages are will get employment benefits.

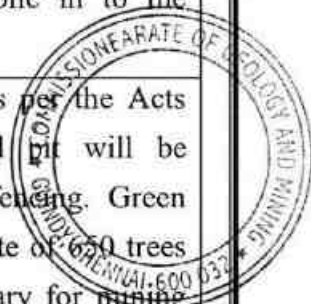
d). Monitoring schedules for different environmental components after the commencement of mining and other related activities. (for 'A' category mines only)

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Not applicable. It is "B" category quarry

12.0 PROGRESSIVE MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The present mining is proposed to depth of 35m below ground level. The mined-out area will be fenced on top of open cast working with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by Barbed wire fencing. Green belt development at the rate of 650 trees are proposed lease boundary for mining plan period. No immediate proposals for closure of pit as the grey granite persist still at deeper level.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The quarry lease is a fresh mining lease for 20 years lease period.
12.4	Mine closure activity	:	The mined-out area will be fenced on top of open cast working with S1 fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the grey granite persist still at deeper level.
12.5	Safety and security	:	Safety measures implement to the prevent access to surface opening excavations will be taken as per Metalliferous Mines Regulations, 1961, it is a small open cast mining method adopted. Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.



12.6	Disaster management and Risk Assessment	:	Open cast mining method is adopted in this quarry. If the benches are made with proposed height and width no risk will be there. Even then if any minor or major accident happens the quarry staffs having First aid facilities with first aid box with all necessary medicine and stretches etc., to give first aid treatment at the site and will arrange immediately the vehicle to reach nearest hospital, if any disaster happens the lessee is capable to meet such eventualities. At the time of any accident during mining activity proposal of first aid facility at quarry and one vehicle always ready at quarry site.
12.7	Care and maintenance during temporary discontinuance	:	During temporary discontinuance the working place will be fenced completely and a board of discontinuance will be changed on the main entrance of the working place. One watch man will be kept on the quarry area for security purposes also look after the survival of the plants.
12.8	Economic repercussions of closure of quarry and man power entrenchments	:	During the five years mining period the employment potential will be generated, general financial status and socio-economic conditions of approx. 22 labors will be improved. During the next five-year compensations will be given as per rules.

12.9 Proposed Financial Estimate / Budget for (EMP) Environment Management:

A	Fixed Asset Cost:	
	1. Land Cost (Consent Land)	: Rs. 8,10,000,/-
	2. Labour Shed	: Rs. 50,000,/-
	3. Sanitary Facility	: Rs. 1,50,000/-
	4. Fencing	: Rs. 4,00,000/-
	5. Other expenses (Security guard, bin, etc)	: Rs. 5,00,000/-

	Total	: Rs. 19,10,000/-
B	B. Machinery cost	: Rs. 25,00,000/- (Hire Basis)
C	Total Expenditure of EMP cost (for five years)	
	1. Drinking Water Facility	: Rs. 1,50,000/-
	2. Sanitary facility & Maintenance	: Rs. 1,50,000/-
	3. Permanent water sprinkler	: Rs. 1,50,000/-
	4. Afforestation and maintenance	: Rs. 1,30,000/-
	5. Safety Kits	: Rs. 1,00,000/-
	6. Provision of tyre washing facility	: Rs. 1,00,000/-
	7. Surface runoff management structures like garland drain, settling pond & Bund (0.09.0Hect or 900Sq.m X 400	: Rs. 3,60,000/-
	8. Environment monitoring	: Rs. 5,00,000/-
	Total	: Rs. 16,40,000/-
D	Total Project Cost (A+B+C)	: Rs. 60,50,000/-



13.0 FINANCIAL ASSURANCE:

Not applicable, it is a small "B" Grey granite quarry.

14.0 CERTIFICATES:

All required certificates are enclosed.

15.0 PLAN AND SECTIONS, ETC:

Plan and Sections are submitted along with mining plan.

16.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- (i) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (ii) The applicant will endeavor every attempt to quarry the grey granite economically without any wastage and to improve the environment and ecology.
- (iii) The Mining Plan with progressive quarry closure plan is prepared by incorporating the conditions stipulated in the precise area communication issued by The Additional Chief Secretary of Tamil Nadu, vide letter **Rc.No. 6551607/MME.2/2023-1, Dated 29.10.2024**
- (iv) Total proposed production of Rom is about **218110m³**. Of which, grey granite is about **64592m³** at the recovery of 40% and granite rejects are **96888m³** at the recovery of 60%, Weathered rock is **33978m³** and Top soil is **22652m³** up to a depth of 35m below the ground level for first five years mining plan period.

[Signature] 44 | Page

17.0 CSR Expenditure:

CSR (Corporate Social responsibility) shall provide by the applicant @ 2.0% of average net profit of the company for the last three financial years to the nearby village on the Ministry has notified the amendments in section 135 of the Act as well in the CSR Rules on 22nd January 2021 as circular no. CSR-05/01/2021-CSR-MCA dated 25th August 2021.

Place: Dharmapuri, TN

Date: 24.12.24

Signature of the Qualified Person

Dr.S.KARUPPANNAN, M.Sc, Ph.D.,

Qualified Person
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

COMMISSIONER
GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.

G
07/12/2024

This Mining Plan is Approved
Subject in the Conditions/Stipulation
Indicated in the Mining Plan Approval
Letter No./7196/MMG/2023 Dated 06-2-2025



**Natural Resources (MME.2)
Department, Secretariat,
Chennai-600 009**

E.mail: indusmme@tn.gov.in

Letter No.6551607/MME.2/2023-1, Dated 29.10.2024

From
Thiru K. Phanindra Reddy, I.A.S.,
Additional Chief Secretary to Government (FAC)

To
M/s.Sri Vinayaga Granites,
#01/504E, Maruthi Nagar,
Jagadevipalayam-Village & Post,
Bargur Taluk, Krishnagiri District - 635 203.



Sir,

Sub: Natural Resources Department - Minor Mineral - Grey Granite - Quarry lease application preferred by M/s.Sri Vinayaga Granites for quarrying of Grey Granite over an extent of 3.38.0 hectares of patta lands in S.F.Nos.332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P)(0.87.0), 332/6 (0.26.5), 331/1A(P) (1.00.0) in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District - Precise area communicated - Approved Mining Plan and Environmental Clearance - Called for.

Ref: 1. Your Quarry Lease Application dated 14.07.2023.
2. From the District Collector, Krishnagiri, Note File Rc.No.1541/2023/Mines, dated 07.10.2023.
3. From the Commissioner of Geology and Mining, Chennai, Note File No.7196/MM4/2023, dated 22.12.2023.

I am directed to inform that in the references second and third cited wherein the District Collector, Krishnagiri and the Commissioner of Geology and Mining, Chennai have recommended and forwarded your quarry lease application for grant of quarry lease for quarrying of Grey Granite over an extent of 3.38.0 hectares of patta lands in S.F.Nos.332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P)(0.87.0), 332/6 (0.26.5), 331/1A(P) (1.00.0) in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

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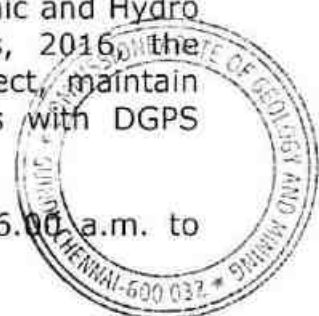
2. The Government carefully examined the recommendations of the District Collector, Krishnagiri and the Commissioner of Geology and Mining and hereby communicate precise area for quarrying Grey Granite over an extent of 3.38.0 hectares of patta lands in S.F.Nos. 332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P) (0.87.0), 332/6 (0.26.5), 331/1A(P) (1.00.0) in Jagadevipalayam Village, Bargur Taluk, Krishnagiri District under sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease.

3. I therefore request you to furnish the Approved Mining Plan for the above-mentioned Precise Area through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce Environmental Clearance obtained from the competent authority for the above said area for grant of quarry lease subject to the following conditions to the Government: -

1. A safety distance of 7.5 m shall be maintained for the adjacent patta lands.
2. A safety distance of 10.0 m shall be maintained for the Government land in S.F.No.302 situated on the north and north west side of the applied area.
3. A safety distance of 50 m should be provided for the power line situated at distance of 16 m in 332/5(P) and an open well situated at the distance 20 m in 332/5(P) on the south eastern boundary.
4. The electric line passing in north to south direction situated on the western side of the applied area in S.F.Nos.332/3, 332/1 should be shifted 50 m away from the applied area before execution of the lease deed.
5. The applicant firm should not damage the Government land situated around the applied area.
6. The applicant firm should fence the applied area before starting quarry operation.
7. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority before granting quarry lease as per rule 42 of Tamil Nadu Minor Minerals Concession Rules, 1959.
8. The quarrying operation should be restricted only in the area granted on lease.
9. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.

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10. As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect, maintain and keep in repair all the boundary pillars with DGPS readings.
11. Quarry activity should be carried out from 6.00 a.m. to 6.00 p.m. only
12. A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity over an extent of 3.38.0. hectares in S.F.Nos.332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P) (0.87.0), 332/6 (0.26.5), 331/1A(P) (1.00.0) of Jagadevipalayam Village of Bargur Taluk of Krishnagiri District by planting at least 500 seedlings of Neem and Pungan all around the area.
13. Quarried materials should be transported only with permits issued by the Assistant Director/Deputy Director (G&M) and they should be produced before the forest check post officials and necessary entries should made in the register.
14. Compound wall / Barbed wire fencing should be erected all around the proposed quarrying area.
15. The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:
 - a) The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - b) The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the minimizing plan.
 - c) A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.
16. The District administration and Geology and Mining Department should ensure the conditions imposed in G.O.Ms.No.79, Industries Department, dated 06.04.2015.
17. No pollution should be caused to the water bodies situated near by the applied area if any.



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18. The applicant firm should use mild explosives during quarrying.
19. As per the Hon'ble Supreme court of India order dated:08.01.2020 in W.P(C)No.144/ 2014 after ceasing quarrying operation re-grassing the quarry area and any other area which may have been disturbed due to the quarrying activity and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
20. The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated 01.02.2018 and subsequent corrigendum dated 13.8.2019 using the agencies empaneled by the Commissioner of Geology and Mining on 01.03.2023, 08.03.2023, 17.03.2023 and 18.03.2023 before execution of quarry lease.
21. Child labourers should not be engaged for quarry works and all the quarry labourers should be registered with the Labour Welfare Board of Government of Tamil Nadu and should be enrolled in the Group Insurance Scheme.

Yours faithfully,

For 23/10/2024
for Additional Chief Secretary to Government (FAC)

Copy to:-

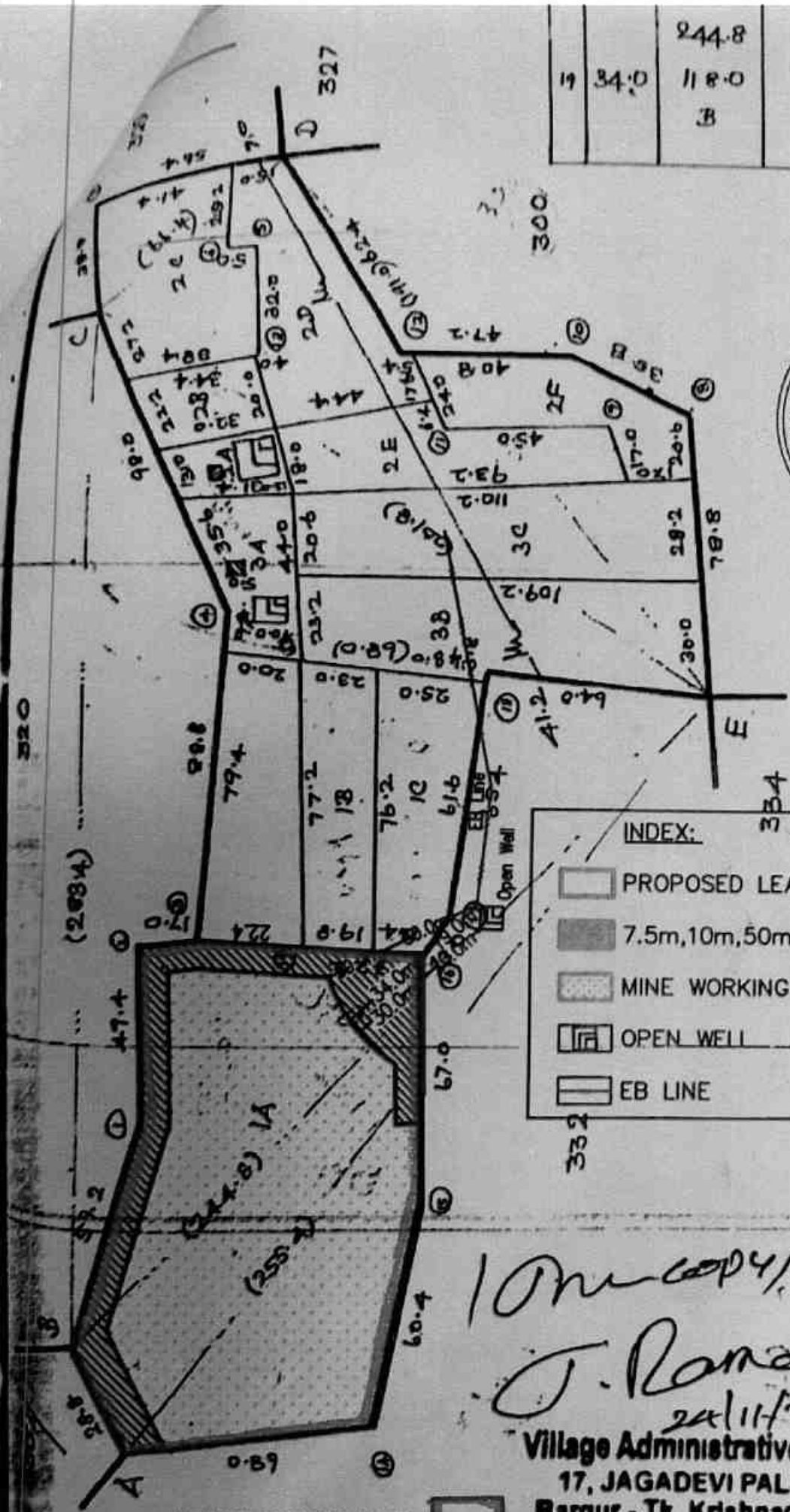
The Commissioner of Geology and Mining,
Guindy, Chennai – 600 032.

(To ensure that the conditions imposed in G.O.Ms.No.79, Industries (MMC.1) Department, dated 06.04.2015 are complied with).

The District Collector, Krishnagiri District, Krishnagiri – 635 115.

(To obtain a sworn-in-affidavit from the applicant / firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB.2/2002-7, Industries Department, dated 09.01.2003 are complied with. Also to ensure that the conditions imposed in G.O.Ms.No.79, Industries (MMC.1) Department, dated 06.04.2015 are complied with).

[Signature]



19	34.0	244.8	118.0	3
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HOUSE	20.0	147.0	146.0	11
W	25.0	146.0	130.0	
W	38.0	130.0	128.0	
W	44.0	128.0	143.2	
W	74	143.2	132.8	
W	13.8	132.8	109.6	
W	38.8	109.6	104.2	
W	46.6	104.2	46.4	
W		46.4	E	
W		255.4	221.6	
W	18	55.0	166.0	
W	7	19.6	152.4	
W	16	19.8	100.2	
W			216.0	
W	3	26.0	11.4	
W			A	
W			D	
W			(191.0)	
W	13	38.0	147.2	
W	12	8.6	128.2	
W	11	12.4	102.6	
W			96.8	
W			76.0	
W			65.8	
W			E	
W			C	
W			(66.4)	
W			46.2	
W	6	8.6	25.4	
W	5	16.6	20.0	
W			D	
W			C	
W			(83.4)	
W			195.0	
W			106.6	
W			105.8	
W			56.4	
W			B	

10m copy/
J. Ramaswami
24/11/20
Village Administrative Officer
17, JAGADEVI PALAYAM
Bargur - Tk, Krishnagiri - Dt
[Signature]

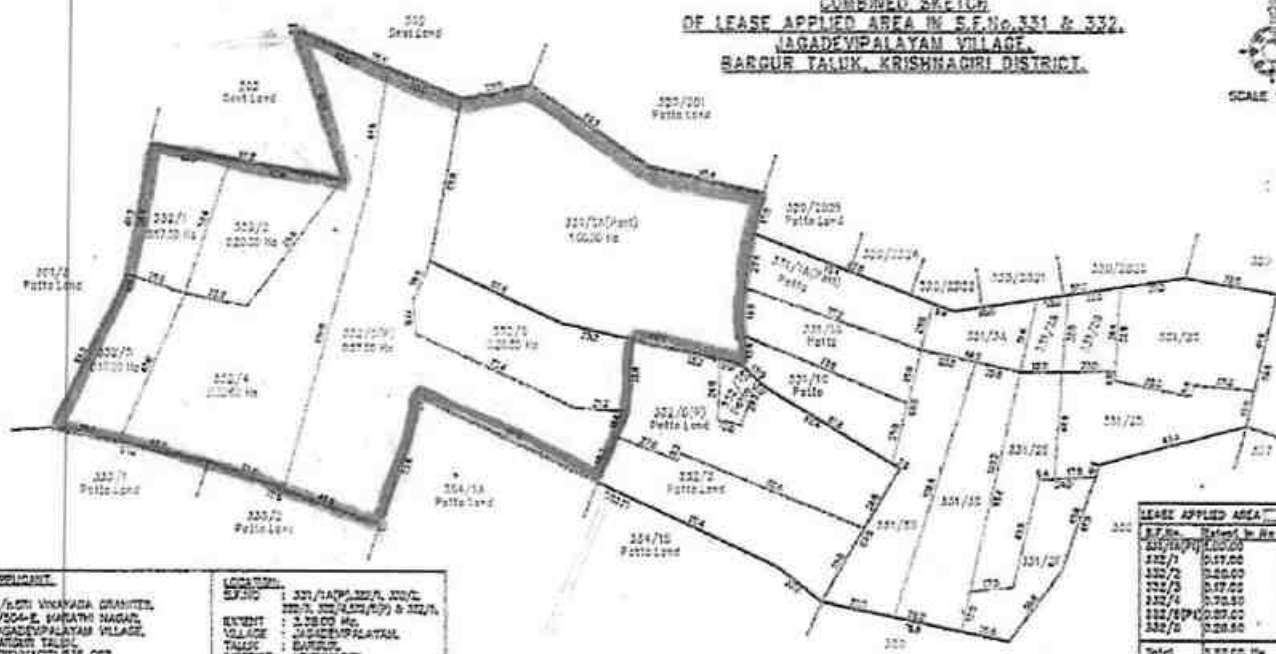
LEASE APPLIED AREA



**COMBINED SKETCH
OF LEASE APPLIED AREA IN S.F.No. 331 & 332,
JAGADEVPALAYAM VILLAGE,
BARGUR TALUK, KRISHNAGIRI DISTRICT.**



SCALE 1:1500



APPLICANT:
M/S. SRI VENKATRA GRAMITH,
1/204-E, KARAYAM NAGAR,
JAGADEVPALAYAM VILLAGE,
BARGUR TALUK,
KRISHNAGIRI DISTRICT.

LOCATION:
S.F.No. : 331/1A, 331/2, 331/3,
331/4, 331/5, 331/6, 331/7 & 331/8.
EXTENT : 2.75.00 Hs.
VILLAGE : JAGADEVPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI.

LEASE APPLIED AREA	
S.F.No.	Extent in Hs.
331/1A	0.05.00
331/2	0.17.00
331/3	0.20.00
331/4	0.17.00
331/5	0.20.00
331/6	0.07.00
331/7	0.20.00
Total	0.25.00 Hs.

1 Tm copy 1

J. Rameghoo

13/08/2013
Village Administrative Officer
17, JAGADEVI PALAYAM
Bargur - Tk, Krishnagiri - Dt

LEASE APPLIED AREA



[Handwritten signature]

[illegible]

1997

District: Krishnagiri Taluk: BARGUR Village: JECADEVIPALAYAM

புல எண்	உட்பிரிவு எண்	பழைய புல எண்	பகுதி	அரசு - ரயத்துவாரி	நிலத்தின் வகை	பாசன ஆதாரம்	இரு போகமா	மண் வயனமும் ரகமும்	மண் தரம்	தீர்வை - ஹெக்டே	பரப்பு	மொத்த தீர்வை	பட்டா எண்	குறிப்பு
										ரூ	பை	ரூ		
309		330	P	அரசு	புறம்போக்கு			1-2	0	0	0	0		
311	1A	331-1	P	புறம்போக்கு	புறம்போக்கு			7-2	3	18	1	22.00	630-411	
311	1B	-4	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	14.50	105-261	
331	1C	-1	P	புறம்போக்கு	புறம்போக்கு			7-2	3	18	0	17.00	154-266	
331	2A	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	5.50	982-511	
331	2B	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2C	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2D	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2E	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2F	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2G	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2H	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2I	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2J	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2K	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2L	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2M	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2N	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2O	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2P	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2Q	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2R	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2S	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2T	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2U	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2V	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2W	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2X	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2Y	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	
331	2Z	-2	P	புறம்போக்கு	புறம்போக்கு			7-2	3	38	0	7.50	1252-511	

1000

U.S. Patent and Trademark Office, Washington, D.C. 20503, and

Village Administrative Officer
17, JAGADEVI PALAYAM
Bargur - Tk, Krishnagiri - Dt

17, JAGADEVI PALAYAM

Bargur - Tk, Krishnagiri - Dt

262775

Ph. L. L. L.

Send them to don@renewalcheckbox.com

STATION	DATE	TIME	WIND	TEMP	REL. HUM.	WIND DIR.	WIND S.P.	WIND V.	WIND F.	WIND G.	WIND H.	WIND I.	WIND J.	WIND K.	WIND L.	WIND M.	WIND N.	WIND O.	WIND P.	WIND Q.	WIND R.	WIND S.	WIND T.	WIND U.	WIND V.	WIND W.	WIND X.	WIND Y.	WIND Z.	WIND AA.	WIND AB.	WIND AC.	WIND AD.	WIND AE.	WIND AF.	WIND AG.	WIND AH.	WIND AI.	WIND AJ.	WIND AK.	WIND AL.	WIND AM.	WIND AN.	WIND AO.	WIND AP.	WIND AQ.	WIND AR.	WIND AS.	WIND AT.	WIND AU.	WIND AV.	WIND AW.	WIND AX.	WIND AY.	WIND AZ.	WIND BA.	WIND BB.	WIND BC.	WIND BD.	WIND BE.	WIND BF.	WIND BG.	WIND BH.	WIND BI.	WIND BJ.	WIND BK.	WIND BL.	WIND BM.	WIND BN.	WIND BO.	WIND BP.	WIND BQ.	WIND BR.	WIND BS.	WIND BT.	WIND BU.	WIND BV.	WIND BW.	WIND BX.	WIND BY.	WIND BZ.	WIND CA.	WIND CB.	WIND CC.	WIND CD.	WIND CE.	WIND CF.	WIND CG.	WIND CH.	WIND CI.	WIND CJ.	WIND CK.	WIND CL.	WIND CM.	WIND CN.	WIND CO.	WIND CP.	WIND CQ.	WIND CR.	WIND CS.	WIND CT.	WIND CU.	WIND CV.	WIND CW.	WIND CX.	WIND CY.	WIND CZ.	WIND DA.	WIND DB.	WIND DC.	WIND DD.	WIND DE.	WIND DF.	WIND DG.	WIND DH.	WIND DI.	WIND DJ.	WIND DK.	WIND DL.	WIND DM.	WIND DN.	WIND DO.	WIND DP.	WIND DQ.	WIND DR.	WIND DS.	WIND DT.	WIND DU.	WIND DV.	WIND DW.	WIND DX.	WIND DY.	WIND DZ.	WIND EA.	WIND EB.	WIND EC.	WIND ED.	WIND EE.	WIND EF.	WIND EG.	WIND EH.	WIND EI.	WIND EJ.	WIND EK.	WIND EL.	WIND EM.	WIND EN.	WIND EO.	WIND EP.	WIND EQ.	WIND ER.	WIND ES.	WIND ET.	WIND EU.	WIND EV.	WIND EW.	WIND EX.	WIND EY.	WIND EZ.	WIND FA.	WIND FB.	WIND FC.	WIND FD.	WIND FE.	WIND FF.	WIND FG.	WIND FH.	WIND FI.	WIND FJ.	WIND FK.	WIND FL.	WIND FM.	WIND FN.	WIND FO.	WIND FP.	WIND FQ.	WIND FR.	WIND FS.	WIND FT.	WIND FU.	WIND FV.	WIND FW.	WIND FX.	WIND FY.	WIND FZ.	WIND GA.	WIND GB.	WIND GC.	WIND GD.	WIND GE.	WIND GF.	WIND GG.	WIND GH.	WIND GI.	WIND GJ.	WIND GK.	WIND GL.	WIND GM.	WIND GN.	WIND GO.	WIND GP.	WIND GQ.	WIND GR.	WIND GS.	WIND GT.	WIND GU.	WIND GV.	WIND GW.	WIND GX.	WIND GY.	WIND GZ.	WIND HA.	WIND HB.	WIND HC.	WIND HD.	WIND HE.	WIND HF.	WIND HG.	WIND HH.	WIND HI.	WIND HJ.	WIND HK.	WIND HL.	WIND HM.	WIND HN.	WIND HO.	WIND HP.	WIND HQ.	WIND HR.	WIND HS.	WIND HT.	WIND HU.	WIND HV.	WIND HW.	WIND HX.	WIND HY.	WIND HZ.	WIND IA.	WIND IB.	WIND IC.	WIND ID.	WIND IE.	WIND IF.	WIND IG.	WIND IH.	WIND II.	WIND IJ.	WIND IK.	WIND IL.	WIND IM.	WIND IN.	WIND IO.	WIND IP.	WIND IQ.	WIND IR.	WIND IS.	WIND IT.	WIND IU.	WIND IV.	WIND IW.	WIND IX.	WIND IY.	WIND IZ.	WIND JA.	WIND JB.	WIND JC.	WIND JD.	WIND JE.	WIND JF.	WIND JG.	WIND JH.	WIND JI.	WIND JJ.	WIND JK.	WIND JL.	WIND JM.	WIND JN.	WIND JO.	WIND JP.	WIND JQ.	WIND JR.	WIND JS.	WIND JT.	WIND JU.	WIND JV.	WIND JW.	WIND JX.	WIND JY.	WIND JZ.	WIND KA.	WIND KB.	WIND KC.	WIND KD.	WIND KE.	WIND KF.	WIND KG.	WIND KH.	WIND KI.	WIND KJ.	WIND KK.	WIND KL.	WIND KM.	WIND KN.	WIND KO.	WIND KP.	WIND KQ.	WIND KR.	WIND KS.	WIND KT.	WIND KU.	WIND KV.	WIND KW.	WIND KX.	WIND KY.	WIND KZ.	WIND LA.	WIND LB.	WIND LC.	WIND LD.	WIND LE.	WIND LF.	WIND LG.	WIND LH.	WIND LI.	WIND LJ.	WIND LK.	WIND LL.	WIND LM.	WIND LN.	WIND LO.	WIND LP.	WIND LQ.	WIND LR.	WIND LS.	WIND LT.	WIND LU.	WIND LV.	WIND LW.	WIND LX.	WIND LY.	WIND LZ.	WIND MA.	WIND MB.	WIND MC.	WIND MD.	WIND ME.	WIND MF.	WIND MG.	WIND MH.	WIND MI.	WIND MJ.	WIND MK.	WIND ML.	WIND MN.	WIND MO.	WIND MP.	WIND MQ.	WIND MR.	WIND MS.	WIND MT.	WIND MU.	WIND MV.	WIND MW.	WIND MX.	WIND MY.	WIND MZ.	WIND NA.	WIND NB.	WIND NC.	WIND ND.	WIND NE.	WIND NF.	WIND NG.	WIND NH.	WIND NI.	WIND NJ.	WIND NK.	WIND NL.	WIND NM.	WIND NO.	WIND NP.	WIND NQ.	WIND NR.	WIND NS.	WIND NT.	WIND NU.	WIND NV.	WIND NW.	WIND NX.	WIND NY.	WIND NZ.	WIND OA.	WIND OB.	WIND OC.	WIND OD.	WIND OE.	WIND OF.	WIND OG.	WIND OH.	WIND OI.	WIND OJ.	WIND OK.	WIND OL.	WIND OM.	WIND ON.	WIND OO.	WIND OP.	WIND OQ.	WIND OR.	WIND OS.	WIND OT.	WIND OU.	WIND OV.	WIND OW.	WIND OX.	WIND OY.	WIND OZ.	WIND PA.	WIND PB.	WIND PC.	WIND PD.	WIND PE.	WIND PF.	WIND PG.	WIND PH.	WIND PI.	WIND PJ.	WIND PK.	WIND PL.	WIND PM.	WIND PN.	WIND PO.	WIND PP.	WIND PQ.	WIND PR.	WIND PS.	WIND PT.	WIND PU.	WIND PV.	WIND PW.	WIND PX.	WIND PY.	WIND PZ.	WIND QA.	WIND QB.	WIND QC.	WIND QD.	WIND QE.	WIND Q
1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000	1475-0000																																																																																																																																																																																															

from the initial state, if $\langle \sigma_i \rangle = 0$ for all i and $\langle \sigma_i \sigma_j \rangle = 0$ for all i, j .

Principal

Village Administrative Officer
17, JAGADEVI PALAYAM
Bargur - Tk, Krishnagiri - Dt

11



தமிழ்நாடு அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பரக்கர்

வருவாய் கிராமம் : ஜெகதேவிபாளையம்

பட்டா எண் : 630

உரிமையாளர்கள் பெயர்

1. கெவரன் மகன் ராமசாமி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
331	1A	1 - 22.00	4.10	--	--	--	--	14-03-2003
		1 - 22.00	4.10					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
- பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/138/00630/70869 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
 - இத் தகவல்கள் 30-10-2024 அன்று 11:04:02 AM நேரத்தில் அச்சடிக்கப்பட்டது.
 - கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : ஜெகதேவிபாளையம்

பட்டா எண் : 922

உரிமையாளர்கள் பெயர்

1. பெரியதாய் மகன் கோவிந்தசாமி -
2. பெரியதாய் மகன் சூப்பசாமி -
3. பெரியதாய் மகன் காட்டு ராஜா -

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
332	1	0 - 17.00	0.60	--	--	--	--	----- 14-03-2003
332	4	0 - 70.50	2.40	--	--	--	--	----- 14-03-2003
332	5	0 - 26.50	0.90	--	--	--	--	----- 14-03-2003
332	8	0 - 26.50	0.90	--	--	--	--	----- 14-03-2003
		1 - 40.50	4.80					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/138/00922/100863 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-11-2022 அன்று 01:14:29 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode யடிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



[Handwritten signature]



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : ஜெகதேவிபாளையம்

பட்டா எண் : 2147

உரிமையாளர்கள் பெயர்

1. சக்கவர்த்தி

மகன்

சிவானந்தன்

புல எண்	உட்பிரிவு	பன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டே - ஏர்	ரூ - பை	ஹெக்டே - ஏர்	ரூ - பை	ஹெக்டே - ஏர்	ரூ - பை	
132	2	0 - 20.00	0.70			--	--	2022/0103 /31/239629--- -- 29-09-2022
332	3	0 - 17.00	0.50	--	--	--	--	2022/0103 /31/239629--- -- 29-09-2022
		0 - 37.00	1.20					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நூல்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/138/02147/30834 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-11-2022 அன்று 01:12:49 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. நைப்பேசி கேமராவின் 2D barcode பயன்பாடு மூலம் படித்து 3G/GPKS வழி இணையதளத்தில் சரிபார்க்கவும்.



(Signature)



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : ஜெகதேவிபாளையம்

பட்டா எண் : 1824

உரிமையாளர்கள் பெயர்

1. சக்கரவர்த்தி

மகன்

கிருபாகந்தன்

பல. எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
332	5	1 - 19.00	4.05			--	--	2020/0103 /31/145456-- -- 19-09-2020
		1 - 19.00	4.05					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/138/01824/20805 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-11-2022 அன்று 01:13:44 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode பயன்பாடு மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



09/11/2022

1432 - ஆம் பசலியில்

6-கிம

மாவட்டம்

பரீட்சை

கிராமக் கணக்கு

வட்டம் 17 ரிஷிபாளையம்

பூல வரித் திட்டத்தின்படி புலங்களின் விபரம்					மாதிரி பாளையம் பெயர்	முதல் போகம்					
நில ஆளவை எண்.	சுட்டியில் எண்.	பரப்ப.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.		நிலத்தில் எந்த மதத்தினரது மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி	எந்த மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி	மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி	மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி	மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி	மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி மரபுவழி
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					922						
332	1	0.1700	0.60		கோவந்திபாளையம்						
					(2)						
332	4	0.2050	2.40								
332	6	0.2650	0.40								
					2143						
332	2	0.2000	0.70		கோவந்திபாளையம்						
332	3	0.1700	0.50		-do-						
					1824						
332	5	1.1900	4.05		கிராமத்திபாளையம்						
10th copy											
J. Ramaswami											
Village Administrative Officer											
17, JAGADEVI PALAYAM											
Bargur - Tk. Krishnagiri - Dt											

380/12-R.F. III-A-10-20,00,000 Cps.-GBP.-MDU.-7-2019.

26/12/2023 அனீ + 505

ANNEXURE - II 285-



தமிழ்நாடு தமிழ்நாடு TAMILNADU ₹ 500/-

28-06-2023

Sri Vinayaga Granites
Tagadevi

AR 921376

G. பாலமுருகன்

உரிமம் எண்: 7/2021/KGI
பாடல் Po & Tk, Pin-635 104
கிருஷ்ணகிரி ரி, தமிழ்நாடு.

குத்தகை ஆவணம்

28.6.2023 இரண்டாயிரத்தி இருபத்தி மூன்றாம் வருடம் ஜூன் மாதம் இருபத்தி எட்டாம் தேதியில்...

கிருஷ்ணகிரி மாவட்டம், பர்சவர் வட்டம், கொண்டப்பநாயனப்பள்ளி அஞ்சல், பாகிமானூர் கிராமத்தில் குடியிருந்துவரும் காலம்சிசன்ற ராமசாமி அவர்களின் குமாரர் கேசவன் [Aadhaar No.7310 8907 0652 & Cell No.9787376212]-1, மேற்படி 1நபரின் குமாரர்கள் திருவேங்கடன் [Aadhaar No.2621 6125 4552 & Cell No.9655545438]-2, முல்லைவேந்தன் [Aadhaar No.8639 8555 5487 & Cell No.9585781517]-3, மேற்படி பாகிமானூர் கிராமத்தில் குடியிருந்துவரும் காலேவரி அவர்களின் குமாரர் சிற்றரசு [Aadhaar No.2228 0584 3393 & Cell No.9677453004]-4, மற்றும்...

கிருஷ்ணகிரி மாவட்டம், பர்சவர் வட்டம், ரெகதேவீபாளையம் தரப்பு, ரெகதேவீ அஞ்சல் மற்றும் கிராமத்தில் ஸ்தாபிக்கப்பட்டிருக்கும் SRI VINAYAGA GRANITES [PAN.AEUF54252A] [Reg No.218/2022] நிறுவனத்தின் மேனேஜிங் பார்ட்னரும் [Managing partner] மேற்படி கிராமத்தில் குடியிருந்துவரும் ரெயராமன் அவர்களின் குமாரருமான J.மணிவாசகம் [Aadhaar No.3879 3324 5181 & Cell No.9025025555]-5 ஆகிய நாம் யாவரும் சேர்ந்து ஏகோபித்து எழுதி வைத்துக் கொண்ட குத்தகை ஆவணம் யாரிடத்தில்...

P.ice

K.111

சு. ஜெ.மணி

சு. சி.சி.மணி

புத்தகம் 2023-ம் வருடத்திய
26/12/2023 ஆவணம்...11...
தரக்களை கொண்டது...1...ம் தான்
சார் பதிவாளர்,
பஞ்சவர்.

For SRI VINAYAGA GRANITES
Managing Partner.

- : 2 : -

இதனடியில் சொத்து விவரத்தில் குறிப்பிடப்பட்டுள்ள சொத்தானது நம்மில் எழுதி கொடுப்பவர்களில் 1நபரின் பெயரில் பச்சவர் சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2267/2023ம் எண்ணாக பதிவான பாகப்பிரிவினை ஆவணத்தில் A-ஷெட்யூல் பாகப்படையும், மேற்படி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2190/2023ஆம் எண்ணாக பதிவான கிரய ஆவணப்படி சுயார்ஜிதமாயும், 2,3நபர்களுக்கு வாரிசரிமைப்படையும், 4நபரின் பெயரில் மேற்படி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2316/2023ம் எண்ணாக பதிவான தானசிசட்டில்மெண்ட் ஆவணப்படையும், மேற்படி சார்பதிவாளர் அலுவலகத்தில் 1 புத்தகம் 2317/2023ஆம் எண்ணாக பதிவான பாகப்பிரிவினை ஆவணத்தில் B-ஷெட்யூல் பாகப்படையும் பாத்தியப்பட்ட சொத்தில் வாத்தக செயல்பாடுகள் மற்றும் கிராண்டெஸ் தொழில் செய்யும் பொருட்டு எழுதி கொடுப்பவர்களாகிய 1to4நபர்களை மேற்படி SRI VINAYAGA GRANITES நிறுவனத்திற்காக அதன் பங்குதாரரான 5நபர் குத்தகைக்கு வேண்டுமாய் கேட்டுக் கொண்டதற்கிணங்க எழுதி கொடுப்பவர்களாகிய 1to4நபர்களும் ஒப்புக் கொண்டு கீழ்க்கண்ட சாட்சிகள் முன்னிலையில் வருடம் 1க்கு ரூ.20,000/- வீதம் 27 வருடங்களுக்கு (அதாவது 28.6.2023 முதல் 27.6.2050 வரை) குத்தகைக்கு கொடுப்பதாக நிர்ணயம் செய்து நாளது தேதியில் கீழ்க்கண்ட சான்றினர் முன்பாக மேற்படி நிறுவனத்தின் பங்குதாரராகிய 5நபர்பரிருந்து எழுதி கொடுப்பவர்களாகிய 1to4நபர்கள் 27 வருடங்களுக்கு உண்டான மொத்த குத்தகை தொகை ரூ.5,40,000/- ரூபாய் ஐந்து இலட்சத்தி நூற்பதாயிரம் பூராவும் ரொக்கமாக பெற்றுக் கொண்டுள்ளார்கள். இனி மேற்படி நிறுவனத்தின் பங்குதாரராகிய 5நபர் இதனடியில் கண்ட சொத்து விவரத்தில் குறிப்பிட்டுள்ள சொத்தை கெடு காலமான 27 வருடங்கள் முடிந்தவுடன் மேற்படி சொத்தினை எழுதிக் கொடுப்பவர்களாகிய 1to4நபர்களிடம் திரும்ப சுவாதினம் ஒப்படைத்து செய்துவிட வேண்டும். குத்தகை சொத்துக்குண்டான சர்கார் தீர்வை வரி வகையராக்களை சொத்தின் உரிமையாளர்களாகிய 1to4நபர்களே செலுத்தி வரவேண்டியது. மேற்படி சொத்தை 5நபர் குத்தகை அனுபவிக்கும் சமயம் அவர்களுக்கு ஏதாவது வில்லங்கமோ இடையூறோ ஏற்பட்டால் அதனை 1to4லக்கமிட்டவர்களே முன்னின்று தங்களின் சொந்த செலவிலும் பொறுப்பிலும் தீர்த்து வைத்துக் கொடுக்க கடமைப்பட்டவர்கள். மேலும் மேற்படி கெடு முடிந்தவுடன் மேற்படி குத்தகை ஆவணம் ரத்தாகிவிடும். இந்தபடிக்கு நாம் யாவரும் சேர்ந்து நம் முழுமனச்சம்மதியில் ஏகோபித்து எழுதி வைத்துக்கொண்ட குத்தகை ஆவணம் சரி.

P. I. C.

K. I. C.

K. I. C.

புத்தகம் 2023-ம் வருடத்தின்	For SRI VINAYAGA GRANITES
2612	என ஆவணம்.....11
தாட்களை கொண்டது..2	ம் தான்
சார்பதிவாளர். பஞ்சவர்.	

Managing Partner.



. 3 .

சொத்து வீவரம்

கிருஷ்ணகிரி மாவட்டம், கிருஷ்ணகிரி பதிவு மாவட்டம், பர்சவர் சார்பதிவக அலுவலகத்திற்குட்பட்ட ஜெகதேவிபாளையம் கிராம புல எண்.331/1A பு.எச்.ஏ.1.22.0 தீர்வை.4.10 இதற்கு பு.ஏ.3.01¼ (மூன்று ஏக்கர் ஒன்றேகால் சென்ட்) அளவுள்ள நிலம் பூராவிற்கும் எல்லைகள் வீவரம்:

கிழக்கில் : காவேரி, கேசவன் நிலங்கள்

மேற்கில் : சக்கரவர்த்தி, கிருபானந்தன் நிலங்கள்

வடக்கில் : சக்தி, கோவிந்தசாமி, பொன்னுசாமி, முருகன் நிலங்கள்

தெற்கில் : சக்கரவர்த்தி, கிருபானந்தன் நிலங்கள்

இதன் மத்தியில் மேற்படி பு.ஏ.3.01¼ (மூன்று ஏக்கர் ஒன்றேகால் சென்ட்) அளவுள்ள நிலத்தில் பொதுவில் பு.ஏ.0.12½ சென்ட் நிலம் போக பொதுவில் பு.ஏ.2.89¼ சென்ட் அளவுள்ள நிலம் பூராவும் மேற்படி வீதம் இந்த குத்தகை ஆவணத்திற்குட்பட்டது.

மேலும் குத்தகை காலத்தில் மேற்படி சொத்திற்கு போக வர மாமூல் வழி பாத்தியங்கள் உட்பட.

R.ice

k.ice

சு.பெரியசாமி

சு.பெரியசாமி

For SRI VIJAYAGA GRANITES

Managing Partner.

சாட்சிகள்

1) M.3662
[M.ரமேஷ்]

த/பெ. முனிசாமி, ராசன்கொட்டாய் கிராமம் அஞ்சல் அஞ்சல், பர்சவர் வட்டம், கிருஷ்ணகிரி மாவட்டம்.

[Aadhaar No.2198 9624 3202 & Cell No.9092722822]

2) [Rajasekaran]
[ரஜசேகரன்]

த/பெ.ராஜேந்திரன், பாக்மானூர் கிராமம், கொண்டப்பநாயனப்பள்ளி அஞ்சல், பர்சவர் வட்டம், கிருஷ்ணகிரி மாவட்டம்.

[Aadhaar No.4428 2947 1519 & Cell No.9751975885]

வரைவு தயாரித்து கணினியில் செய்தவர்



S. Saraswathi

S.SARASWATHI PRABHAKARAN, Document Writer,

L.No. A/322/KGI/99 KRISHNAGIRI

Shop No.5, Opp: Sub Register Office,

Jagadevi Road, Bargur.

Cell No.9443721154

...../.....புத்தகம் 2023-ம் வருடத்திய
26.12.2023 ஆவணம்...../.....
தாட்சினை எழுதினது.....ம் தாள்
சரி பதிவுசரி,
பருவம்



சு.பெரியசாமி

உறுதிமொழி

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று
/உறுதிமொழி (Declaration) (நிதிபேரணை எண்.22163/2018ல் வழங்கப்பட்ட
தீர்ப்புரையையகாண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நாயிப்பு
பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு
தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால்
அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம்
என்பதை அறிவேன்/அறிவோம்.

P. K. M.

P. K. M.

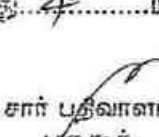
ச. சிவசுந்தரன்

ச. சிவசுந்தரன்

For SRI VINAYAGA GRANITES

ச. சிவசுந்தரன்

Managing Partner.

புத்தகம் 2023-ம் வருடத்திய
2612-ஆவணம் 11
தாட்களை கொண்டு 4-ம் தாள்
 சார் பதிவாளர், பஞ்சவர்.



Original

R/பர்சூர்/புத்தகம்-1/2612/2023

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 1834

ஜெகதேவி கிராமம் மற்றும் அஞ்சல், பர்சூர், கிருஷ்ணகிரி, தமிழ்நாடு, இந்தியா 635203-ல் வசிக்கும் திரு. கண்ணிவாசகம் என்பவரிடமிருந்து ₹ 4,900/- (ரூபாய் நான்காயிரத்து தொள்ளாயிரம் மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : பர்சூர்

நாள்: 28/06/2023

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு 41ன் படி ஆட்சியர்

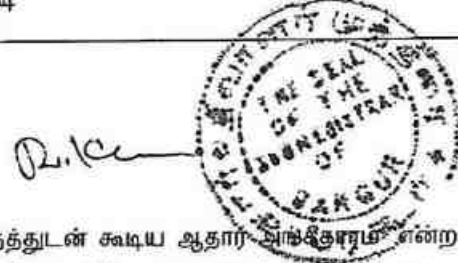
2023 ஆம் ஆண்டு ஜூன் மாதம் 28ம் தேதி பி.ப. 02:00 மணியளவில் பர்சூர் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 5,630/- செலுத்தியவர்.

இடது பெருவிரல்



புத்தகம் 2023-ம் வருடத்திய
2612-ஆம் ஆவணம்.....
தாக்கலாகக் கொண்டது.....ம் தாள்
சார்பதிவாளர்,
பர்சூர்.

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் :
UKC:256266ae0cf05391fc4b808a76fc4311b58826
(Details from UIDAI : Kesavan Ramasami S/O: Ramasami, 08-02-1951, xxxxxxxx0652)

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் :
UKC:1190393d164a0a6ae944659d38e6a42bca647
(Details from UIDAI : Thiruvendkan Kesavan S/O:



Original

R/பர்சுர்/புத்தகம்-1/2612/2023

	Kesavan, 29-01-1983, xxxxxxxx4552)	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	<i>சு. மு. வெங்கட்</i> "சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:9756739c94479cbe7840158a0b51b0e2b5de53 (Details from UIDAI : Mullaivendan Kesavan S/O: Kesavan, 23-08-1984, xxxxxxxx5487) 	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	<i>சு. அ. சி. ராஜா</i> "சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:616498b265835b9ab44b748641f23d8ec2d996 (Details from UIDAI : Chitrarasi Kaveri S/O: Kaveri, 27-06-1979, xxxxxxxx3393)	
எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்  	<i>சு. மு. வெங்கட்</i> "சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:59854225140a81fc994439b418e8ce740240c0 (Details from UIDAI : J Manivasagam C/O Jayaraman, 15-06-1978, xxxxxxxx5181)	

2023 ஆம் ஆண்டு ஜூன் மாதம் 28ம் நாள்

புத்தகம் 2023-ம் வருடத்திய
2612-ம் ஆவணம்.....
தாட்களை கொண்டது 6-ம் தாள்

சு. மு. வெங்கட்
பர்சுர்.



Original

R/பர்கூர்/புத்தகம்-1/2612/2023

இந்த அசல் ஆவணத்துடன் 1 பிரதி பதிவு செய்யப்பட்டுள்ளன.

சார்பதிவாளர் : பர்கூர்

R/பர்கூர்/புத்தகம்-1/2612/2023 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 28/06/2023

பர்கூர்

சிவசங்கரன் ஞா
சார்பதிவாளர்

புத்தகம் 2023-ம் வருடத்திய
2612 ஆவணம்: 11
தாடகளை கொண்டது: 7 ம் தாள்
சார் பதிவாளர், பர்கூர்.



2621 6125 4552
VID : 9158 3285 5731 3504
எனது ஆதார். எனது அடையாளம்

இந்திய அரசாங்கம்
Government of India

திருவெங்கடேசுவரன்
Thiruvengaden Kesavan
பிறந்த நாள்/DOB: 29/01/1983
ஆண் / MALE

2621 6125 4552
VID : 9158 3285 5731 3504
எனது ஆதார். எனது அடையாளம்

Unique Identification Authority of India

முகவரி:
S/O: கெசவன், கான் 26, ஜேகடேவி,
பாகிமானூர், கிருஷ்ணகிரி,
கொண்டப்பநாயனாபள்ளி, கிருஷ்ணகிரி,
தமிழ் நாடு - 635104

Address:
S/O: Kesavan, NO 26, JEGADEVI, PAKIMANUR,
krishnagiri, Kondappanayanapalli, Krishnagiri,
Tamil Nadu - 635104

2621 6125 4552
VID : 9158 3285 5731 3504

1947 | help@uidai.gov.in | www.uidai.gov.in

இந்திய அரசாங்கம்
Government of India

கேசவன் ராமசாமி
Kesavan Ramasami
தந்தை ராமசாமி
Father : RAMASAMI

பிறந்த நாள்/Year of Birth: 1951
ஆண் / Male

7310 8907 0652

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

முகவரி: 26 ஜேகடேவி, கான் 26
ஜேகடேவி, பாகிமானூர், கிருஷ்ணகிரி
கொண்டப்பநாயனாபள்ளி
கொண்டப்பநாயனாபள்ளி, கிருஷ்ணகிரி
தமிழ் நாடு - 635104

Address: S/O: Ramasami, no
26, JEGADEVI, PAKIMANUR,
krishnagiri,
Kondappanayanapalli,
Krishnagiri,
Kondappanayanapalli, Tamil
Nadu, 635104

7310 8907 0652

1947 | help@uidai.gov.in | www.uidai.gov.in

R. Kesavan
R. Kesavan
செ. வெங்கடேசுவரன்
கி. சிவசாமி

For SRI VINAYAGA GRAM
Managing Partner.

புத்தகம் 2023-ம் வருடத்திய
2612 எண் சுவணம் 11
தாடகளை கொண்டது 8 ம் தாள்
சார்/மதிவாளர்.
புருசர்.



இந்திய அரசாங்கம்
Government of India
 முன்னோக்கம் கேசவன்
Mullalveedan Keesavan
 தந்தை கேசவன்
Father : Keesavan
 பிறப்பு ஆண்டு/Year of Birth: 1956
 ஆண் / Male
8639 8555 5487

சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India
 முகவரி: S/O: Keesavan, DNO 28, BAGIMANOOR, KONDAPPANAYANAPALI, KRISHNAGIRI, Kondappanayanapali, Krishnagiri, Kondappanayanapali, Ta Nadu, 635104
8639 8555 5487

இந்திய அரசாங்கம்
Government of India
 சிற்றரசு காவேரி
Chirarasu Kaveri
 பிறந்த நாள்/DOB: 27/02/1973
 ஆண்/ MALE
2228 0584 3393
VID : 6156 4407 3179 2614

எனது உரிமை. எனது அபிமானம்

Unique Identification Authority of India
 முகவரி: S/O: காவேரி, காவேரி 27, ஜெகதேவி, பாகிமனூர், கிருஷ்ணகிரி, கண்டப்பநாயனாபலி, கிருஷ்ணகிரி, தாமிர நாடு - 635104
2228 0584 3393
VID : 6156 4407 3179 2614

P.I.C.
 க. இய்யாநா.

For SRI VINAYAGA GRANITES
 Managing Partner.

புத்தகம் 2023-ம் வருடத்திய
 26.12.2023 ஆவணம் 11
 தாக்கனை கொண்டு 9 ம் தாள்
 சார் பதிவாளர்,
 பருகூர்.




 Government of India
 Unique Identification Authority of India
 Download Date: 21/12/2012
 J Manivasagam
 பிறந்த நாள்/DOB: 15/06/1978
 ஆண் / MALE
 3879 3324 5181
 VID : 9148 6614 0503 5419
 எனது ஆதாரம் எனது அடையாளம்


 Unique Identification Authority of India
 Download Date: 21/12/2012
 C/O ஜெயராமன், க என் 1/504-ஏ, மாருதி நகர், ஜகதேவி கிராமம், ஜகதேவி அஞ்சல், பர்குர் தாலுகா, ஜகதேவிபாளையம், கிருஷ்ணகிரி, தமிழ்நாடு - 635203
 Address:
 C/O Jayaraman, D NO 1/504-E, Maruthi Nagar, Jagadevi Village, Jagadevi Post, Bargur Taluka, Jagadevipalayam, Krishnagiri, Tamil Nadu - 635203
 3879 3324 5181
 VID : 9148 6614 0503 5419
 1047 | help@uidai.gov.in | www.uidai.gov.in

P. I. C.
 Q. 12
 ஜெயராமன்
 க சிர்யா க.

For SRI VINAYAGA GRANITE


 Managing Partner.



புத்தகம் 2023-ம் வருடத்திய
 2612 க. வணம்
 தாக்கவர க. வணம் 10-ம் தான்
 சார் பதிவாளர்,
 பர்குர்.





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இந்திய அரசாங்கம்
Government of India

ரமேஷ் முனுசாமி
Ramesh Munusamy
தந்தை : முனுசாமி
Father : Munusamy
பிறந்ததிகதி / Year of Birth : 1935
ஆண்பால் / Male

2198 9624 3202

- சாதாரண மனிதனின் அதிகாரம்

m. J. G. 6/4

உத்தரவு எண்: 1/2702/2013
அண்மை: 1/2702/2013
தமிழ்நாடு அரசு
Tamil Nadu Government

Unique Identification Authority of India

முகவரி:
S/O: முனுசாமி, 1/2702/2013
ராசாகோட்டை அஞ்சல்
அஞ்சல், கிருஷ்ணகிரி, அஞ்சல்
தமிழ்நாடு - 635202

Address:
S/O: Munusamy, 1/2702/2013
RASAGKOTTAI, ANJUR POST,
Krishnagiri, Anchoor, Tamil Nadu,
635202

2198 9624 3202

1947 1800 300 1947

help@uidai.gov.in

www.uidai.gov.in



இந்திய அரசாங்கம்
Government of India

ஜெயசீலன் இராஜேந்திரன்
Jayaseelan Rajendran
பிறந்த நாள்/DOB: 10/05/1969
ஆண்/ MALE

4428 2947 1519
VID : 9178 7331 2716 0008

எனது அடையாளம். எனது அடையாளம்

Handwritten signature

Entities seeking Aadhaar are obligated to seek due consent.

இந்திய அரசாங்கம்
Government of India

Unique Identification Authority of India

முகவரி:
S/O: ஜெயசீலன், 2/20 2, ஜெயசீலன்,
பாண்டிச்சேரி, கண்டப்பநாயகப்பள்ளி,
கிருஷ்ணகிரி,
தமிழ்நாடு - 635104

Address:
S/O: Rajendran, D NO 2/20 2, JAGADEVI,
RAGIMANCOOR, Kondappanayanapalli,
Krishnagiri,
Tamil Nadu - 635104

4428 2947 1519
VID : 9178 7331 2716 0008

1947 | help@uidai.gov.in | www.uidai.gov.in

தஞ்சை 2023-ம் வருடத்திய
26/2-ம் தாக்கவை
தாக்கவை 1/ம் தாள்

சார் பதிவாளர்,
பஞ்சவர்ணம்.



Handwritten signature



தமிழ்நாடு தமிழ்நாடு TAMILNADU

Rs 100/-

CU 075157

12-07-2022

Sri Vinayaga Granites
Tadolevi

G. PRESH KUMAR
S.V.L.C. 3382/97/B1
KRISHNAGIRI, TAMIL NADU.

SRI VINAYAGA GRANITES

'சுட்டு வியாபார ஒப்பந்த பத்திரம்'

2022ஆம் ஆண்டு சூலை மாதம் 13-ம் தேதியில் கிருஷ்ணகிரி மாவட்டம், பருகூர் வட்டம், ஜெகதேவி அஞ்சல் & கிராமம், மாருதி நகர், கதவு எண்.1/504-E முகவரியில் வசிக்கும் ஜெயராமன் அவர்களின் குமாரர் சுமார் 44 வயதுள்ள J.மணிவாசகம் ஆதார் எண்.3879 3324 5181 : PAN No.APBPM0997G & செல் நெம்பர் 9025025555-1,

கிருஷ்ணகிரி மாவட்டம், பருகூர் வட்டம், ஜெகதேவி அஞ்சல், பாகிமானூர் கிராமம், கதவு எண்.35 முகவரியில் வசிக்கும் பொன்னுசாமி அவர்களின் குமாரர் சுமார் 58 வயதுள்ள P.சக்கரவர்த்தி ஆதார் எண்.9752 7428 1430, PAN No.AJDPC4294L & செல் நெம்பர் 9786314179-2 ஆகிய நாம் இருவரும் சேர்ந்து எழுதிக் கொண்ட சுட்டு வியாபார ஒப்பந்த பத்திரம் என்னவென்றால்:-

1-வது லக்கமிட்டவர்

[Signature]

2-வது லக்கமிட்டவர்

[Signature]

[Signature]



தமிழ்நாடு தமிழ்நாடு TAMILNADU

Rs 100/-

DU 075158

12-07-2022

Sri Vinayaga Granites
Tamil Nadu

G. PREM KUMAR
S.V.L.C. 3382/97/B1
KRISHNAGIRI, TAMIL NADU.

- 2 -

கிருஷ்ணகிரி மாவட்டம், பருகர் வட்டம், ஜெகதேவி அஞ்சல் & கிராமம், மாருதி நகர், கதவு எண்.1/504-E என்ற முகவரியில் வாடகை கட்டிடத்தில் 13.07.2022 தேதி முதல் "SRI VINAYAGA GRANITES" என்கிற பெயரில் நடத்தி வரவேண்டியது.

நாம் ஏற்கனவே சம்மதித்துள்ள கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு நம் கூட்டு கம்பெனியை நடத்தி வர வேண்டியது.

1. கூட்டு நிறுவனத்தின் பெயர்:-

நம் கூட்டு கம்பெனியின் பெயர் "SRI VINAYAGA GRANITES" என்று இருக்க வேண்டியது.

1-வது லக்கமிட்டவர்

[Signature]

2-வது லக்கமிட்டவர்

[Signature]

[Signature]



தமிழ்நாடு தமிழ்நாடு TAMILNADU

100/-

CU 075159

12-07-2012

Sri. Vinayaga Perumites
Dadodevi

G. Prem Kumar
S.V.L.C. 2382/97/B1
KRISHNAPUR, TAMILNADU.

- 3 -

2. கூட்டு நிறுவனத்தின் முகவரி:-

கிருஷ்ணகிரி மாவட்டம், பருசூர் வட்டம், ஜெகதேவி அஞ்சல் & கிராமம், மாருதி நகர், சதலு எண்.1/504-E என்ற முகவரியில் நடத்தி வர வேண்டியது. மற்றபடி பங்குதாரர்கள் சம்மதிக்கும் போது மற்ற இடங்களில் கிளை தொழிலாகவும் நடத்தி வர வேண்டியது.

1-வது லக்கமிட்டவர்

[Signature]

2-வது லக்கமிட்டவர்

P. Chennayya

[Signature]

- 4 -

3. முதலீடு :-

அ) நம் கூட்டு கம்பெனியின் முதலீட்டிற்காக நம்மில் 1லக்கமிட்டவரும் மேலாண்மை இயக்குனருமான J.மணிவாசகம் என்பவர் மட்டும் ரூ.200,000/- ரூபாய் இரண்டு இலட்சம் மட்டும் முதலீடு செய்கிறார். 2லக்கமிட்ட P.சக்கரவர்த்தி என்பவர் முதலீடு செய்யாமல் வேலை மட்டும்செய்யும் பங்குதாரராக செயல்படுவார்.

ஆ) நம் கூட்டு கம்பெனியின் மேலாண்மை பங்குதாரரான 1லக்கமிட்ட **J.மணிவாசகம்** என்பவர் கீழ்க்கண்ட பொறுப்புகளை ஏற்று கம்பெனியை நடத்தி வர வேண்டியது.

4) கணக்கு வழக்குகள்:-

அ. நம் கூட்டு கம்பெனியில் ஆன்றாட கணக்குகளை 1-ம் நபர் J.மணிவாசகம் மட்டுமே கவனித்து வர வேண்டியது.

ஆ. கணக்குப்படி இருக்கும் ரொக்கத்திற்கு J.மணிவாசகமே முழு பொறுப்புடையவராவார்.

இ. நம் கூட்டு கம்பெனிக்கு சம்மந்தப்பட்ட எல்லா தஸ்தாவேஜிகளிலும் மற்ற விவகாரங்களிலும் கையொழுத்துப் போட்டு கம்பெனியை நடத்தி வர வேண்டியது.

ஈ. அரசு சம்மந்தப்பட்ட ஒப்பந்தங்கள், வேலைகள் மற்றும் அனைத் பொறுப்புகளுக்கும் 1நபரான J.மணிவாசகமே முழு பொறுப்பாவார்.

உ. நம் கூட்டு கம்பெனியின் பெயரில் வங்கியில் கணக்குகள் ஏற்படுத்தி செக்குகளில் 1இலக்கமிட்டவர் **J.மணிவாசகம்** என்பவர் கையொப்பம் செய்து தொகை எடுக்கவும், செலுத்தவும் உரிமையுண்டு.

5) கடன் பெறுதல்:-

நம் கூட்டு கம்பெனிக்கு மேலும் பணம் தேவைப்பட்டால் பங்குதாரர்கள் இருவரும் மீண்டும் முதலீடு செய்ய வேண்டும். தேவைப்பட்டால் வெளியாரிடம் புரோ நோட்டு மூலம் கையொப்பம் செய்து கடன் தொகை பெற்று மேற்கண்ட தொழில் தவிர வேறு தொழில் வேண்டுமானாலும் கவந்து ஆலோசித்து செய்ய ஒப்பி உள்ளோம். கூட்டு கம்பெனி பெயரில் தனி நபர்கட்கு வாங்கக் கூடாது.

1-வது லக்கமிட்டவர்



2-வது லக்கமிட்டவர்




- 5 -

6) ஊதியம் நிர்ணயித்தல் :-

நம் கூட்டு கம்பெனியின் கூட்டாளிகளுக்கு அவரவர் வேலை பளுவுக்கு ஏற்றார் போல் சம்பளம் நிர்ணயித்து வழங்க வேண்டியது. 1-ம் நபர் J.மணிவாசகம் மேற்படி நம் கூட்டு நிறுவனத்திற்கு பணிபுரிய வேலை ஆட்களை எவ்வளவு அவர்களுக்கு மாத சம்பளம் கொடுத்து வரவேண்டியது.

7) உறுப்பினர் இறத்தல்:-

நம் கூட்டுக் கம்பெனியின் கூட்டாளிகள் யாராவது தெய்வாதீனம் இறக்க நேரிட்டால் அவருடைய வாரிசுகாரரை பங்குதாரராக சேர்த்துக் கம்பெனியினை தொடர்ந்து நடத்தி வர வேண்டியது. கம்பெனி கலைக்கப்பட்டதாக கருதக் கூடாது.

8) பங்குதாரர்கள் விலகல்:-

அ) நம் கூட்டுக் கம்பெனியில் இருந்து விலக விரும்பும் பங்குதாரர்கள் தன் விருப்பத்தை 90 நாட்களுக்கு முன்பாக பதிவுத் தபால் மூலம் மற்ற பங்குதாரர்களுக்கு தன் விருப்பத்தை தெரியப்படுத்தி கணக்குப்படி இருக்கும் இலாப நஷ்டத் தொகையை அடைய வேண்டியது.

ஆ) மற்ற எல்லா அம்சங்களையும் நாம் இருவரும் சேர்ந்து கவனித்து வர வேண்டியது.

9) புதிய பங்குதாரர்களை சேர்த்தல்:-

நம் கூட்டு கம்பெனியின் வளர்ச்சியை கருத்தில் கொண்டு புதிய பங்குதாரர்களை நம் இருவரின் விருப்பப்படி சேர்த்துக் கொள்ள வேண்டியது.

10) இலாப நஷ்ட பங்கு:-

நம் கூட்டுக் கம்பெனியின் கணக்குகளை பிரதி வருடம் மார்ச் 31-ம் தேதி முடிய எல்லா அழிவு செலவுகளும் போக தேறும் இலாப நட்டத்தை 1வது பங்குதாரர் 75%மும், 2வது பங்குதாரர் 25% வீதமும் அடைய வேண்டியது.

1-வது லக்கமிட்டவர்



2-வது லக்கமிட்டவர்




- 6 -

11) இந்திய கூட்டு நிறுவன சட்டம்:-

மற்ற எல்லா இதர விஷயங்களிலும் நாம் இந்தியன் பார்ட்னர் ஷிப் ஆக்ட் 1932-ம் வருடப்படி நடக்க சம்மதித்து இப்பத்திரத்தில் கையொப்பம் இடுகிறோம்.

1-வது லக்கமிட்டவர்



2-வது லக்கமிட்டவர்


சாட்சிகள்:-

① சி. க. சி. சி. சி.

P. Leemans S/o. R. Penny Samy
Begimmanur (Village)
காள் : 6728 1948 9477

② M. 16627 S/o குகன் வாசுதேவன் சூரன்

காள் : 2198 9624 3202






FORM C

[See rule 9(a)]

Acknowledgement of Registration of Firms

The Registrar of Firms, TamilNadu, hereby acknowledges the receipt of the statement prescribed by Section 58(1) of the Indian Partnership Act, 1932. The statement has been filed and the name of the firm SRI VINAYAGA GRANITES has been entered in the Register of Firms as No FR/Krishnagiri/218/2022.



Date : 10-Aug-2022

Station : Krishnagiri

Digitally Signed by Thiru/ Tmt/ Selvi

SIVALINGAM P

Registrar of Firms



[Handwritten signature]
10/8/22



[Handwritten signature]

FORM No-I

(See Rule)

The Indian Partnership Act, 1932.

Application for Registration of Firms by the name

Filing Fee Rs.

"SRI VINAYAGA GRANITES"Presented or forwarded to the Registrar for filing by
Thiru J.MANIVASAGAM, Managing Partner

We, the undersigned, being the partners of the firm "SRI VINAYAGA GRANITES" hereby apply for registration of the said firm and for that purpose apply the following particulars, pursuant to section 58 of the Indian Partnership Act, 1932.



The Firm's name : "SRI VINAYAGA GRANITES"

Place of business : D.No:1/504-E, Maruthi Nagar, Jagadevi Post, Bargur Taluk, Krishnagiri District.

a) Principal place : D.No:1/504-E, Maruthi Nagar, Jagadevi Post, Bargur Taluk, Krishnagiri District.

b) Other Places: -

S.No	Name of Partners in full	Date of Joining the firm	Permanent address in full
1.	Jayaraman MANIVASAGAM	13.07.2022	1/504E, Maruthi Nagar, Jagadevi Village & Post, Bargur Taluk, Krishnagiri District.
2.	Ponnusamy CHAKKARAVARTHI	13.07.2022	35, Bagimanur Village, Bargur Taluk, Krishnagiri District.

Place : Krishnagiri.

Signature of the Partners

Date :

- 2 -



I, MANIVASAGAM Son of Jayaraman aged about 44 YEARS, of Indian Hindu Religion hereby declare that the above statement is true and correct to the best of my knowledge and belief.

Date:

Signature

①
[Signature]



A. [Signature]
R. KUMARASAMY, B.A., LL.B.,
ADVOCATE & NOTARY
KRISHNAGIRI-635 001.

I, CHAKKARAVARTHI Son of Ponnusamy aged about 58 YEARS, of Indian Hindu Religion hereby declare that the above statement is true and correct to the best of my knowledge and belief.

Date:

Signature

②
P-Chakravarthy

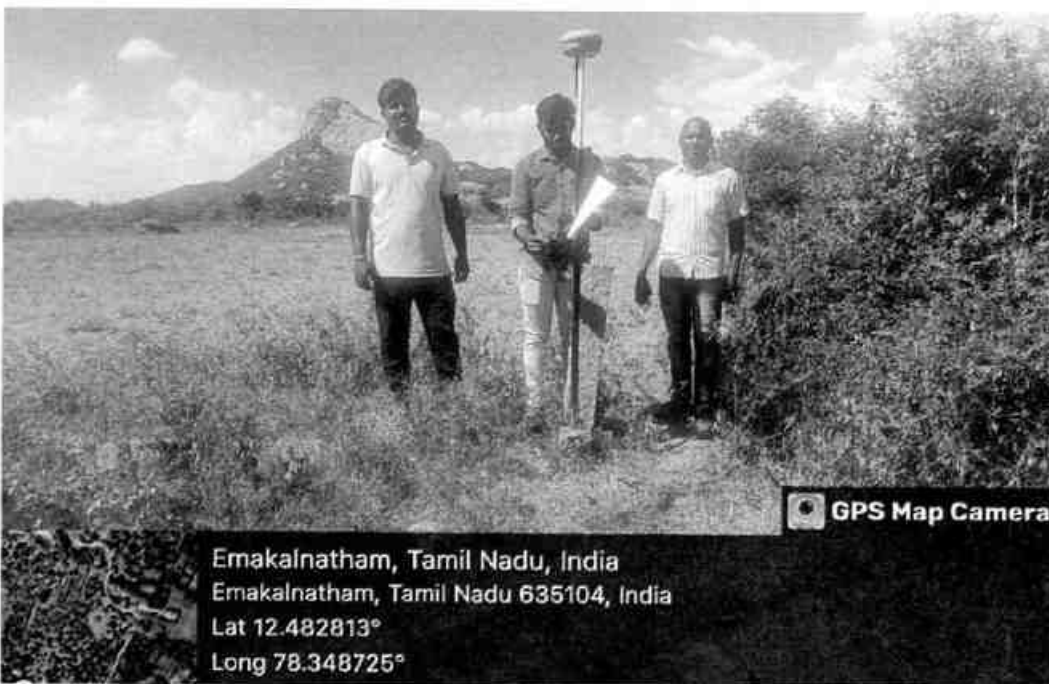
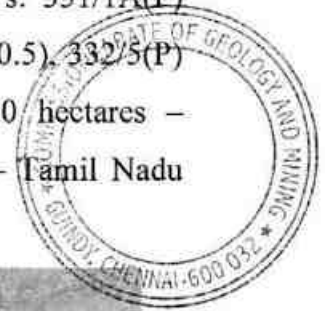


A. [Signature]
R. KUMARASAMY, B.A., LL.B.,
ADVOCATE & NOTARY
KRISHNAGIRI-635 001.

[Signature]

PHOTOCOPY OF THE APPLIED LEASE AREA

Field photos in respect of Gray granite quarry lease in S.F.No's: 331/1A(P)
(1.00.0), 332/1 (0.17.0), 332/2 (0.20.0), 332/3 (0.17.0), 332/4 (0.70.5), 332/5(P)
(0.87.0), 332/6 (0.26.5), Patta land - over an extent of 3.38.0 hectares -
Jagadevipalayam Village - Bargur taluk - Krishnagiri District - Tamil Nadu
State belongs to M/s. Sri Vinayaga Granites.



[Handwritten signature]

இந்திய அரசாங்கம்
Government of India

ஜெ மணிவாசகம்
J Manivasagam
பிறந்த நாள் / DOB : 15/06/1978
ஆண்பால் / Male

3879 3324 5181

எனது ஆதார், எனது அடையாளம்

21/12/2012

* COMMISSIONERATE OF GEOLOGY AND MINING
* CHENNAI-600 032 *

இந்திய தனித்துவ அடையாள ஆணையம்
Unique Identification Authority of India

முகவரி: C/O ஜெயராமன், க எண் 1/504-E,
மாருதி நகர், ஜெகதேவி கிராமம்,
ஜெகதேவி அஞ்சல், பர்கூர் தாலுக்கா,
ஜெகதேவிபாளையம், கிருஷ்ணகிரி, தமிழ்
நாடு, 635203

Address: C/O Jayaraman, D NO 1/504-E,
Maruthi Nagar, Jagadevi Village, Jagadevi
Post, Bargur Taluka, Jagadevipalayam,
Krishnagiri, Tamil Nadu, 635203

3879 3324 5181

☎ 1947 ✉ help@uidai.gov.in 🌐 www.uidai.gov.in

[Handwritten Signature]



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Reg. No. 03BBB1007
Col Code 013 / 106

62450



அறிவியல் புலம்
FACULTY OF SCIENCE



பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2005 ஆம் ஆண்டு ஏப்ரல் மாதம்
நடந்த பயன்பாட்டு புவியமைப்பியல் தேர்வில்
S கருப்பண்ணன் என்பவர்
தனிச்சிறப்புடன் முதல் வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க
தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர்
என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known
that **KARUPPANNAN S** *has been*
admitted to the **DEGREE OF MASTER OF SCIENCE in**
APPLIED GEOLOGY
he/she having been certified by duly appointed Examiners to be qualified
to receive the same and was placed in the **FIRST CLASS WITH DISTINCTION**
at the Examination held in **APR-2005**



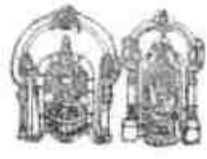
Given under the seal of this university

30/4/05

Periyar University

IAC No. 142 / TNGST. No. 2702141
CST. No. 704829 / SLM / Dt. 7-4-99

2400594



BALAJI MINES

Proprietor: E. SANTHARAMAN,
PURITY LIME STONE SUPPLIERS,
5/88, CHINNAGOLLAPATTI, KANNANKURICHI P.O.,
SALEM-636 008, Tamil Nadu.

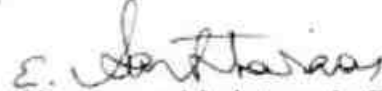
Mines : Devar Malai Village, Kulithalai Tk., KARUR Dt. (Via) Karur to Palayam.

Date | 5-10-2010

EXPERIENCE CERTIFICATE

I E.SANTHARAMAN being the Managing Director of BALAJI MINES hereby certify that Thiru. S.KARUPPANNAN, son of T.SUNDARAM (Whose signature is appended) worked as a Geologist in Balaji Mine, Devar malai village, kulithalai Taluk, Karur District, from 01.06.2005 to 10.10.2010. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved his continuous attendance at the mine, and have been efficiently performed by him.

I believe him to be of good character and a fit and proper person to be examined for Certificate of Competency.


(Signature with date and official Seal)

TIN No: 33852702141
CST No: 704829 / 7-4-99
BALAJI MINES
5/88, Chinnagollapatty,
Kannankurichi (P.O), SALEM-8.


(Signature of Candidate)







R.P. RAMAN
Cell 94876 33359

R.P. LAKSHMANAN
Cell 94432 84075
04348-244371

SRI RAMAJAYAM GRANITES

731, Krishnagin Main Road, Opp. E.B. Office, MATHUR - 635 203.
email : sramajayamgranites@gmail.com

Date 11/10/2011



EXPERIENCE CERTIFICATE

This is to certify that **Mr. Karuppannan Sundaram** has been worked as
"Senior Geologist" in our company from 11th October 2010 to 11th October 2011.
During this period, he has been involved in the Quality Control for Granite block
extraction from quarry. Involvement of his work is highly appreciated and have been
efficiently worked in our company. The duties connected with his work have been
continuous attendance at the quarry.

I wish him all the best in all his future endeavors.

For SRI RAMAJEYAM GRANITES

R.P. Lakshmanan
Proprietor

11/10/2011

*Attested /
18/10/2011*

**DEPUTY DIRECTOR
DEPARTMENT OF GEOLOGY AND MINING
DHARMAPURI**

[Signature]



PLATE No-I

APPLICANT:

M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:

S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P)& 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

- MINE LEASE AREA
- APPROACH ROAD
- CART & VILLAGE ROAD
- HABITATION

KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

[Signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



TOWARDS
KONDAPPANAYANAPALLI

1.61km



LEASE AREA

1.92km



TOWARDS
SAPPAMUTTLU

[Signature]

12° 29' 5.11330" N



78° 20' 51.00141" E

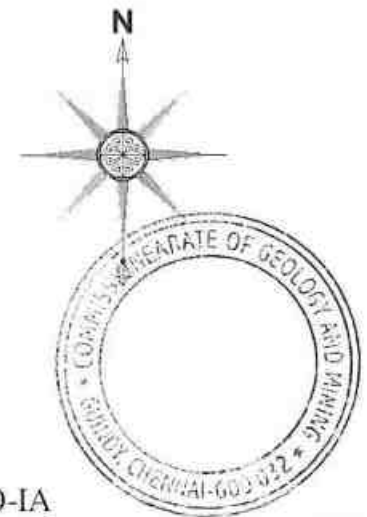


PLATE NO-IA

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:
S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P)& 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA: ●
TOPO SHEET No : 57-L/07
LATITUDE : 12° 28' 58.47570" N to 12° 29' 5.11330" N
LONGITUDE : 78° 20' 51.00141" E to 78° 21' 0.77090" E

LOCATION PLAN
NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

12° 29' 5.11330" N

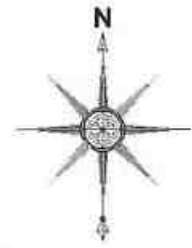


PLATE NO-IB

APPLICANT:

M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHINAGAR
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:

S.F.No : 332/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6

EXTENT : 3.38.0 Hects

VILLAGE : JAGADEVIPALAYAM

TALUK : BARGUR

DISTRICT : KRISHNAGIRI

TOPO SHEET No : 57-L/07

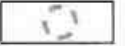
LATITUDE : 12° 28' 58.47570" N to 12° 29' 5.11330" N

LONGITUDE : 78° 20' 51.00141" E to 78° 21' 0.77090" E

MINE LEASE AREA



10KM RADIUS

[illegible]

TOPOSHEET MAP
SCALE- 1:1,00,000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

[Handwritten signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

12° 29' 5.11330" N

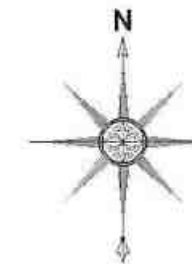


PLATE No-IC

APPLICANT:

M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:

S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6

EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA	
APPROACH ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
1Km RADIUS	
EXISTING PIT	

TOPO SHEET No : 57-L/07

LATITUDE : 12° 28' 58.47570" N to 12° 29' 5.11330" N

LONGITUDE : 78° 20' 51.00141" E to 78° 21' 0.77090" E

SATELITE IMAGERY MAP

SCALE- 1:10000

Prepared By:

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TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

1/1/2020

OCTOBER TO DECEMBER

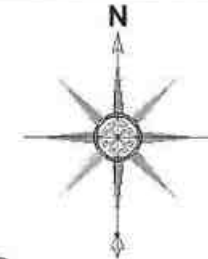


PLATE No-ID

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:
S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6

EXTENT : 3.38 Hectares
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

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MINE LEASE AREA	
APPROACH ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
1Km RADIUS	
EXISTING PIT	
SHRUBS & TREES	

TOPO SHEET No : 57-L/07

LATITUDE : 12° 28' 58.47570" N to 12° 29' 5.11330" N

LONGITUDE : 78° 20' 51.00141" E to 78° 21' 0.77090" E

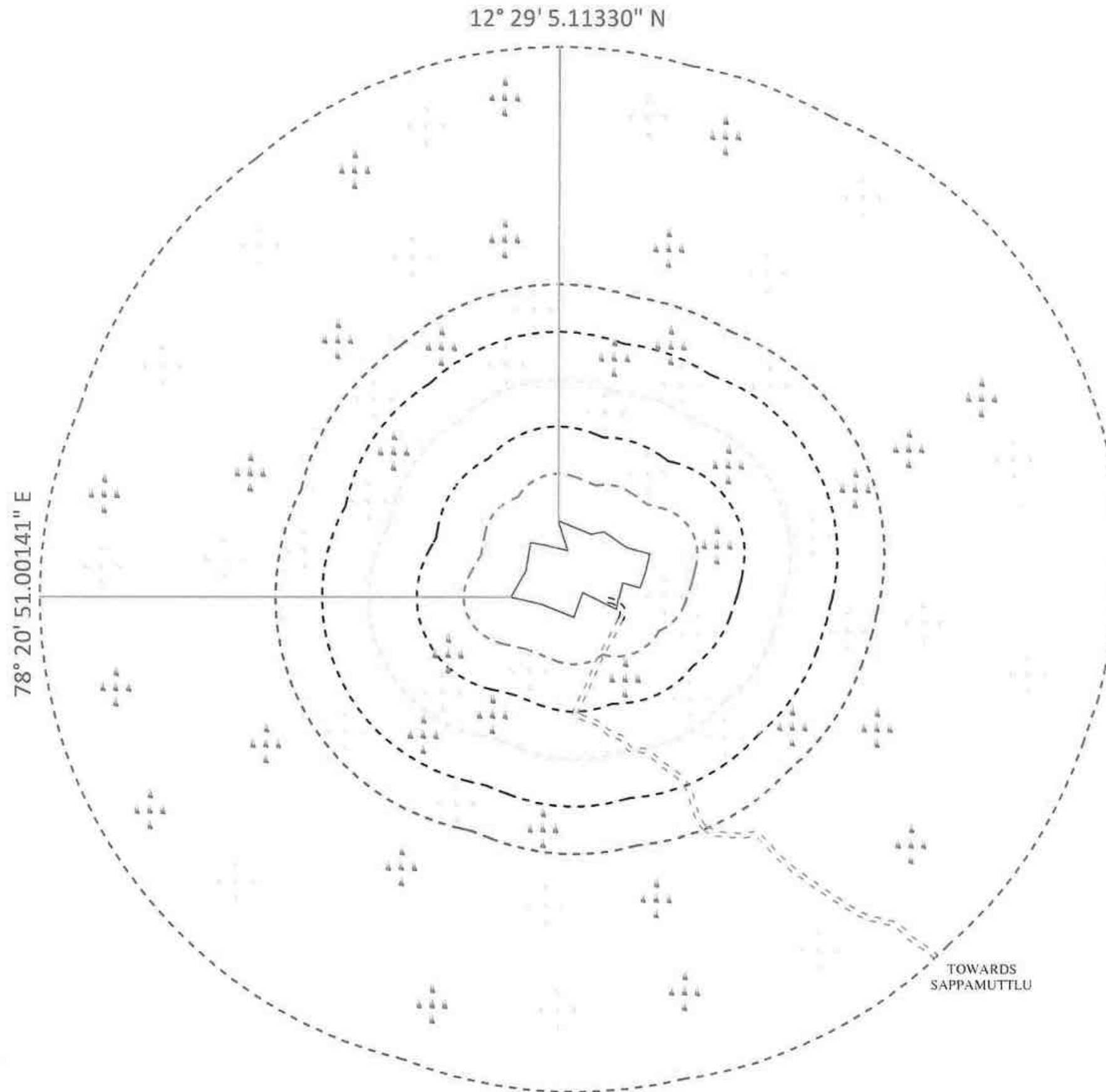
ENVIRONMENTAL PLAN

SCALE- 1:5000

Prepared By:

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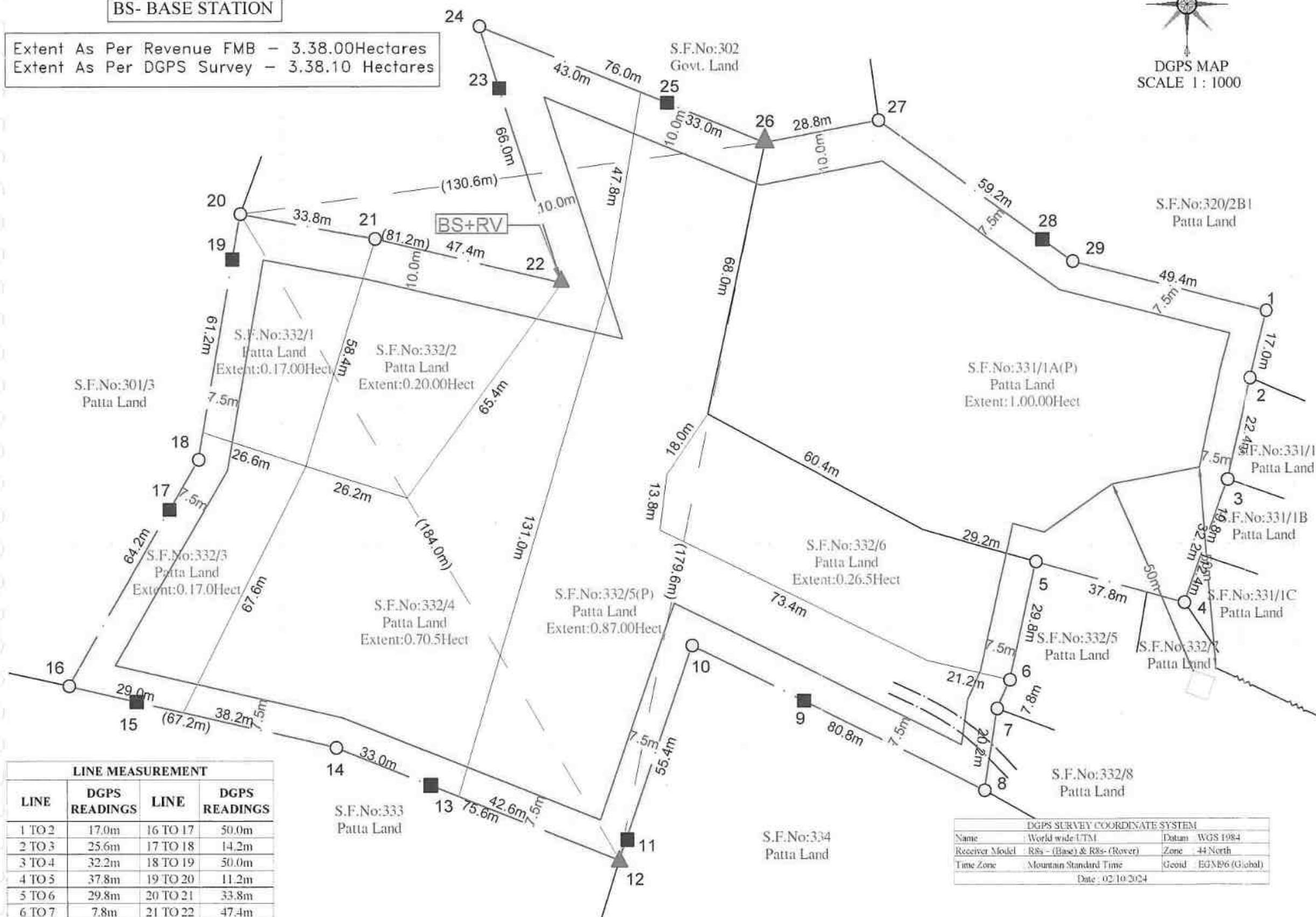
Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON



JULY TO SEPTEMBER

BS- BASE STATION

Extent As Per Revenue FMB - 3.38.00 Hectares
Extent As Per DGPS Survey - 3.38.10 Hectares



LINE MEASUREMENT			
LINE	DGPS READINGS	LINE	DGPS READINGS
1 TO 2	17.0m	16 TO 17	50.0m
2 TO 3	25.6m	17 TO 18	14.2m
3 TO 4	32.2m	18 TO 19	50.0m
4 TO 5	37.8m	19 TO 20	11.2m
5 TO 6	29.8m	20 TO 21	33.8m
6 TO 7	7.8m	21 TO 22	47.4m
7 TO 8	20.2m	22 TO 23	50.0m
8 TO 9	50.0m	23 TO 24	16.0m
9 TO 10	30.2m	24 TO 25	50.0m
10 TO 11	50.0m	25 TO 26	16.0m
11 TO 12	5.4m	26 TO 27	28.8m
12 TO 13	50.0m	27 TO 28	50.0m
13 TO 14	25.6m	28 TO 29	9.2m
14 TO 15	50.0m	29 TO 1	49.4m
15 TO 16	17.6m		

NOTE:

1. The True North Adopted both for surveyed plan and DGPS Coordinated.
2. The Given Measurements are in Meter.
3. The DGPS Survey for the area is taken up by synchronising nearest survey of India control point, (Near District Collector office-KRISHNAGIRI).
4. Base is at 22.240 Kilometers from GCP Control point.

ID	Latitude (Global)	Longitude (Global)	Feature Code
1	12° 29' 2.90931" N	78° 21' 0.77090" E	Boundary Pillar
2	12° 29' 3.37182" N	78° 21' 0.63906" E	Boundary Pillar
3	12° 29' 1.55604" N	78° 21' 0.46464" E	Boundary Pillar
4	12° 29' 0.56737" N	78° 21' 0.11345" E	Boundary Pillar
5	12° 29' 0.88441" N	78° 20' 58.90472" E	Boundary Pillar
6	12° 28' 59.93753" N	78° 20' 58.70067" E	Boundary Pillar
7	12° 28' 59.70611" N	78° 20' 58.59878" E	Boundary Pillar
8	12° 28' 59.05597" N	78° 20' 58.50535" E	Boundary Pillar
9	12° 28' 59.75496" N	78° 20' 57.01119" E	Intermediate Pillar
10	12° 29' 0.18540" N	78° 20' 56.09076" E	Boundary Pillar
11	12° 28' 58.64241" N	78° 20' 55.56867" E	Intermediate Pillar
12	12° 28' 58.47570" N	78° 20' 55.51228" E	Boundary Pillar
13	12° 28' 59.05554" N	78° 20' 53.96019" E	Intermediate Pillar
14	12° 28' 59.35231" N	78° 20' 53.17455" E	Boundary Pillar
15	12° 28' 59.69852" N	78° 20' 51.55764" E	Intermediate Pillar
16	12° 28' 59.81765" N	78° 20' 51.00111" E	Boundary Pillar
17	12° 29' 1.23360" N	78° 20' 51.81507" E	Intermediate Pillar
18	12° 29' 1.63383" N	78° 20' 51.04668" E	Boundary Pillar
19	12° 29' 3.21111" N	78° 20' 52.56947" E	Intermediate Pillar
20	12° 29' 3.60074" N	78° 20' 52.36845" E	Boundary Pillar
21	12° 29' 3.41316" N	78° 20' 53.47077" E	Boundary Pillar
22	12° 29' 3.07913" N	78° 20' 55.00228" E	Boundary Pillar
23	12° 29' 1.62021" N	78° 20' 51.47415" E	Intermediate Pillar
24	12° 29' 5.11330" N	78° 20' 54.10521" E	Boundary Pillar
25	12° 29' 1.51862" N	78° 20' 55.84534" E	Intermediate Pillar
26	12° 29' 1.20938" N	78° 20' 56.64625" E	Boundary Pillar
27	12° 29' 1.39691" N	78° 20' 57.58017" E	Boundary Pillar
28	12° 29' 3.46078" N	78° 20' 58.93315" E	Intermediate Pillar
29	12° 29' 3.28854" N	78° 20' 59.18214" E	Boundary Pillar

PLATE No- II

APPLICANT

M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK
KRISHNAGIRI DISTRICT - 635 203

LOCATION:

S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA	---
BOUNDARY POINT	○○○
INTERMEDIATE POINT	■ ■ ■
APPROACH ROAD	==
REVENUE STONE	▲ ▲
OPEN WELL	□
EB LINE	---

MINE LEASE PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

[Signature]

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

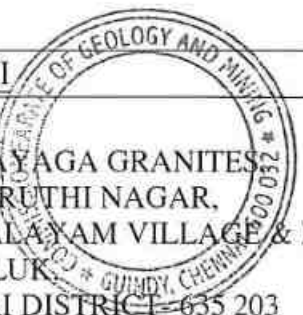
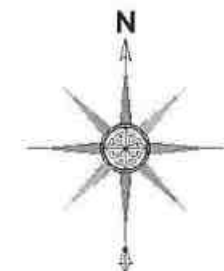


PLATE No-III

APPLICANT:
M/s. SRI VINAYAGA GRANITES
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT-635 203

LOCATION:
S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA	
BOUNDARY POINT	
INTERMEDIATED POINT	
APPROACH ROAD	
REVENUE STONE	
TEMPORARY BENCH MARK	
SHRUBS	
CONTOUR LINES	
TOPSOIL	
OPEN WELL	
EB LINE	

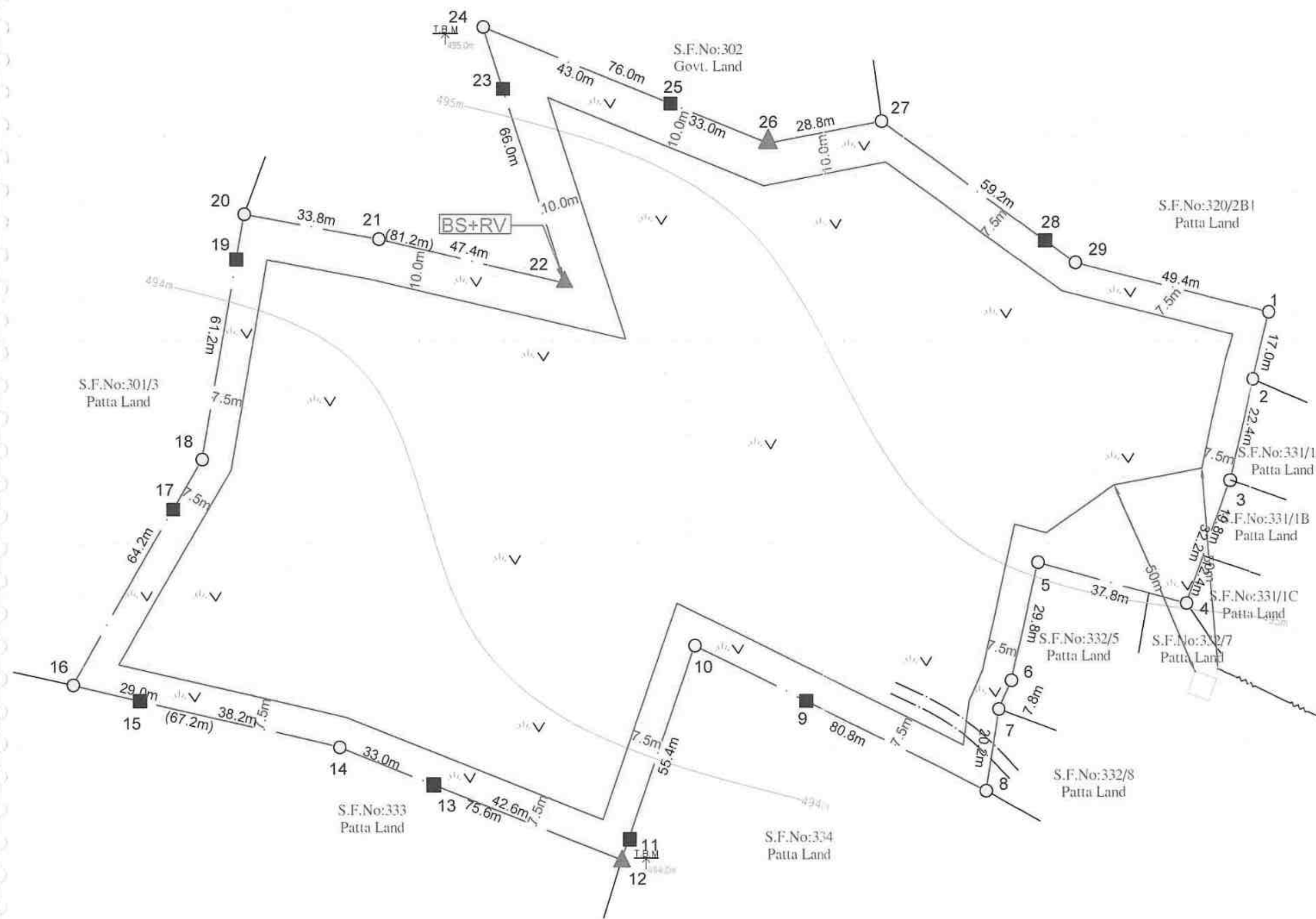
SURFACE PLAN

SCALE: 1 : 1000

Prepared By:

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TO THE BEST OF MY KNOWLEDGE

Dr. S. KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON



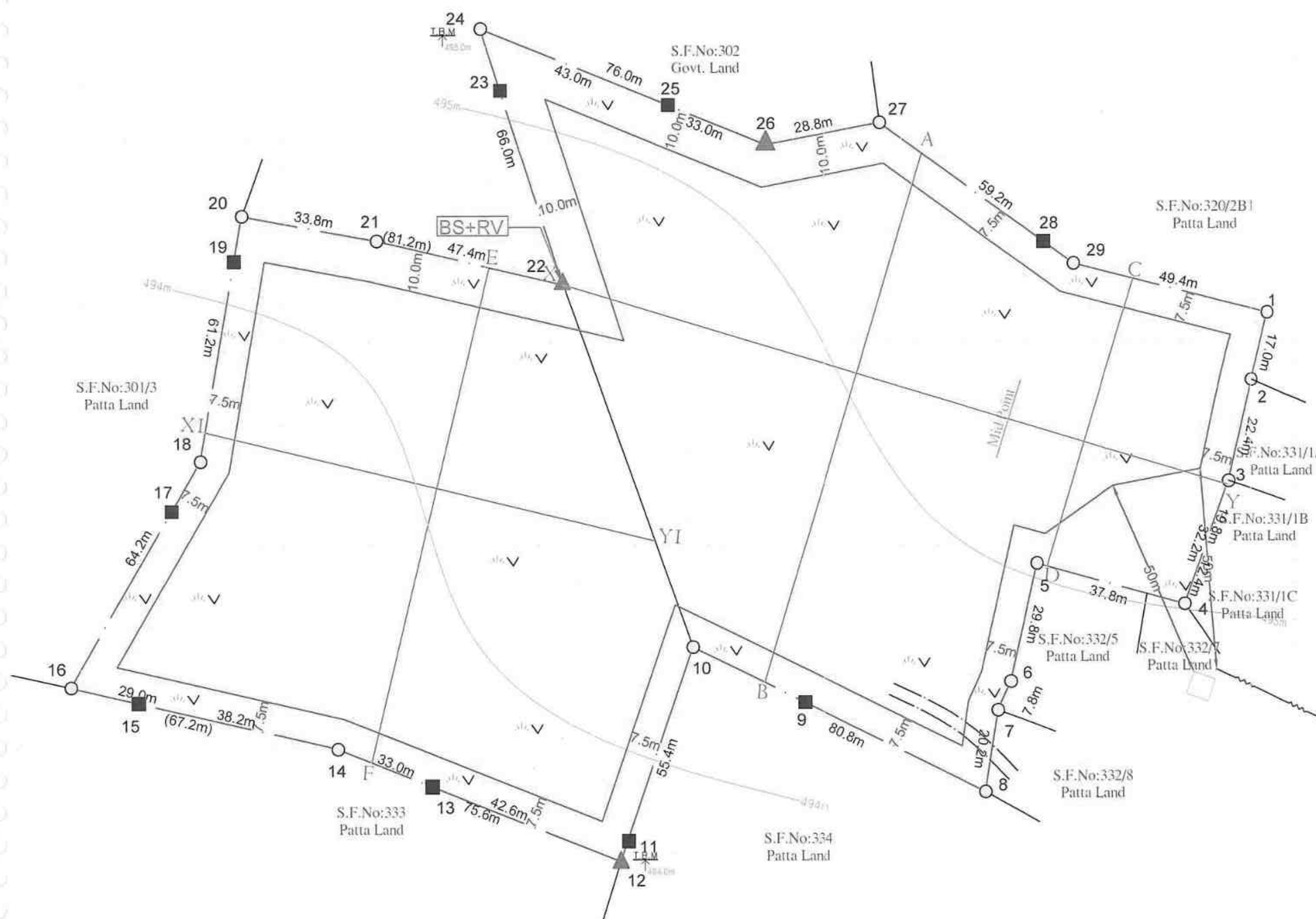
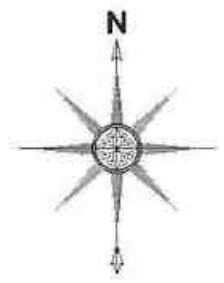


PLATE No-IV

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT - 635 203

LOCATION:
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332/3, 332/4, 332/5(P)& 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

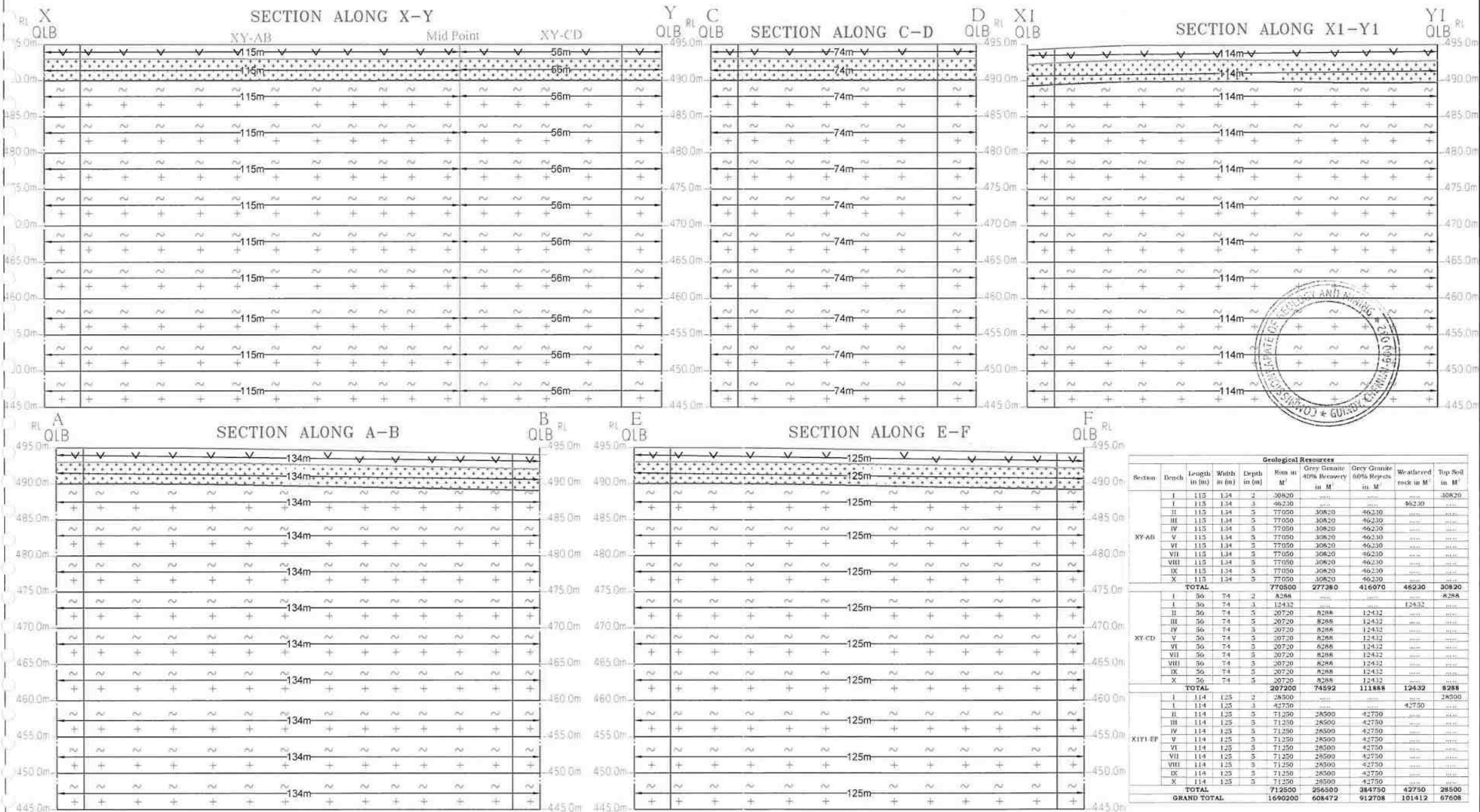
MINE LEASE AREA	
BOUNDARY POINT	
INTERMEDIATED POINT	
APPROACH ROAD	
REVENUE STONE	
TEMPORARY BENCH MARK	
SHRUBS	
CONTOUR LINES	
TOPSOIL	
OPEN WELL	
EB LINE	

GEOLOGICAL PLAN
SCALE 1:1000

Prepared By:

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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

**GEOLOGICAL SECTIONS**SCALE SECTION -HOR 1: 1000
VER 1: 500**APPLICANT:**M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203**LOCATION:**S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P)& 332/6
EXTENT : 3.38.0Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI**INDEX**

LEASE BOUNDARY

SAFETY DISTANCE

TOPSOIL

GREY GRANITE

WEATHERED ROCK

PLATE No-IVA

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGEDr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

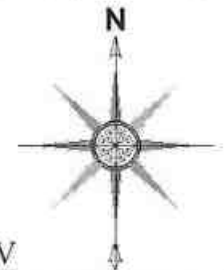


PLATE No-V

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:
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332/3, 332/4, 332/5(P) & 332/6
EXTENT : 3.38.0 Hects.
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

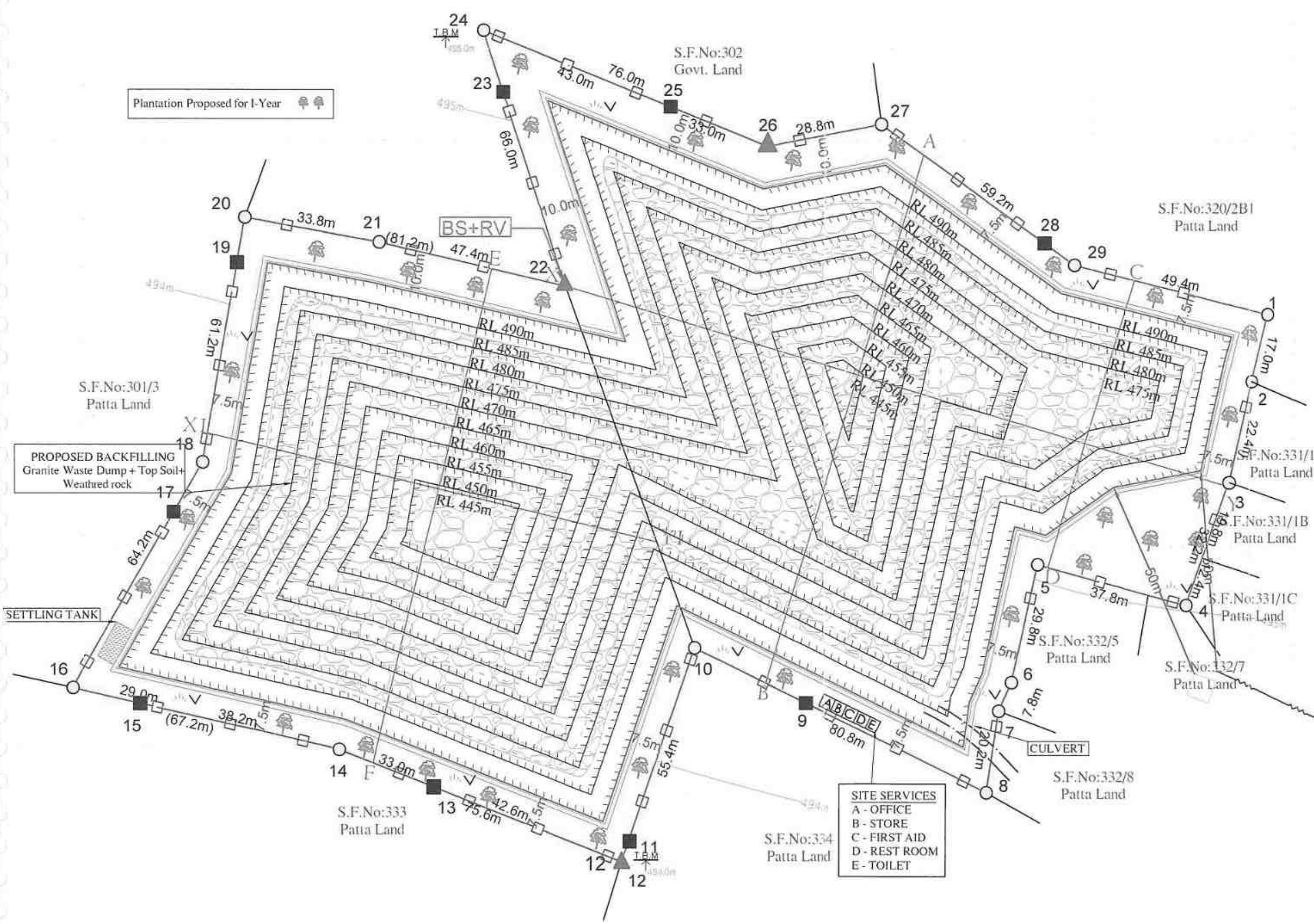
MINE LEASE AREA	
BOUNDARY POINT	
INTERMEDIATED POINT	
APPROACH & MINE HAUL ROAD	
REVENUE STONE	
TEMPORARY BENCH MARK	
SHRUBS	
CONTOUR LINES	
TOPSOIL	
ULTIMATE BENCH	
PROPOSED BACK FILLING	
DRAINAGE & SETTLING TANK	
FENCING	
OPEN WELL	
EB LINE	

CONCEPTUAL PLAN
SCALE 1 : 1000

Prepared By:

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Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



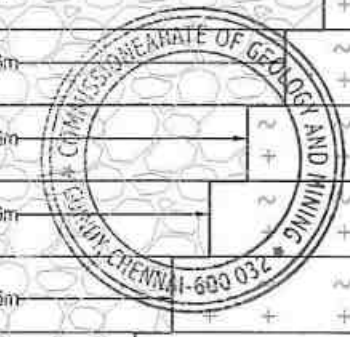
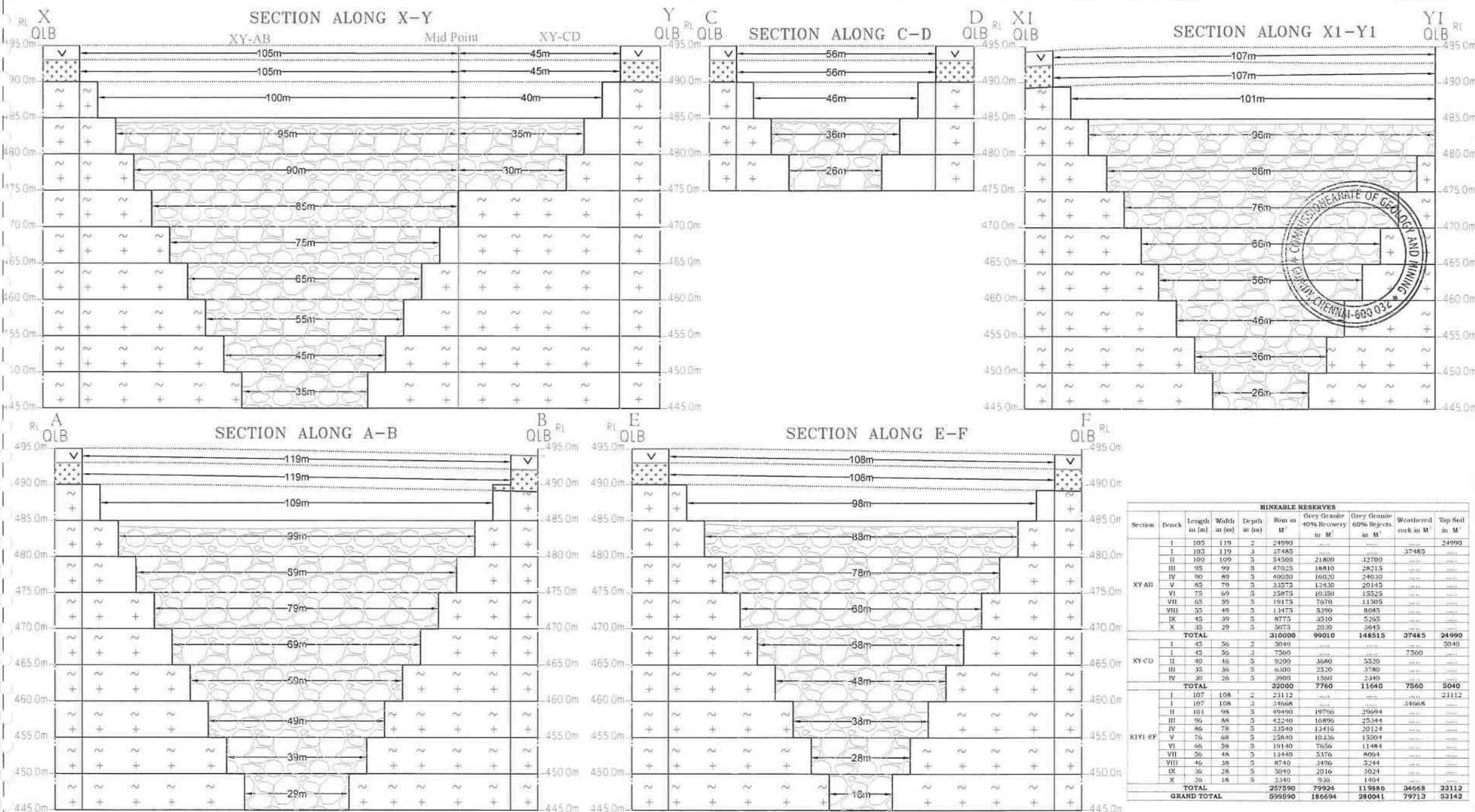
Plantation Proposed for I-Year

BS+RV

PROPOSED BACKFILLING
Granite Waste Dump + Top Soil +
Weathered rock

SETTLING TANK

SITE SERVICES
A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET



MINEABLE RESERVES									
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Run in M ²	Grey Granite 40% Recovery in M ³	Grey Granite 60% Recovery in M ³	Weathered rock in M ³	Top Soil in M ³
XY-AB	I	103	119	3	24990				24990
	II	103	119	3	37485			37485	
	III	100	109	3	54500	21800	13700		
	IV	95	99	3	47025	18810	28215		
	V	90	89	3	40030	16020	24030		
	VI	85	79	3	33575	13430	20145		
	VII	75	69	3	25875	10350	15525		
	VIII	65	59	3	19175	7670	11305		
	IX	55	49	3	11475	5390	8085		
	X	45	39	3	8775	3510	5265		
TOTAL					310000	99010	148515	37485	24990
XY-CD	I	45	36	3	5040				5040
	II	45	36	3	7560			7560	
	III	40	46	3	9200	3680	5520		
	IV	35	36	3	6300	2520	3780		
TOTAL					32000	7760	11640	7560	5040
X1-Y1	I	107	108	3	21112				21112
	II	107	108	3	34668			34668	
	III	101	98	3	49490	19700	29694		
	IV	96	88	3	42240	16896	25344		
	V	86	78	3	33540	13416	20124		
	VI	76	68	3	25840	10336	15504		
	VII	66	58	3	19140	7656	11484		
	VIII	56	48	3	13440	5376	8064		
	IX	46	38	3	8740	3496	5244		
	X	36	28	3	5040	2016	3024		
TOTAL					257590	79924	119886	34668	21112
GRAND TOTAL					599590	186694	280041	79713	53142

CONCEPTUAL SECTIONS
SCALE SECTION -HOR 1: 1000
VER 1: 500

APPLICANT:
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TALUK : BARGUR
DISTRICT : KRISHNAGIRI

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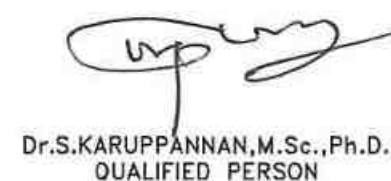
- LEASE BOUNDARY
- SAFETY DISTANCE
- TOPSOIL
- GREY GRANITE
- WEATHERED ROCK
- ULTIMATE BENCH
- BACK FILLING

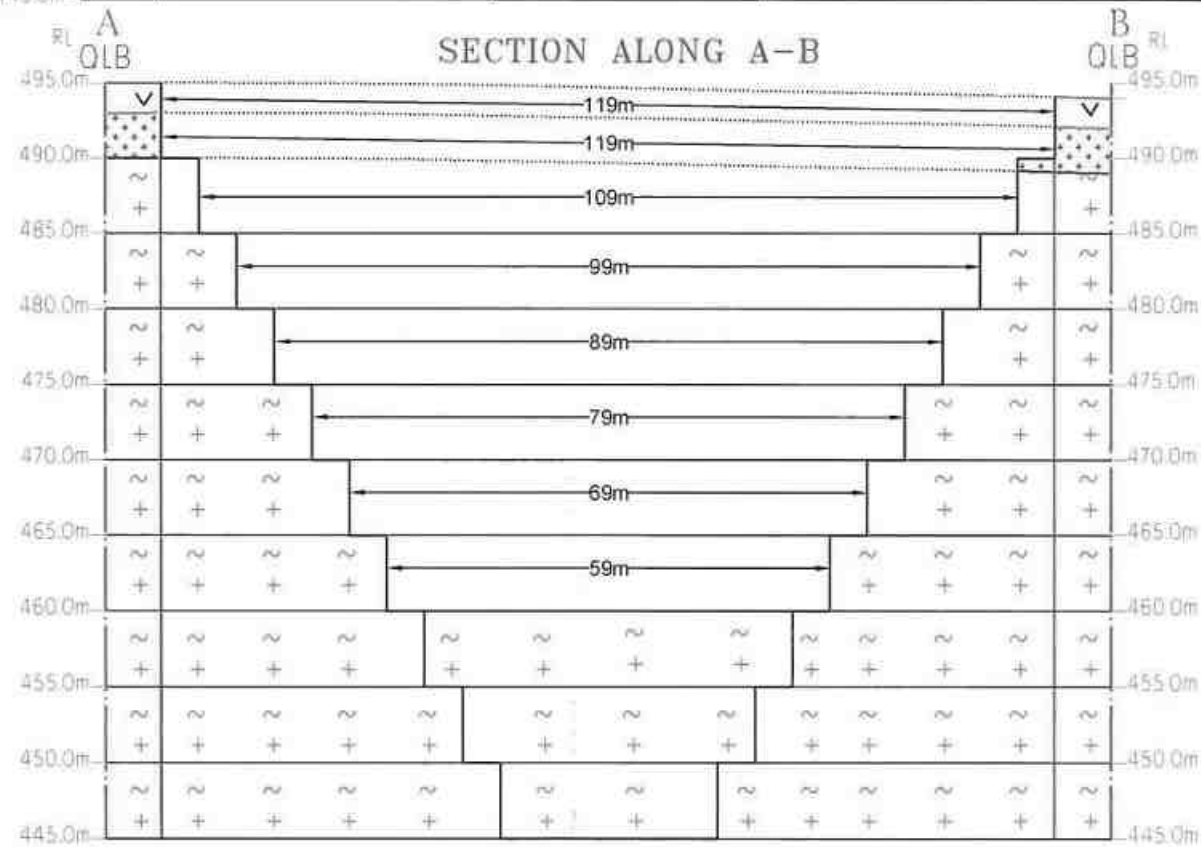
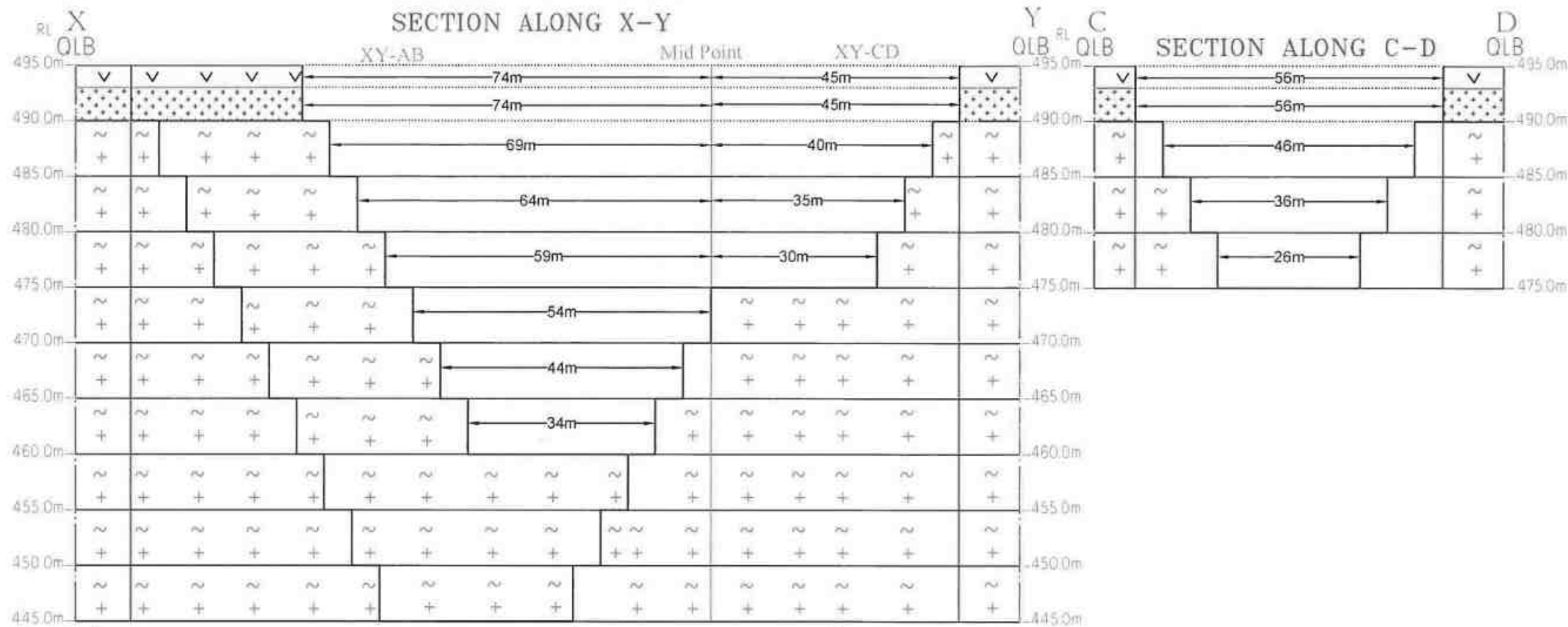
PLATE No-VA

Prepared By:

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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

298



PRODUCTION RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rom in M ³	Grey Granite 40% Recovery in M ³	Grey Granite 60% Rejects in M ³	Weathered Top Soil rock in M ³
XY-AB	I	74	119	2	17612	.....	.....	17612
	I	74	119	3	26418	.....	.....	26418
	II	69	109	5	37605	15042	22563	.....
	III	64	99	5	31680	12672	19008	.....
	IV	59	89	5	26255	10502	15753	.....
	V	54	79	5	21330	8532	12798	.....
	VI	44	69	5	15180	6072	9108	.....
	VII	34	59	5	10030	4012	6018	.....
TOTAL					186110	56832	85248	26418
XY-CD	I	45	56	2	5040	.....	.....	5040
	I	45	56	3	7560	.....	.....	7560
	II	40	46	5	9200	3680	5520	.....
	III	35	36	5	6300	2520	3780	.....
	IV	30	26	5	3900	1560	2340	.....
TOTAL					32000	7760	11640	7560
GRAND TOTAL					218110	64592	96888	33978

PROGRESSIVE QUARRY CLOSURE SECTIONS
SCALE SECTION -HOR 1: 1000
VER 1: 500

APPLICANT:
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#01/504E, MARUTHI NAGAR,
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TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

LEASE BOUNDARY	
SAFETY DISTANCE	
TOPSOIL	
GREY GRANITE	
WEATHERED ROCK	
ULTIMATE BENCH	
PROPOSED BENCH	

PLATE No-VIIA

Prepared By:

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TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

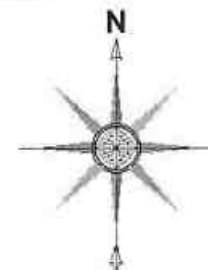


PLATE No-VIII

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT-635 203

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VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

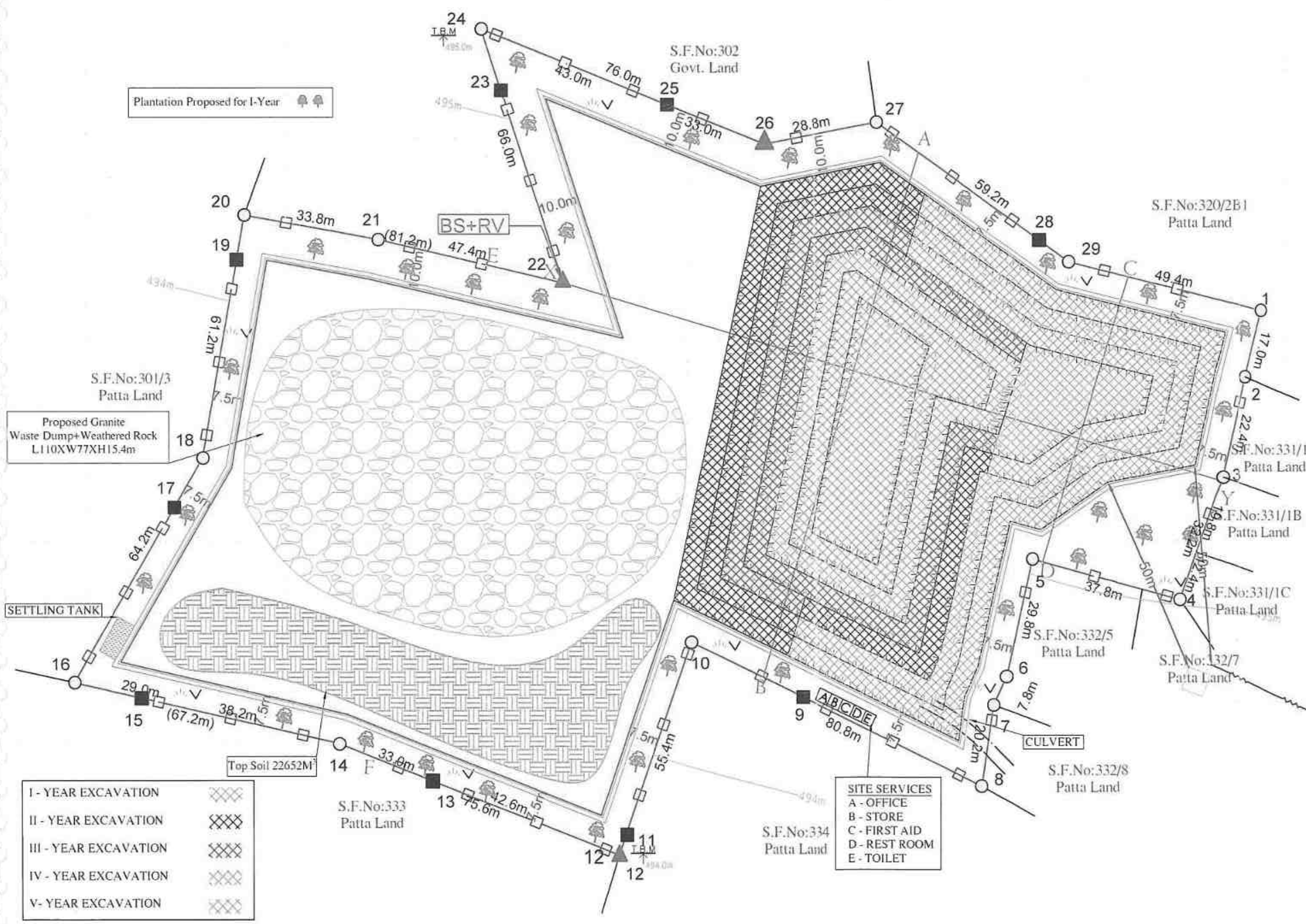
MINE LEASE AREA	
BOUNDARY POINT	
INTERMEDIATED POINT	
APPROACH & MINE HAUL ROAD	
REVENUE STONE	
TEMPORARY BENCH MARK	
SHRUBS	
CONTOUR LINES	
TOPSOIL	
PROPOSED BENCH	
PROPOSED DUMP	
DRAINAGE & SETTLING TANK	
FENCING	
OPEN WELL	
EB LINE	

YEARWISE DEVELOPMENT &
PRODUCTION PLAN
SCALE PLAN - HOR 1 : 1000

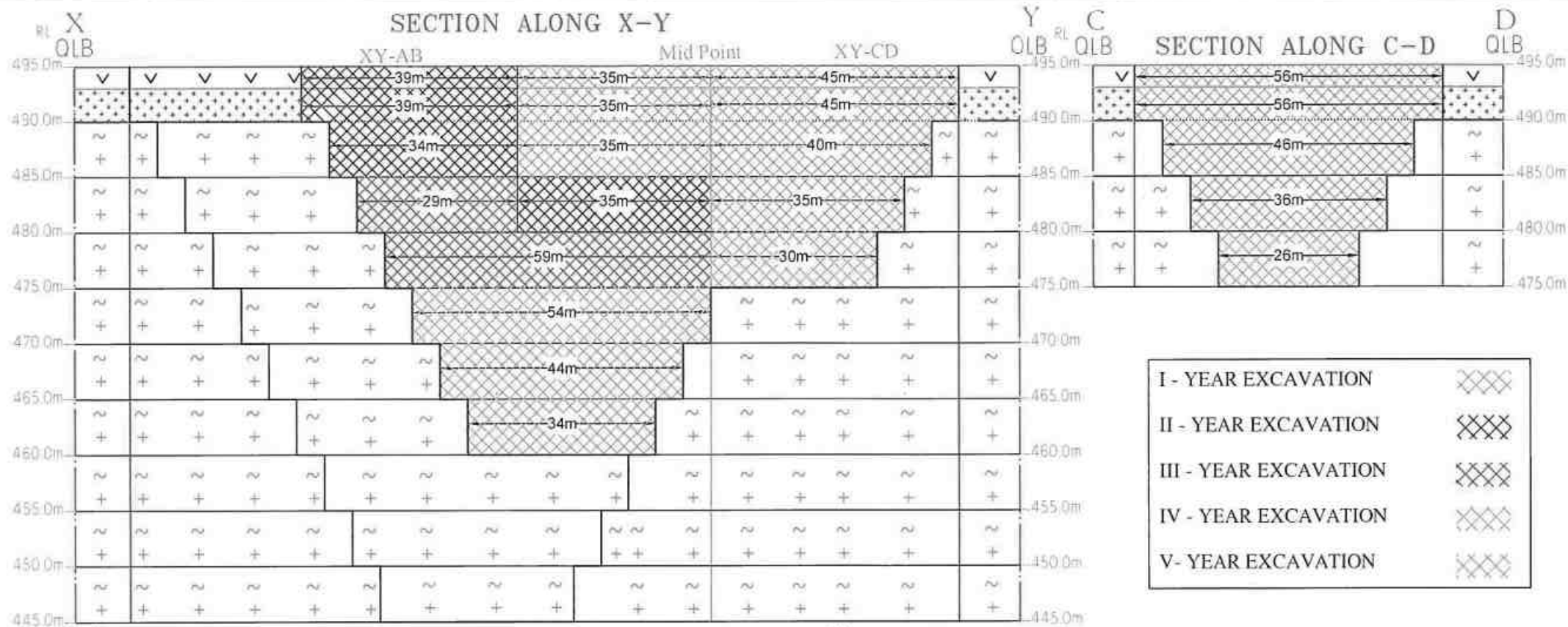
Prepared By:

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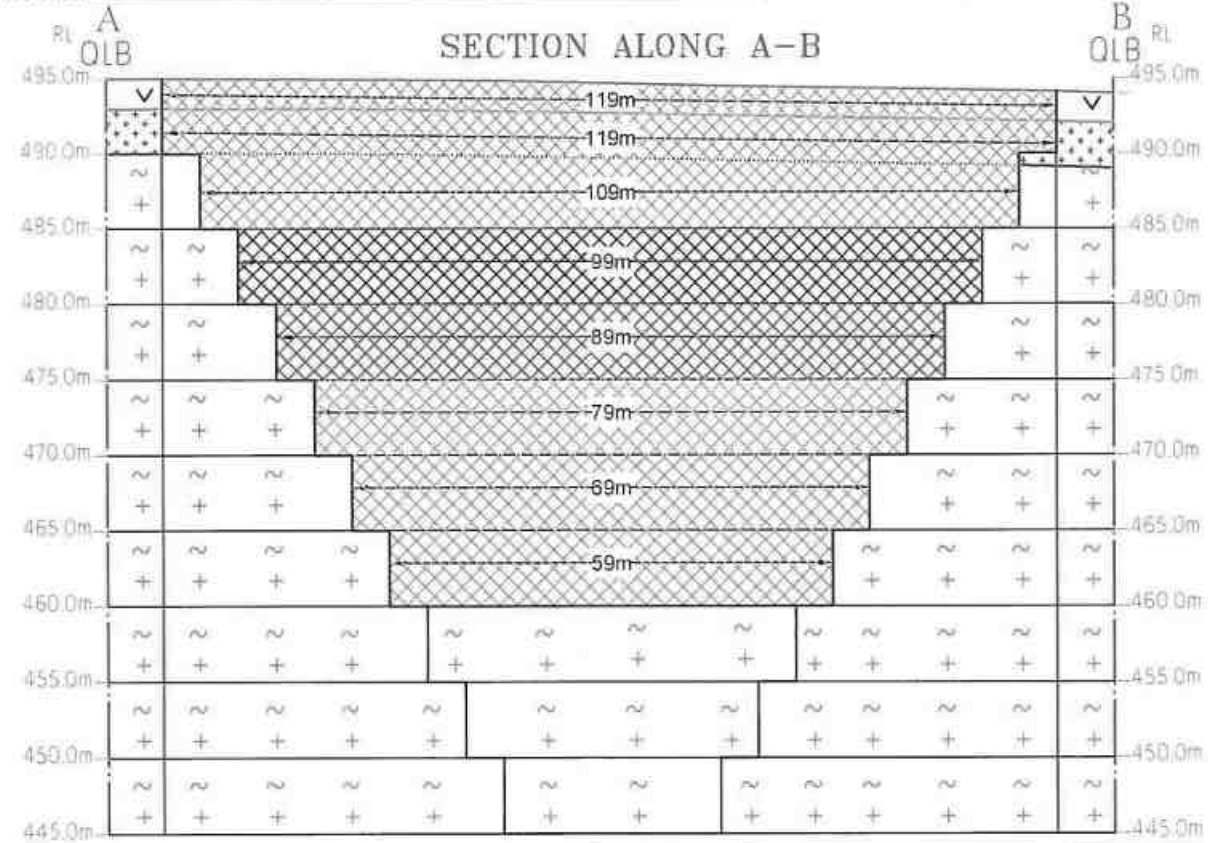
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



I - YEAR EXCAVATION	
II - YEAR EXCAVATION	
III - YEAR EXCAVATION	
IV - YEAR EXCAVATION	
V - YEAR EXCAVATION	



- I - YEAR EXCAVATION
- II - YEAR EXCAVATION
- III - YEAR EXCAVATION
- IV - YEAR EXCAVATION
- V - YEAR EXCAVATION



YEARWISE PRODUCTION RESERVES										
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Rom in M ³	Grey Granite 40% Recovery in M ³	Grey Granite 60% Rejects in M ³	Weathered rock in M ³	Top Soil in M ³
XY-CD	I-YEAR	I	45	56	2	5040	.....	.....	.....	5040
		I	45	56	3	7560	.....	.....	7560	.....
		II	40	46	5	9200	3680	5520	.....	.....
		III	35	36	5	6300	2520	3780	.....	.....
XY-AB	I-YEAR	I	35	119	2	8330	.....	.....	.....	8330
		I	35	119	3	12495	.....	.....	12495	.....
		II	35	109	5	19075	7630	11445	.....	.....
		TOTAL				68000	13830	20745	20055	13370
XY-AB	II-YEAR	I	39	119	2	9282	.....	.....	.....	9282
		I	39	119	3	13923	.....	.....	13923	.....
		II	34	109	5	18530	7412	11118	.....	.....
		III	35	99	5	17325	6930	10395	.....	.....
XY-AB	III-YEAR	TOTAL				59060	14342	21513	13923	9282
		III	29	99	5	14355	5742	8613	.....	.....
		IV	59	89	5	26255	10502	15753	.....	.....
		TOTAL				40610	16244	24366	0	0
XY-AB	IV-YEAR	IV	30	26	5	3900	1560	2340	.....	.....
		V	54	79	5	21330	8532	12798	.....	.....
		TOTAL				25230	10092	15138	0	0
		VI	44	69	5	15180	6072	9108	.....	.....
XY-AB	V-YEAR	VII	34	59	5	10030	4012	6018	.....	.....
		TOTAL				25210	10084	15126	0	0
		GRAND TOTAL				218110	64592	96888	33978	22652

YEARWISE DEVELOPMENT & PRODUCTION SECTIONS
SCALE SECTION - HOR 1: 1000
VER 1: 500

APPLICANT:
M/s. SRI VINAYAGA GRANITES,
#01/504E, MARUTHI NAGAR,
JAGADEVIPALAYAM VILLAGE & POST,
BARGUR TALUK,
KRISHNAGIRI DISTRICT- 635 203

LOCATION:
S.F.No : 331/1A(P), 332/1, 332/2,
332/3, 332/4, 332/5(P) & 332/6
EXTENT : 3.38.0 Hects
VILLAGE : JAGADEVIPALAYAM
TALUK : BARGUR
DISTRICT : KRISHNAGIRI

INDEX

- LEASE BOUNDARY
- SAFETY DISTANCE
- TOPSOIL
- GREY GRANITE
- WEATHERED ROCK
- ULTIMATE BENCH
- PROPOSED BENCH

PLATE No-VIIIA

Prepared By:
I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN, M.Sc., Ph.D.
QUALIFIED PERSON

சான்று

நாள் : 24.03.2025

ஜெகதேவி கிராமம்

கிருஷ்ணகிரி மாவட்டம்

கிருஷ்ணகிரி மாவட்டம், ஜெகதேவி பாளையம், பாகிமானூர் கிராமத்தில் இயங்கிவரும் ஸ்ரீ வினாயகா கிரானைட் நிறுவனத்தில் நிர்வாக பங்குதாரர் திரு. ஜெ.மணிவாசகம், 1/504-E, மாருதி நகர், ஜெகதேவி, கிருஷ்ணகிரி மாவட்டம். மேற்கண்ட நிறுவனத்திற்கு சொந்தமாக உள்ள சர்வே எண் எண். 331/1A(P), 332/1, 332/2, 332/3, 332/4, 332/5(P), 332/6 ல் 3.38.0 Hectare பரப்பு கொண்ட பட்டா நிலத்தில் கல் மற்றும் கிராவல் வெட்டி எடுக்க குவாரி அனுமதி கோரி கனிம வளத்துறை மூலமாக விண்ணப்பித்திருந்ததின் பேரில் மேற்காண சர்வே எண்ணை சுற்றி புலத்தணிக்கை செய்ததில் அரசு அங்குகரிக்கப்பட்ட வீட்டு மனைகள், கிராம நத்தம், பள்ளி, கல்லூரி, மயானம், கோவில்கள், சர்ச், மசூதி, நீர்நிலை, புறம்போக்கு, புராதான சின்னங்கள் 300 மீட்டர் தொலைவிற்குள் ஏதுமில்லை என புலத்தணிக்கையின்படி சான்றளிக்கப்படுகிறது.


 Village Administrative Officer
 17, JAGADEVI PALAYAM
 Bargur Taluk Krishnagiri District



National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Technical Mining Solutions, Dharmapuri

5/1485-3, Salem Main Road, Elakkiyampatty, Dharmapuri, Tamil Nadu

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA/EMP reports in the following Sectors.

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals - including opencast and underground mining	1	1 (a) (i)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated January 24, 2024, posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/24/3142 dated Feb 19, 2024. The accreditation needs to be renewed before the expiry date by Geo Technical Mining Solutions, Dharmapuri following due process of assessment.

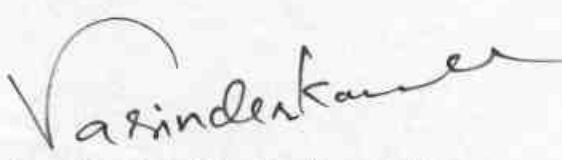
Issue Date
Feb 19, 2024

Valid up to
Dec 31, 2026




Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0319


Prof (Dr) Varinder S Kanwar
(CEO NABET)

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