

**DRAFT OF 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 = 36.48.5 hectares**

**At**

**Kamandoddi Village, Shoolagiri Taluk,**

**Krishnagiri District, Tamil Nadu State**

**ToR letter No. Lr. No. SEIAA- TN/F.No.10412/2023/SEAC/1(a)**

**ToR/Violation-1609/2023 dated 07.11.2023**

**NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT**

<b>Name and Address</b>	<b>Extent &amp; S.F.No.</b>	<b>Mineral Production</b>
<b>Mr.R.Rajappa</b> S/o.V.Ramappa, No.3/883, Pillayakothoor Village, Koneripalli post, Shoolagiri Taluk, Krishnagiri District	<b>4.04.50&amp; 1266</b>	<b>Rough Stone- 655613 m<sup>3</sup></b>

**ENVIRONMENTAL CONSULTANT**

**GEO TECHNICAL MINING SOLUTIONS**



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NABET ACC. NO: NABET/EIA/2124/SA 0184

Valid till: 02/04/2024

**ENVIRONMENTAL LAB**

**EKDANT ENVIRO SERVICES (P) LTD**

**No R7/1, AVK Tower, North Main Road,**

**Anna Nagar West Extn., Chennai-101, Tamil Nadu**

**NABL Certificate Number: TC-11742, Valid Until : 31.05.2025**

**Baseline Study Period – October 2023 through December 2023**

## TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru.R.Rajappa

“ToR issued vide Letter No. SEIAA- TN/F.No.10412/2023/SEAC/1(a) ToR/Violation-1609/2023 dated 07.11.2023

SPECIFIC CONDITIONS		
1	The project proponent shall submit a Certified Report obtained from the IRO, MoEF & CC, Chennai as per the MOEF & CC O.M dated 08.06.2022 for the previous EC and appropriate mitigating measures for the non-compliance items, if any	The request letter submitted to IRO, MoEF & CC (Sothern Zone) to issue the Certified Compliance Report, it will be submitted in the final EIA report.
2	The PP shall furnish letter from the concerned AD (Mines) including the following details	
	i	Original pit dimension of the existing quarry
	ii	Quantity achieved Vs EC Approved Quantity
	iii	Balance Quantity as per Mineable Reserve calculated
	iv	Month wise Production details
	v	Mined out Depth as on date Vs EC Permitted depth
	vi	Details of illegal / illicit mining carried out, if any
	vii	Non-Compliance/Violation in the quarry during the past working.
	viii	Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land
	ix	Existing condition of safety zone / benches
	x	Details of any penalty levied on the PP for any violation in the quarry operation
		The following details have been requested to the AD(Mines) and it will be submitted in the final EIA report.

	by the Department of Geology and Mining.	
3	The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF & CC and also to furnish mitigation measures / remedial action plan with budget allocation for the non-compliance stated in the CCR.	The details regarding to the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF & CC will be submitted in the final EIA report.
4	The Project Proponent shall furnish the revised EMP based on the study carried out an impact of the dust & other environment impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.	A detailed EMP is provided in Table 10.9 & 10.11 under Chapter X, pp.148-155.
5	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 1km of the proposed quarry.	The detailed hydrological study has been discussed in the Section 3.2 under Chapter III, pp.38-50.
6	The proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report	The detailed Bio diversity study through reputed Institution will be submitted in the final EIA report.
7	The PP shall submit the stability status of the existing quarry wall and slope stability action plan by carrying 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	The slope stability report is not applicable as the existing depth is of 25m.

	University Chennai – CEG Campus	
8	The structures within the radius of 50 m, 100 m, 200 m, 300 m 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.	There are no structures such as dwelling houses, places of worship, industries, factories, sheds, etc. within the radius of 300 m from the proposed project area.
9	The PP shall furnish an Independent Chapter 13 as per the MoEF & CC Violation Notification – S.O. 804 (E), dated.14.03.2017 prepared by the accredited consultants from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance	The following details have been requested to the AD(Mines) and it will be submitted in the final EIA report.
10	As a part of procedural formalities as per the MoEf & CC Violation Notification – S.O.804(E), dated 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environment (Protection) Act, 1986 against violation	TNPCB is the competent authority should take action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against violation. The proponent should get the consent from TNPCB.
11	Copy of valid mining lease approval obtained from the competent Authority.	The copy of valid mining lease approval is submitted in the Annexure III.
12	Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date	The following details have been requested to the AD(Mines) and it will be submitted in the final EIA

		report.
13	Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The following details have been requested to the AD(Mines) and it will be submitted in the final EIA report.
14	Copy of 'No Objection Certificate' for the total penalty levied by the concerned AD/DD, Dept of Geology and Mining and copy of remittance of total penalty by PP if any	The following details have been requested to the AD(Mines) and it will be submitted in the final EIA report.
15	Details of habitations and fireworks around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	The latest VAO letter is attached in the Annexure IV.
16	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc, up to a radius of 25km from the proposed site.	The details of DFO letter stating that the proximity distance of reserve forests, protected areas, sanctuaries, etc will be submitted in the final EIA letter.
17	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Assistant Director of Geology and Mining during the time of appraisal for obtaining the EC.	The action plan for realignment of benches for this proposed project is submitted in the Annexure III.
18	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	This project does not require the Slope Stability Plan because the depth of mining to be 25 m BGL.

	below ground level.	
19	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.	An agreement made between explosives supplying company and the proponent and a blaster certificate has already been included in the mining plan report attached in Annexure III.
20	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	NONEL blasting is proposed for this project. A conceptual design of blasting has been given in Section 2.6 under Chapter II, pp.19-26.
21	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, in either the same location or elsewhere in the State with video and photographic evidences.	The document containing video and photographic evidences will be submitted at the time of presentation, if any.
22	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	
	a.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
	b.	Quantity of minerals mined out.
	c.	Highest production achieved in any one year
	d.	Detail of approved depth of mining
	e.	Actual depth of the mining achieved earlier
	f.	Name of the person already mined in that
		The following details have been requested to the AD(Mines) and it will be submitted in the final EIA report.

	leases area.	
	g. If EC and CTO already obtained, the copy of the same shall be submitted.	
	h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
23	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The mine lease area with corner coordinates has been superimposed on Google Earth Image, as shown in Figure 2.3, under Chapter II, p.13, geology and geomorphology of the lease area in Figures 3.1 and 3.2, respectively, under Chapter III, pp.30 and 31.
24	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.	Drone video coverage will be submitted at the time of presentation.
25	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 showing fencing, green belt have been included in Section 4.6 under Chapter IV, pp.104-108.
26 & 27	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.	The mineral reserves of the project have been discussed in Section 2.5 under Chapter II, pp.16-18. The anticipated impact of mining on land, air, noise, water, soil, biology, and socio economy is discussed under Chapter IV, pp.88-112.
28	The Project Proponent shall provide the Organization chart indicating the appointment	Employment details of the proposed project are provided in Table 2.14

	of various statutory of official and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	under Chapter II, p.27.
29	The Project Proponent shall conduct the hydrogeological 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 I 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.	Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.38-50.
30	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data were collected for the environmental components including land, soil, water, air, noise, biology, socio-economy, and traffic and the results have been discussed under Chapter III, pp. 28-87.
31	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 and its mitigation measures.	Results of cumulative impact study due to mining operations are given in Section 7.4 under Chapter VII, pp.123-131.



	Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	
32	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	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.
33	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, pp.29-37 under Chapter III. The details of surrounding sensitive ecological features are provided in Table 3.39 under Chapter III, pp.86-87.  Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.8 under Chapter II, p.22.
34	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	Not Applicable.  No dumps have been proposed outside the lease area.

	issues, if any, should be provided.	
35	Proximity to Areas declared '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. This project area is involved in the production of rough stone and gravel materials as per the approved mine plan.
36	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.	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.
37	Impact on local transport infrastructure due to the Project should be indicated.	Impact on local traffic due to the project is within the permissible limit. Details are provided in Section 3.7, pp.84-86.
38	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 3.5 under Chapter-III, pp.64-78.
39	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The progressive mine closure plan has been included in the approved mining plan report attached in Annexure III.
40	Public Hearing points raised and commitments of the Project Proponent on the same along	The project proponent addressed the concerns from the public during

	with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the office Memorandum of MoEF & CC accordingly.	public hearing will be submitted in the final EIA report.
41	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	The details regarding advertisement will be submitted in the final EIA report.
42	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	The Tamil version of draft EIA report and executive summary was submitted to TNPCB for public hearing.
43	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 instructed the local people about the importance of protecting the biological environment.
44	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 and local school/college authorities. . 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.	A detailed Greenbelt Development Plan dealing with carbon sequestration has been provided in Section 4.6 under Chapter IV, pp.104-108.

45	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	The details of plant species with dense / moderate canopy of native origin should be chosen. Species of small/medium/tall trees is discussed in the Section 4.6 under Chapter IV, pp.104-108.
46	Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted as per the advice of local forest authorities/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. Saplings used for greenbelt development have been shown in Section 4.6 under Chapter IV, pp.104-108.
47	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	The details about disaster management Plan have been provided in Section 7.2 under Chapter VII, pp.122-123.
48	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.	The details about risk assessment and management plan have been provided in Section 7.2 under Chapter VII, pp.119-121.
49	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	Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.8 under Chapter IV, pp.109 & 110.

	measures with required facilities proposed in the mining area may be detailed.	
50	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.134 & 135.
51	The Socio-economic studies should be carded 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 24 people directly and 13 people indirectly as discussed in Section 8.1 and 8.2 under Chapter VIII, p.133.
52	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.
53	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.133-135.
54	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	The certified compliance will be attached in the final EIA report.
55	The PP shall prepare the EMP for the entire life	A detailed EMP is provided in Table

	of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	10.10 & 10.11 under Chapter X, pp.148-155.
56	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.
<p>The Subject was placed in the 671<sup>st</sup> Authority meeting held on 07.11.2023. The Authority noted that the subject was appraised in the 417<sup>th</sup> SEAC meeting held on 18.10.2023. Based on the presentation and documents furnished by the project proponent, SEAC decided to grant of Terms of Reference (TOR) under Violation category, subject to the specific TORs stated therein, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation Plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants,. The grant of Terms of Reference (TOR) under Violation category does not entail EC which is subject to the outcome of the final orders of the Hon'ble High court of Madras in the matter of W.P.(MD). No.11757 of 2021.</p> <p>After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (TOR) under violation category for undertaking EIA study followed by the EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants subject to the condition as recommended by SEAC &amp; normal/Standard conditions in addition to the following conditions and conditions stated therein vide Annexure 'B' .</p>		
1	The PP shall furnish Copy of valid mining	The valid mining lease approval is

	lease approval obtained from the competent Authority.	13.10.2017 to 11.10.2027 and the copy is attached in the Annexure III.
2	The PP shall furnish Copy of approval review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.	The approval review of scheme of mining plan by the 31.08.2023 and the copy is attached in the Annexure III.
3	The PP shall furnish EMP for the project life including progressive mine closure plan and final mine closure plan with detailed budget plan.	A detailed EMP is provided in Table 10.10 & 10.11 under Chapter X, pp.148-155.
4	The PP shall study in detail about CO <sub>2</sub> release and temperature rise and add to micro climate alternations and the same shall be included in the final EIA report.	The details of CO <sub>2</sub> and the temperature rise is discussed in the Section 4.6 under Chapter IV, pp.104-108.
5	The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.	The details about impact on the water bodies and natural flow of surface and ground water will be submitted in the final EIA report.
6	The PP shall study in detail about Soil health, Climate change leading to Droughts, Floods etc.	The details of the Soil health is discussed in the Section 3.1 under Chapter III, pp.29-37.
7	The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature & Livelihood of the local people.	The detail study of Greenhouse gases (GHG) will be attached in the final EIA report.
8	The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.	There is no hazardous chemical substance in the water and only solid waste such as plastic and food waste by the mine workers, it can be recycled.
9	The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA	A detailed study of flora, fauna, biodiversity survey was carried out and the results have been discussed in

	report.	Section 3.5 under Chapter-III, pp.64-78.
10	The PP shall study the impact on Invasive Alien Species (IAP).	There are no any alien species in the mine lease area. The details of biodiversity have been discussed in Section 3.5 under Chapter-III, pp. .64-78.
<b>Annexure 'B'</b>		
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	A cluster management committee including all the proponents of the rough stone quarrying projects within 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 & 2.7 under Chapter II, pp.19-27.
5	The committee shall deliberate on risk	It will be informed to the committee.



	management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	It will be advised to the cluster management committee 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 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 furnish the Emergency Management plan within the cluster.	The committee will submit the emergency management plan to the respective authority in the stipulated time period.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	The information on the health of the workers and the local people will be updated periodically.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	A proper action plan with reference to water, sanitation & safety will be devised and submitted by the committee to the respective authority.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	The committee will submit the fire safety and evacuation plan as discussed in Section 7.3 under Chapter VII, pp.122-123.
	<b>Impact study of Mining</b>	
12	Detailed study shall be carried out in regard to impact of mining around the proposed	

	mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following	
a)	Soil health & soil biological, physical land chemical features.	Soil health and biodiversity have been discussed in Sections 3.1 and 3.5 respectively under Chapter III, pp.29-37 & pp.64-78.
b)	Climate change leading to Droughts, Floods etc.	Climatic condition of the proposed project area has been discussed in Section 3.3 under Chapter III, pp.50-60.
c)	Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local People.	The information about CO <sub>2</sub> emission has been added to Section 4.6 under Chapter IV, pp.104-108.
d)	Possibilities of water contamination and impact on aquatic ecosystem health.	Possibilities of both surface and ground water contamination have been discussed in Section 4.3 under Chapter IV, pp.89 & 90. The impact on aquatic species has been discussed in Section 4.6 under Chapter IV, pp.104-108.
e)	Agriculture, Forestry, & Traditional practices.	Sorgum, millet, groundnut, and coconut are the primary crops that are cultivated in the study area.
f)	Hydrothermal/Geothermal effect due to destruction in the Environment.	The average geothermal gradient of earth is 25 <sup>0</sup> C/km. As the proposed depth of mining is 61 m below the local ground level, the temperature will increase by 1.52 <sup>0</sup> C at the depth of mining.
g)	Bio-geochemical processes and its foot prints including environmental stress.	Data is not included.
h)	Sediment geochemistry in the surface	There is no river within 5km radius.

	streams.	The condition is not applicable.
<b>Agriculture &amp; Argo-Biodiversity</b>		
13	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, pp. 104-108.
14	Impact on soil flora & vegetation around the project site.	The details on flora have been provided in Section 3.5 under Chapter III, pp.64-78. 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.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area shall be given and if so, transplanta-tion 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 3.5 under Chapter III, pp. 64-78. Details about transplanta-tion of plants have been provided in Section 4.6 under Chapter IV, pp. 104-108.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The ecological details have been provided in Section 3.5 under Chapter III, pp.64-78 and measures have been provided in Section 4.6 under Chapter IV, pp.104-108.
17	Action should specifically suggest for	All the essential environmental

	sustainable management of the area and restoration of ecosystem for flow of goods and services.	protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV, pp.88-112.
18	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, pp.88 & 89.
<b>Forests</b>		
19	The project proponent shall 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.
20	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, pp. 104-108.
21	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, pp. 104-108.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National parks, corridors and wildlife pathways, near project site.	There are no protected areas, National Parks, Corridors and Wildlife pathways near project site. The list of environmentally sensitive areas within 10 km radius has been provided in Table 3.39 under Chapter III, pp.86 & 87.
<b>Water Environment</b>		
23	Hydro-geological study considering the contour map of the water table detailing the	Detailed hydrogeological study was carried out. The results have been

	<p>number of ground water pumping &amp; 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.</p>	<p>discussed Section 3.2 under Chapter III, pp.38-50.</p>
24	<p>Erosion control measures.</p>	<p>Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.3 under Chapter IV, pp.89 &amp; 90.</p>
25	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, waterbodies/rivers &amp; any ecological fragile areas.</p>	<p>The matter has been discussed under Chapter IV, pp.88-112.</p>
26	<p>The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and Reservoir.</p>	<p>An analysis for food chain in aquatic ecosystem has been discussed in Section 3.5.1 under Chapter 3, pp.66-72.</p>
27	<p>The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p>	<p>The impacts of the proposed project on the surrounding environment have discussed in Chapter IV, pp.88-112.</p>
28	<p>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 sits possible land form changes visual and aesthetic impacts.</p>	<p>The impact of the proposed project on aquatic plants and animals in water bodies has been discussed in Section 4.6 under Chapter IV, pp. 104-108.</p>

29.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components.	The impact of mining on soil environment has been discussed in Section 4.2 under Chapter IV, pp.89.
30	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, pp.89 & 90.
<b>Energy</b>		
31	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, pp. 88-112.
<b>Climate Change</b>		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission and the measures to mitigate carbon emission have been discussed in Section 4.6 under Chapter IV, pp. 104-108.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The matter has been discussed in Chapter IV, pp. 88-112.
<b>Mine Closure Plan</b>		
34	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 2.9 under Chapter II, p.22.
<b>EMP</b>		
35	Detailed Environment Management plan along with adaptation, mitigation & remedial	A detailed Environment Management plan has been given under Chapter X,

	strategies covering the entire mine lease period as per precise area communication order issued.	pp.137-155.
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	A detailed Environment Management plan has been given in Tables 10.9 & 10.10 under Chapter X, pp.148-155.
<b>Risk Assessment</b>		
37	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 7.1 under Chapter VII, pp.119-121.
<b>Disaster Management Plan</b>		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII, pp.122-123.
<b>Others</b>		
39.	The project proponent shall furnish VAO certificate with reference to 300 m radius regard to approved habitations, schools, Archaeological sites, structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, river, lake pond, tank etc.	The VAO certificate is attached in the Annexure VII.
40	As per the MoEF & CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the	The concerns raised during public consultation will be submitted in the

	concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management plan.	final EIA report.
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The matter on plastic waste management has been given in Section 7.5 under Chapter VII, pp.131-132.
<b>STANDARD TERMS OF REFERENCE</b>		
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.
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 private land. A copy of the document showing that the proponent is the rightful lessee has been enclosed along with the approved mining plan 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.	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4, under



	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).	Chapter II, p.13.
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, pp.28-87.
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 proponent has framed Environmental Policy and the same has been discussed in Section 10.1 under chapter X, p.137-138.

	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.	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 <sup>0</sup> 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 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.
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	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, pp.29-37. The details of surrounding sensitive ecological features have

	should be given.	been provided in Table 3.39 under Chapter III, pp.86-87. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.8 under Chapter II, p.22.
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 rough stone will be transported to the needy customers.
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.	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.39 under Chapter III, pp.86-87.
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	Not Applicable. The project doesn't attract

	Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	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.	Reserve Forest is found within the study area. The matter has been discussed Section 3.5.1, under Chapter III, pp.66-72.
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 within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.39 under Chapter III, pp.86-87.
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 3.39 under Chapter III, pp.86-87.

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 3.5 under Chapter III, pp.64-78.
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	Not Applicable  The project doesn't attract the C.R.Z. Notification, 2018.

	Authority).	
21.	<p>R&amp;R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&amp;R Plan, the relevant State/National Rehabilitation &amp; 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&amp;R and socio-economic aspects should be discussed in the Report.</p>	<p>Not Applicable.</p> <p>There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&amp;R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.</p>
22.	<p>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</p>	<p>Baseline data were collected for the period of October – December, 2023 as per CPCB notification and MoEF &amp; CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.8 under Chapter III, pp. 29-87.</p>

	<p>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.</p>	
23.	<p>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.</p>	<p>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.90-100.</p>
24.	<p>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.</p>	<p>The water requirement for the project, its availability and source have been provided in Table 2.11 under Chapter II, p.25.</p>
25.	<p>Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.</p>	<p>Not Applicable.</p> <p>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</p>

		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, pp. 89-90.
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.	Not Applicable.  The ground water table is found at the depth of 80 m below ground level. The ultimate depth of quarry is 61 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 3.2 under Chapter III, pp.38-50.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification	Not Applicable.  There are no streams, seasonal or



	/ diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	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 751 m AMSL. Ultimate depth of the mine is 61 m BGL. Depth to the water level in the area is 80 m BGL.
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, pp.104-108.
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	Traffic density survey was carried out to analyse 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

	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.	provided in Section 3.7 under Chapter III, pp.84-86.
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 under Chapter II, p.25.
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 Section 2.6.5 under Chapter II, p.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 have been explained in detail in Section 4.8 under Chapter IV, pp.109-110.
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.134-135.
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	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic

	dimensions may be given with time frames for implementation.	environment by offering employment for 24 people directly as discussed in Section 8.1 under Chapter VIII, p.133.
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 10.10 & 10.11 under Chapter X, pp.148-155.
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.1,71,82,000/- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs.8744517 as capital cost and recurring cost as Rs. 3157546 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 overall EMP cost for 5

		years will be 26329484, as shown in Tables 10.10 & 10.11 under Chapter X, pp.148-155.
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.122-123.
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.133-135.
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 earlier by the	The questionnaire will be submitted in the final EIA report.

	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 4th 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.	The details will be submitted in the final EIA report.
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.

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# 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 14<sup>th</sup> September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14<sup>th</sup> 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 50 ha in the case of non-coal mine lease, 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 as per the order dated 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.

In compliance with ToR obtained vide Letter No. SEIAA-TN/F.No.10412/2023/SEAC/1(a) ToR/Violation-1609/2023 dated 07.11.2023 this EIA report has been prepared for the project proponent, **Thiru.R. Rajappa** applied for rough stone quarry lease in the Government Poramboke land falling in S.F. No.1266 over an extent of 4.04.5 ha in Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. This EIA report takes into account the rough stone quarry within the cluster of 500 m radius from the periphery of the proposed project site. The cluster contains five proposed projects known as P1, P2, P3, P4, P5 and seven existing projects E1, E2, E3, E4, E5, E6, E7 and two expired projects EX1, EX2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 (E) Dated 1<sup>st</sup> July 2016. The total extent of all the quarries in the cluster is 36.48.5 ha also known as the cluster extent. The quarries involved in the calculation of cluster extent are shown in Figure 1.1.

**Table 1.1 Details of Quarries within the Cluster Area of 500 m Radius**

<b>Proposed Quarries</b>					
<b>Code</b>	<b>Name of the Owner</b>	<b>S.F. No</b>	<b>Village</b>	<b>Extent (ha)</b>	<b>Status</b>
<b>P1</b>	Thiru.R.Rajappa	1266	Kamandoddi	4.04.50	Proposed Area
<b>P2</b>	Thiru.R.Sambangi	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A	Kamandoddi	2.23.0	Applied Area
<b>P3</b>	Thiru.Govindappa	754 & 760 (Part-2)	Kamandoddi	2.10.0	Applied Area
<b>P4</b>	Thiru.P.Mallikarjun	754 & 760 (Part-4)	Kamandoddi	3.50.0	Applied Area
<b>P5</b>	M/s. Royal Blue Metals	1151, 115, 1212, 1219, 1222, 1225 1226/A (P-1)	Kamandoddi	2.70.0	Applied Area
<b>Existing Quarries</b>					
<b>E1</b>	Thiru.R.Narayanappa	754, 760(Part-1)	Kamandoddi	1.80.0	27.03.2023 To 26.03.2033
<b>E2</b>	Thiru.K.Ashoka	754 & 760(P-3)	Kamandoddi	2.75.0	17.02.2022 To 16.02.2032
<b>E3</b>	Thiru.V.Karunanithi	754, 760(Part-5)	Kamandoddi	4.30.0	24.06.2022 To 23.06.2032
<b>E4</b>	M/s. Royal blue Metals	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-2)	Kamandoddi	2.87.0	24.06.2022 To 23.06.2032
<b>E5</b>	Thiru.K.Muruges	1151, 1155, 1212, 1219,	Kamandoddi	2.82.0	30.03.2023 To 29.06.2032

		1222, 1225 & 1226/A (P-3)			
<b>E6</b>	Thiru.S.Madhu	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-5)	Kamandoddi	1.27.0	06.12.2019 To 05.12.2029
<b>E7</b>	Thiru.C.Surendiran	1269/2A	Kamandoddi	1.66.5	13.10.2017 To 12.10.2027
<b>Expired Quarries</b>					
<b>EX1</b>	Tmt.V.Renuka	1269/2B	Kamandoddi	2.05.0	13.07.2017 to 12.07.2022
<b>EX2</b>	Thiru.P.Venkatareddy	1267/2, 1268/2 & 1268/3	Kamandoddi	2.38.5	10.11.2017 To 09.11.2022
	<b>Total Cluster Extent</b>			<b>36.48.5</b>	---

**Source:**

*DD Letter: Rc.No.896/2019/Mines, Dated:14.09.2023*

**Note:** Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016.

**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 2023 to 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 to analyse impacts and provide mitigation measures.

**1.2 ENVIRONMENTAL CLEARANCE**

The Environmental Clearance process for the project will comprise of four stages. These stages are screening, scoping, public consultation & appraisal.

**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/445091/2023, dated.20.09.2023) 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 22.09.2023.

### ***Scoping***

The proposal was placed in the 417<sup>th</sup> meeting of SEAC on 18.10.2023. 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***

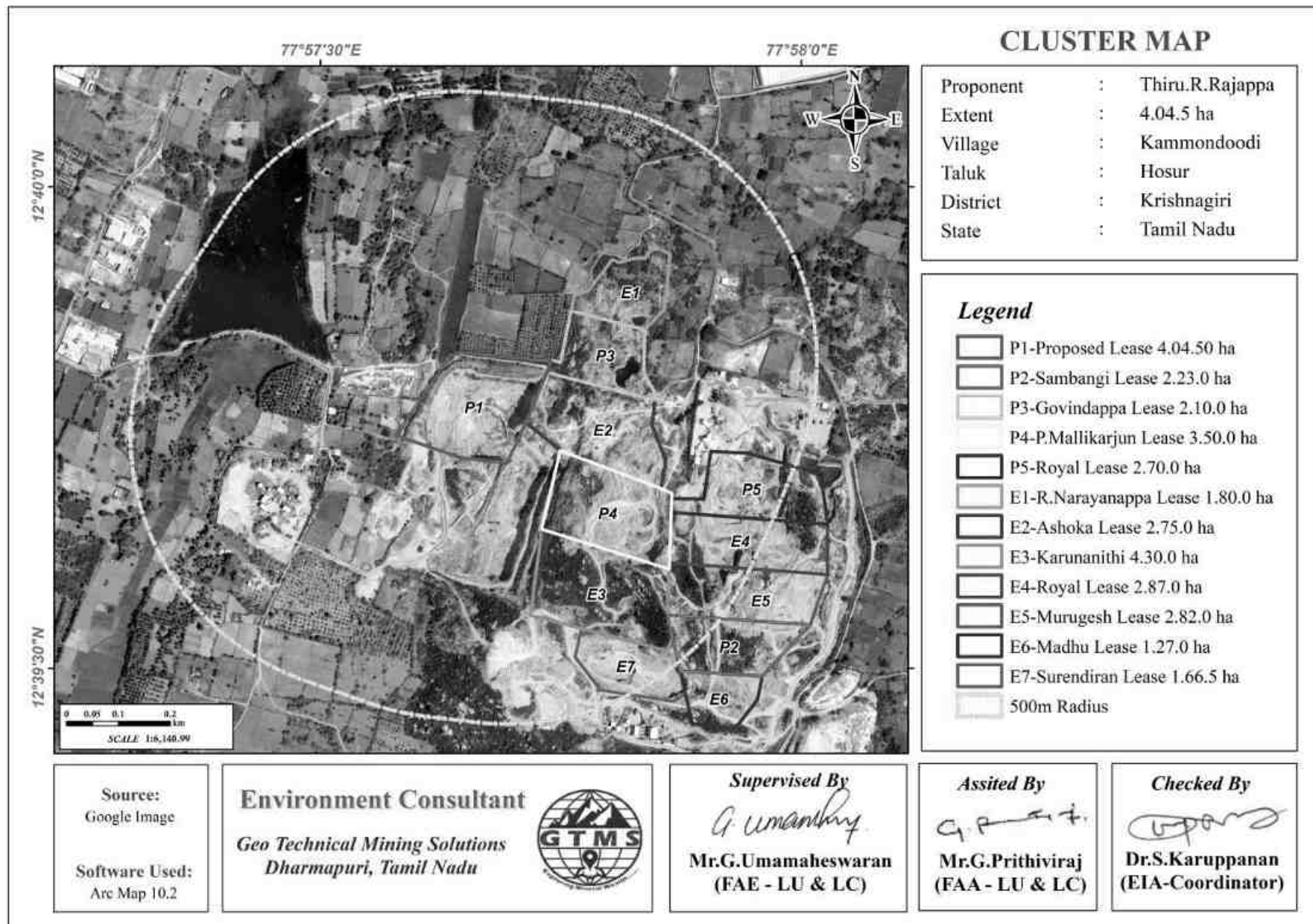
In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, 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 updated in the final EIA report for appraisal.

### ***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 Letter No. SEIAA-TN/F.No.10412/2023/SEAC/1(a) ToR/Violation-1609/2023 dated 07.11.2023 for the preparation of an EIA report.



**Figure 1.1 Location of Proposed and Existing Rough Stone Quarry in the Cluster of 500 m Radius**

#### **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 1<sup>st</sup> June and 1<sup>st</sup> 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.

##### **1.2 Details of Project Proponent**

<b>Name of the Project Proponent</b>	<b>Mr.R.Rajappa</b>
Address	S/o.V.Ramappa, No.3/883, Pillayakothoor Village, Koneripalli post, Shoolagiri Taluk, Krishnagiri District
Status	Proprietor

#### **1.7 BRIEF DESCRIPTION OF THE PROJECT**

The proposed project deals with excavation of rough stone which is primarily used in construction projects. The method adopted for rough stone excavation is open cast semi mechanized method involving formation of benches with 7 m height and 5 m width. The proposed project site is located in Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. Some of the important features of the proposed project have been provided in Table 1.3.



**Table 1.3 Salient Features of P1**

Name of the Quarry	<b>Thiru.R. Rajappa</b>	
Type of Land	Government Poramboke Land	
Extent	4.04.5 ha	
S.F. No	1266	
Toposheet No	57-H/14	
Highest Elevation	751 m AMSL	
Latitude	12°39'42.80"N to 12°39'49.71"N	
Longitude	77°57'34.73"E to 77°57'44.39"E	
Ultimate Pit Dimension	61m BGL	
Geological Resources	Rough stone (m <sup>3</sup> )	Top Soil (m <sup>3</sup> )
	1732019	990
Mineable Reserves	Rough stone (m <sup>3</sup> )	Top Soil (m <sup>3</sup> )
	655613	218
Proposed production for 5 years	Rough stone (m <sup>3</sup> )	Top Soil (m <sup>3</sup> )
	655613	218
Method of Mining	Open cast semi mechanized mining method	
Topography	Elevated Topography	
Machinery proposed	Jack hammer	4
	Excavator	1
	Compressor	2
	Tipper	10
Proposed Manpower Deployment	24	
Project Cost	Rs.1,71,82,000/-	
Proposed Water Requirement	5.0 KLD	

### 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, back ground 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 2023-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 REFERENCES

The report has been prepared using the following references:

- ❖ Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, February, 2010
- ❖ EIA Notification, 14<sup>th</sup> September, 2006
- ❖ Terms of Reference (ToR) issued by SEIAA.
- ❖ Approved Mining Plan of this Project.
- ❖ 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**

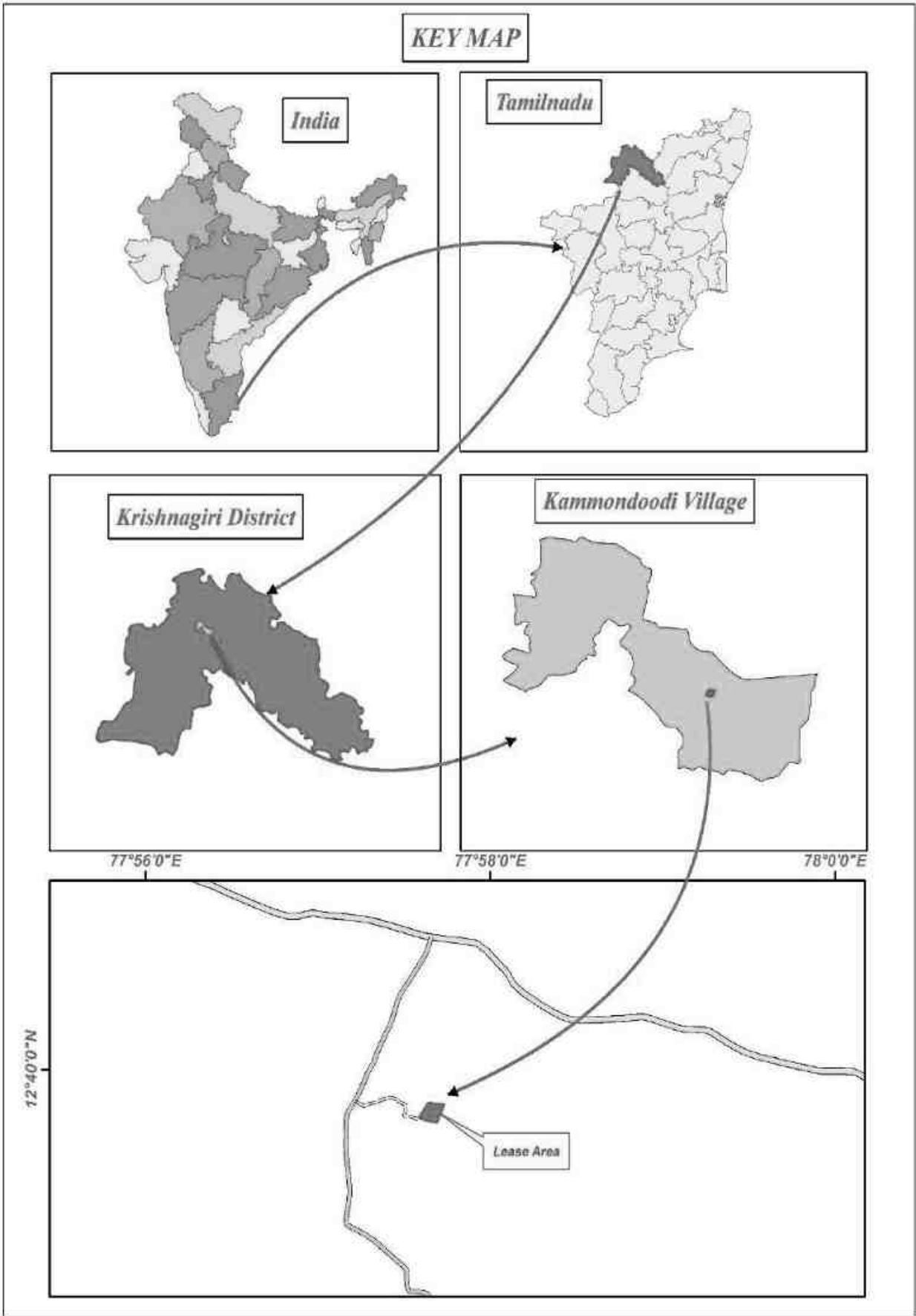
The proponent, Thiru.R.Rajappa is involved in the undertaking of establishment, construction, development, and closure of opencast mines. He, through the exploration phase, identified the proposed project site as the one that has a great potential of producing an economically viable quantity of rough stone. Therefore, the proponent had applied for quarry lease on 16.02.2016 to extract rough stone. The precise area communication letter was issued by Department of Geology and Mining, Krishnagiri vide (Rc.No.102/2016/Mines Dated 29.02.2016). Based on the precise area communication letter, mining plan was prepared. The mining plan thus prepared was approved by Deputy Director Department of Geology and Mining, Krishnagiri (Rc.No.102/2016/Mines-1, Dated 05.10.2016). 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 Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu, as shown in Figure 2.2. The area lies between Latitudes from 12°39'42.80"N to 12°39'49.71"N and Longitudes from 77°57'34.73"E to 77°57'44.39"E. The maximum altitude of the project area is 751 m 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**

Type of Features	Name/Location	Distance (km)	Direction
Nearest Roadways	NH-44 Krishnagiri - Hosur	1.4 km	W
Nearest Railway	Kelamangalam	11.3 km	SE
Nearest Town	Sappadi	1.39 km	E
Nearest Airport	Bangalore	58.6 km	NW
Nearest Seaport	Chennai	254 km	NE
Nearest Villages	Koneripalli	1.4 km	N
	Chappadi	1.35 km	E
	Tirumalaigovunikottai	1.1 km	S
	Kukkalapalli	1.66 km	W

**2.3 LEASEHOLD AREA**

- ❖ The extent of the proposed project site is 4.04.50 ha.
- ❖ 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 geographic coordinates are given in Table 2.2 and the proposed project site with boundary coordinates has been shown in Figure 2.3.

**Table 2.2 Corner Coordinates of Proposed Project**

Pillar ID	Latitude	Longitude
1	12°39'49.11"N	77°57'44.39"E
2	12°39'45.49"N	77°57'42.90"E
3	12°39'42.80"N	77°57'41.64"E
4	12°39'43.14"N	77°57'38.69"E
5	12°39'44.51"N	77°57'34.73"E
6	12°39'48.89"N	77°57'37.70"E
7	12°39'49.49"N	77°57'38.07"E
8	12°39'49.71"N	77°57'38.74"E

**2.4 GEOLOGY**

The lease area geologically occurs over grey hornblende biotite gneiss, commercially called as rough stone. Also, the lease area geomorphologically occurs over pediment pediplain complex.

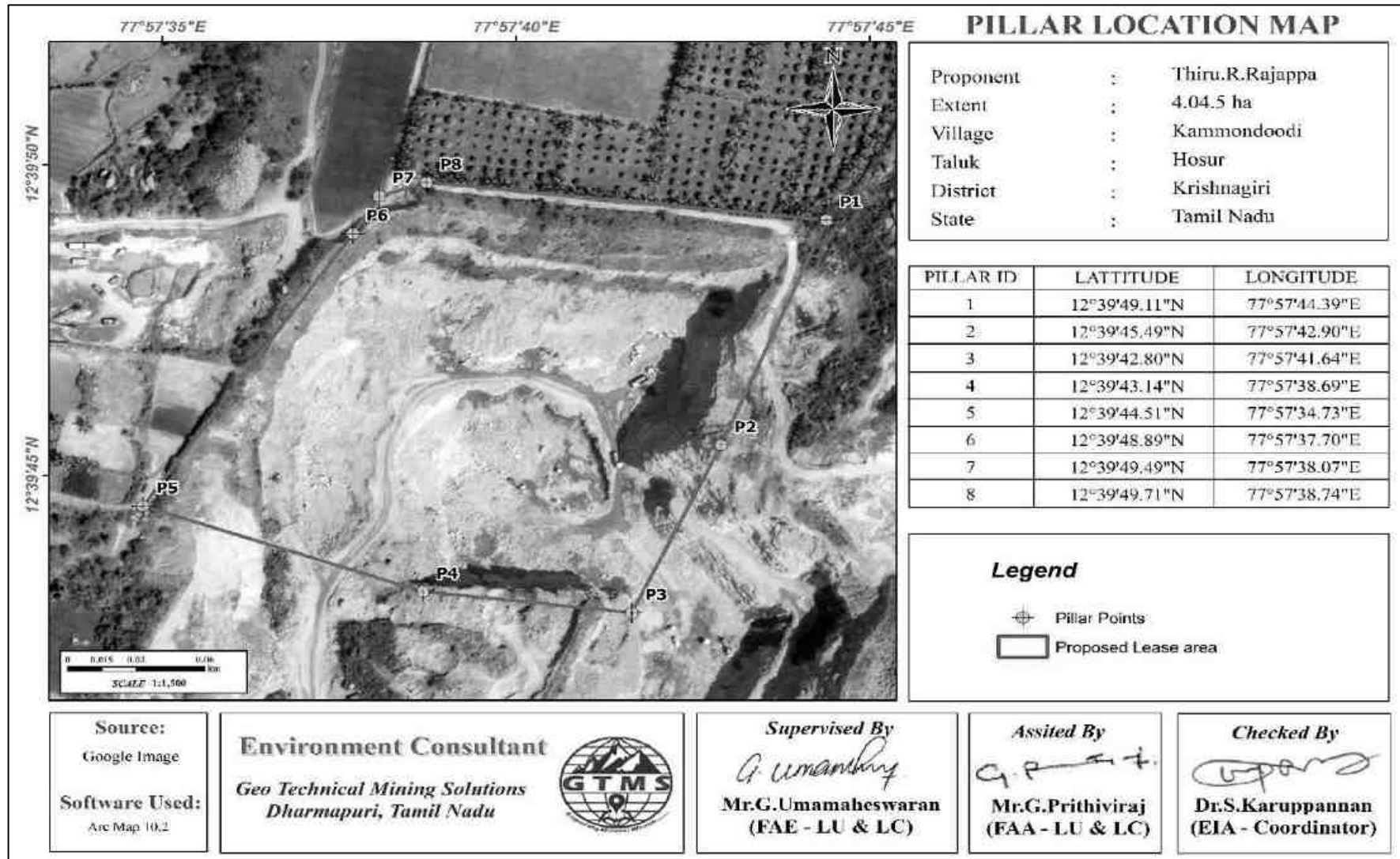


Figure 2.3 Google Earth Image Showing Pillar Coordinates of Lease Area

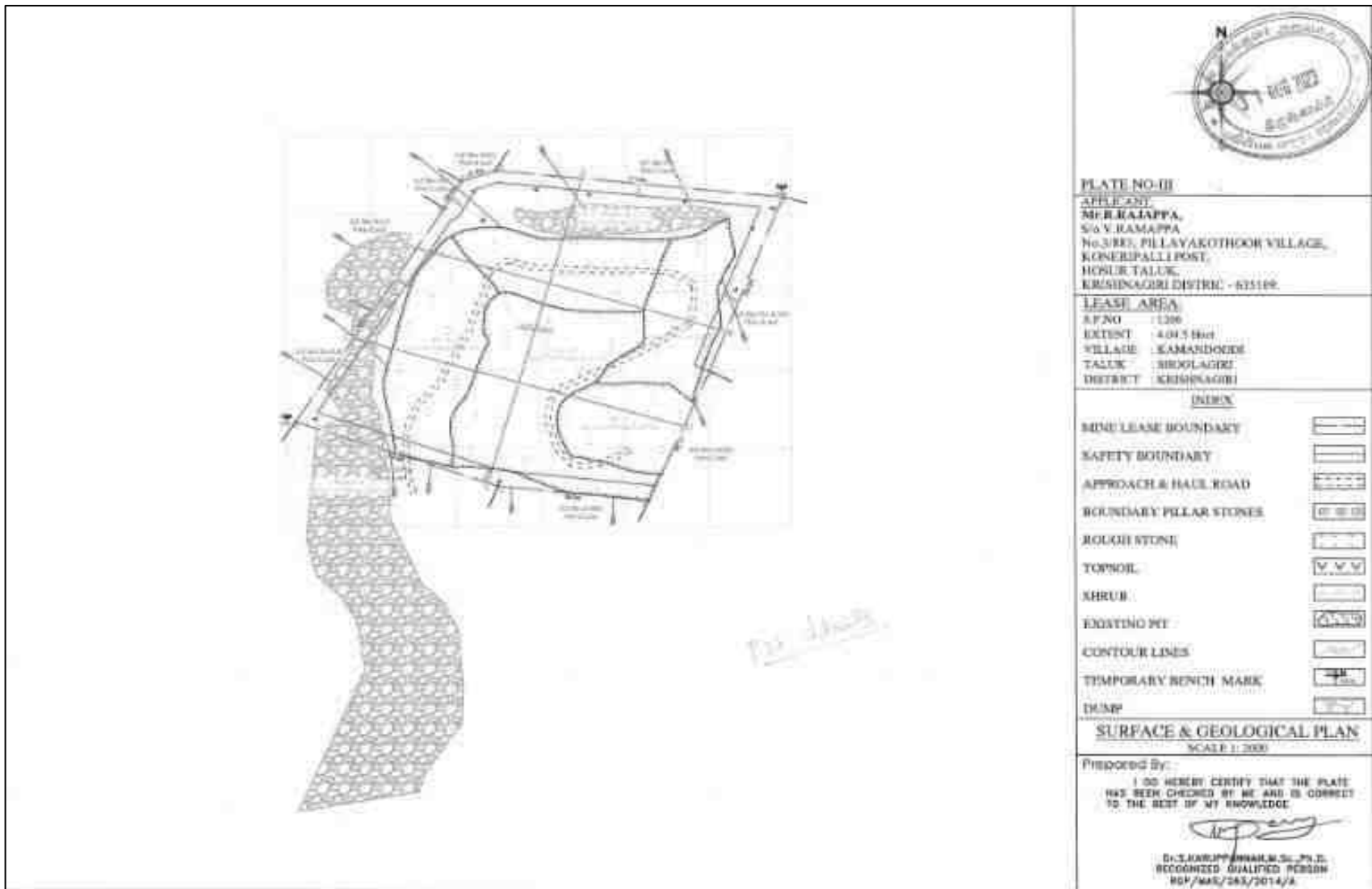


Figure 2.4 Surface and Geological Plan



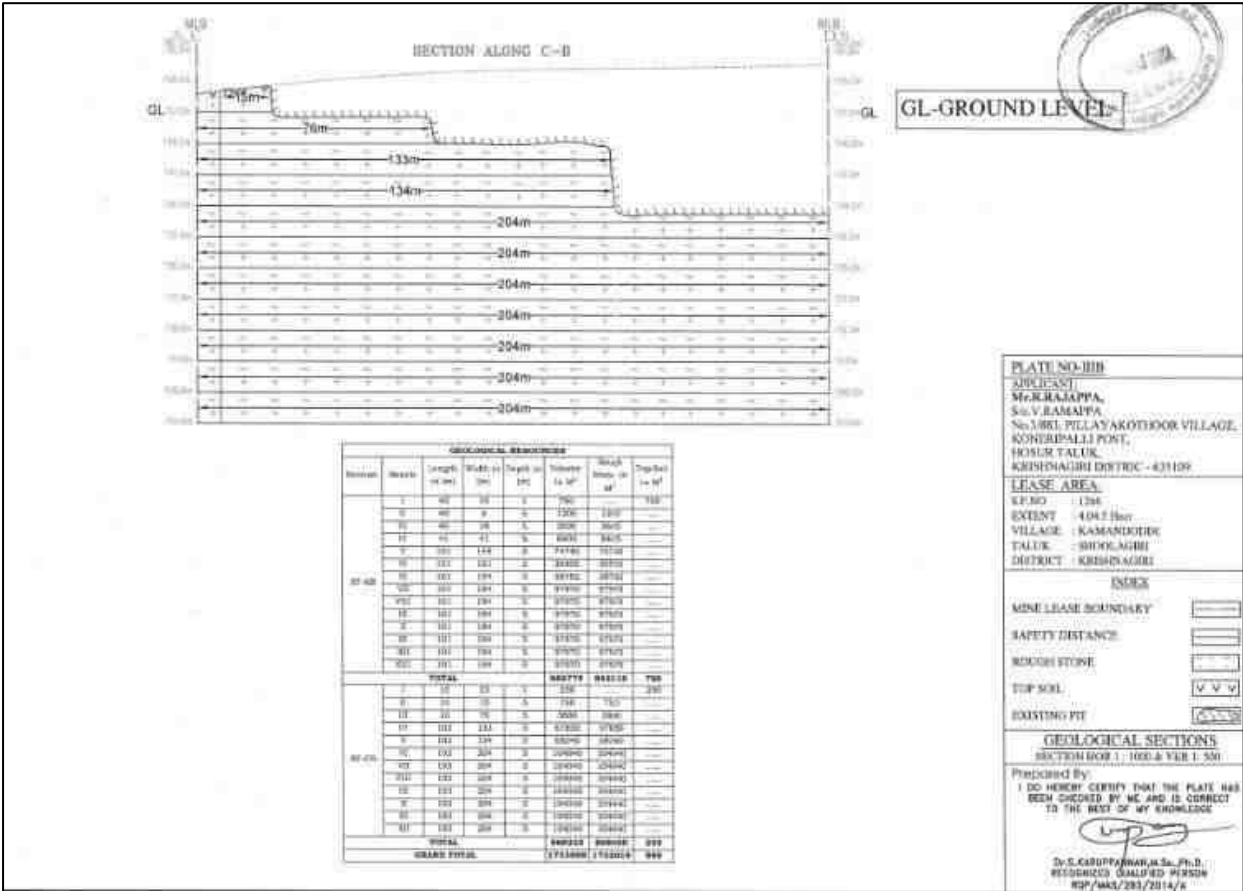
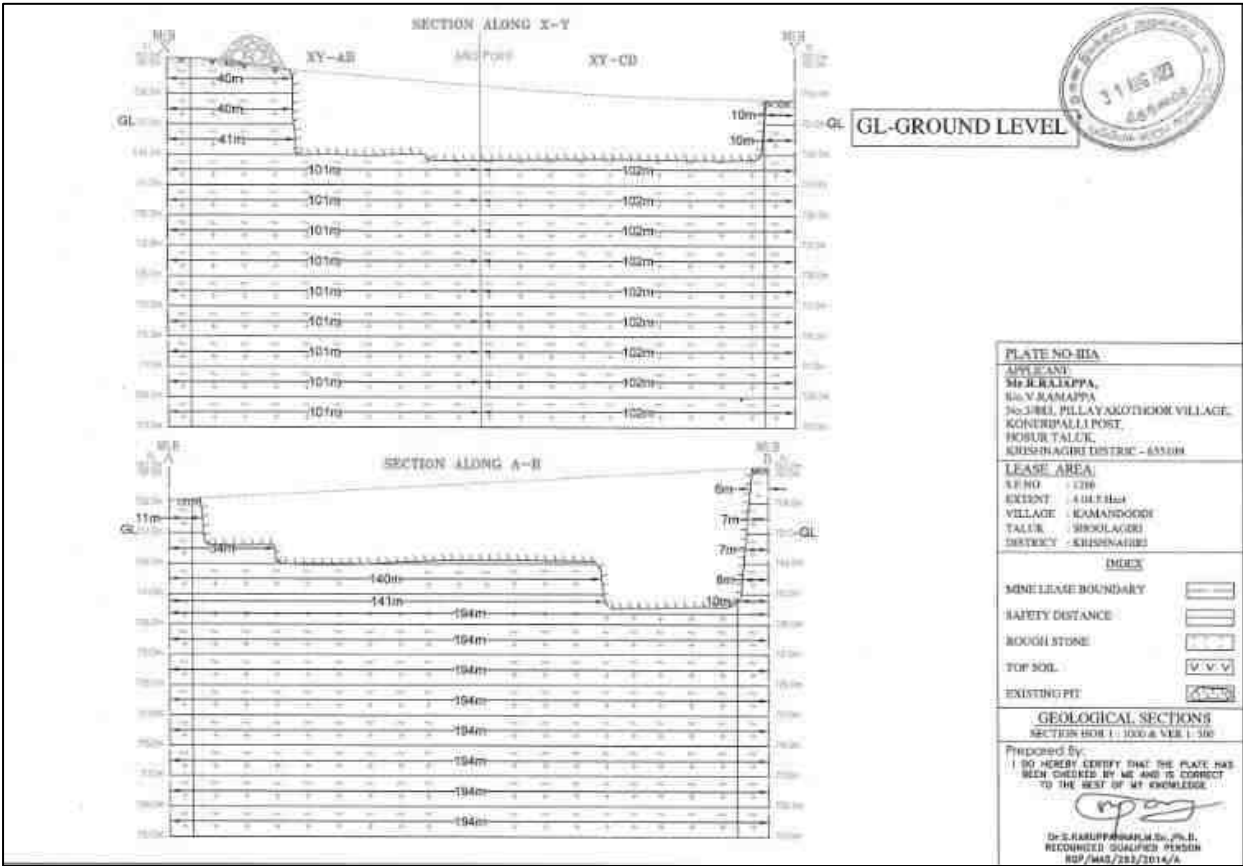


Figure 2.4a Surface and Geological Section

## 2.5 QUANTITY OF RESERVES

The resources and reserves of rough stone and gravel 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 margins, as shown in Figure 2.5 and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 61 m BGL considering there is no waste / overburden / side burden (100% Recovery anticipated) for the proposed project. The results of geological resources and reserves have been shown in Table 2.3.

**Table 2.3 Estimated Resources and Reserves of the Project**

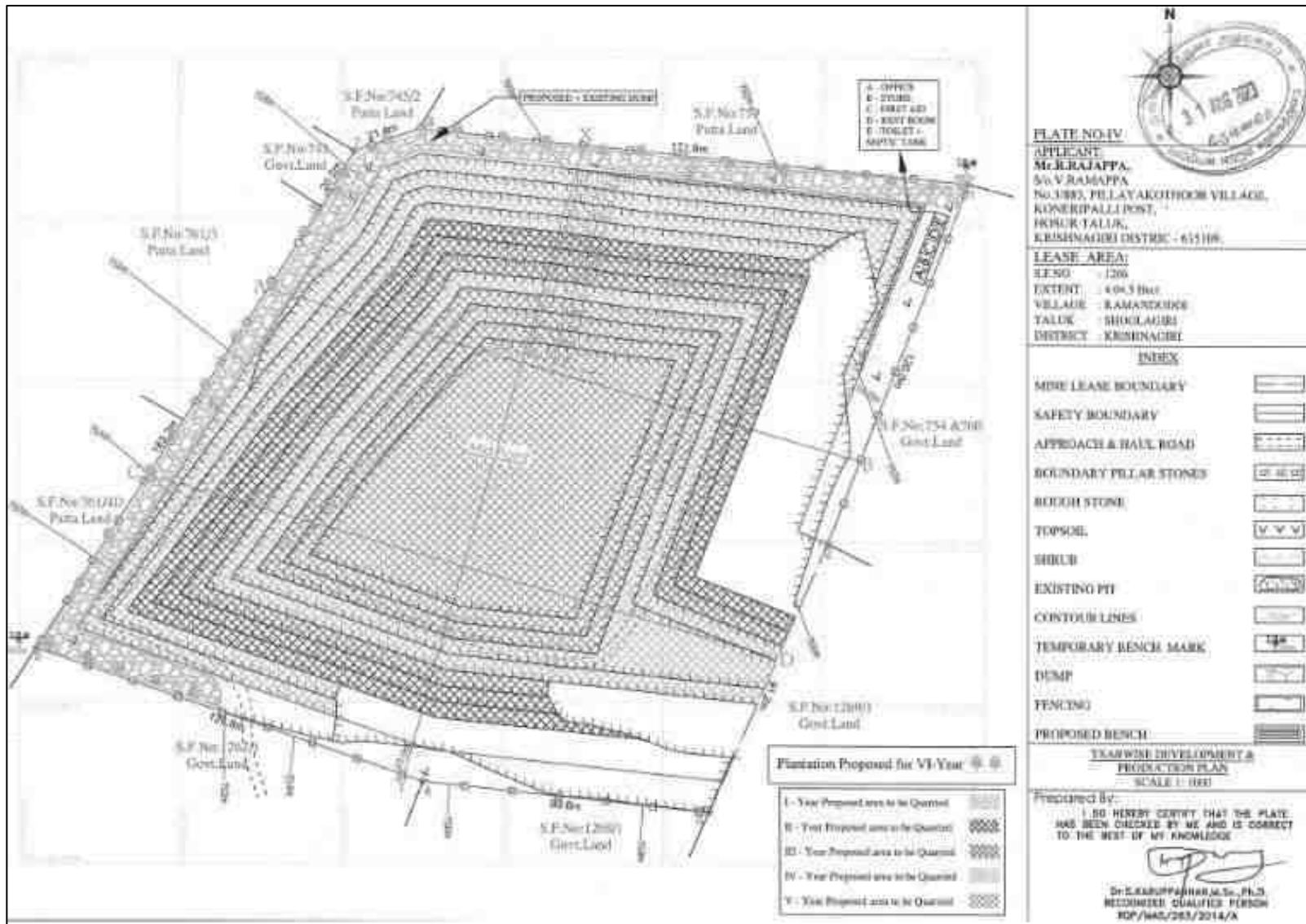
Resource Type	Rough Stone in m <sup>3</sup>	Top Soil in m <sup>3</sup>
Geological Resource in m <sup>3</sup>	1732019	990
Mineable Reserves in m <sup>3</sup>	655613	218
Proposed production for 5 years m <sup>3</sup>	655613	218

Based on the year wise development and production plan and sections, as exemplified in Figures 2.5 & 2.5a the year wise production results have been provided in Table 2.4.

**Table 2.4 Year-Wise Production Details**

Year	Rough Stone (m <sup>3</sup> )	Top Soil (m <sup>3</sup> )
I	100015	218
II	151393	---
III	136850	---
IV	126475	---
V	140880	---
<b>Total</b>	<b>655613</b>	<b>218</b>

*Source: Approved Mining Plan & ToR*



**Figure 2.5 Yearwise Development and Production Plan**

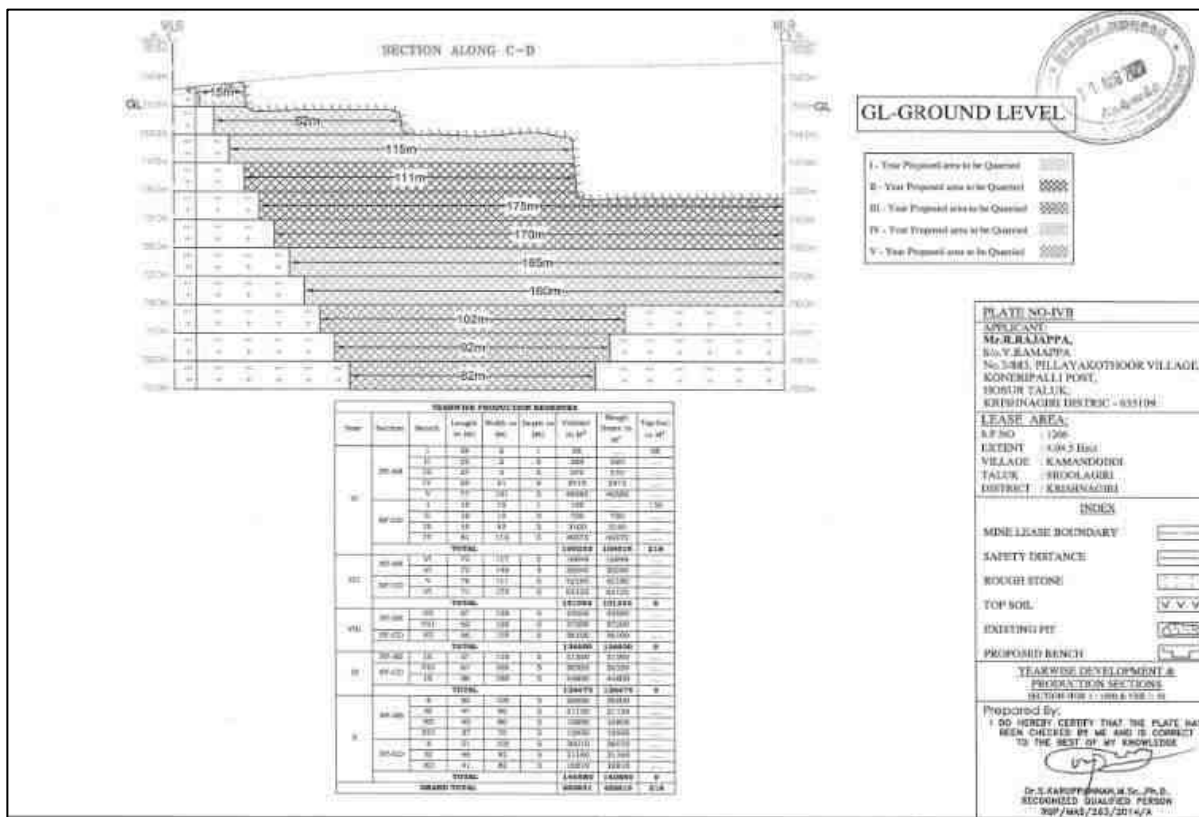
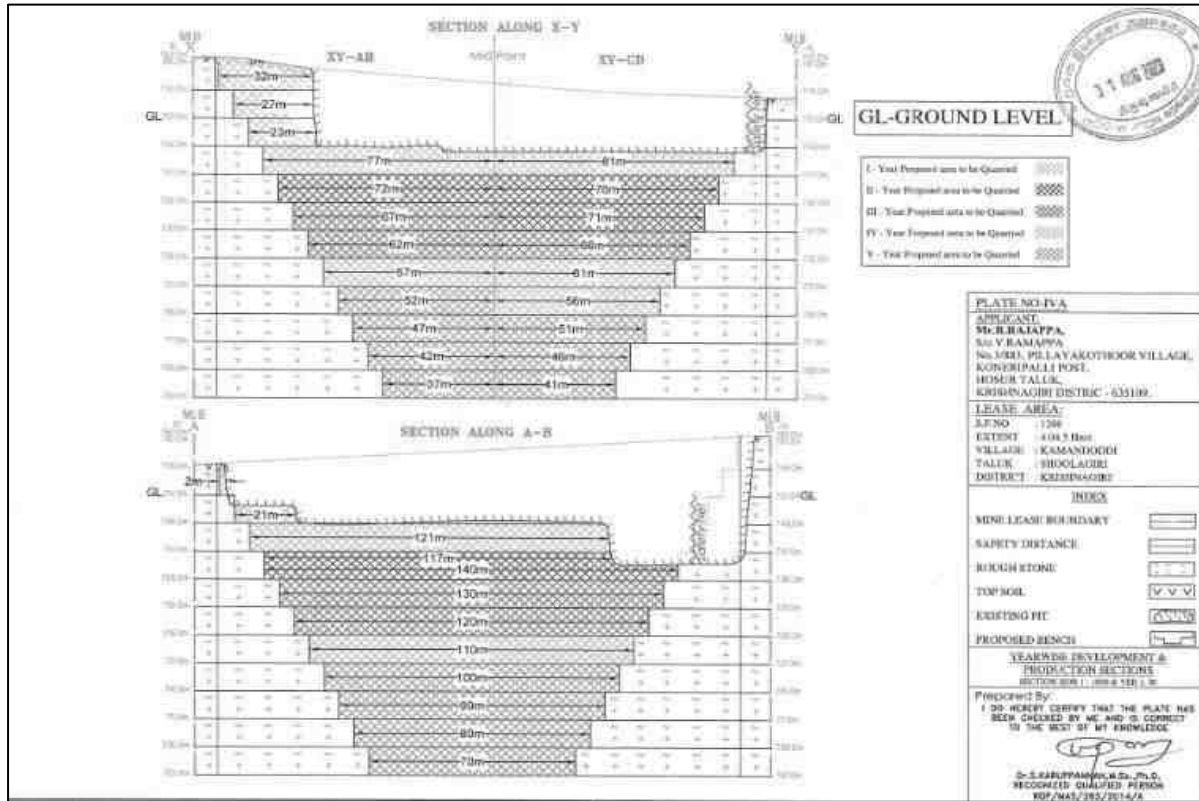


Figure 2.5a Yearwise Development and Production Section

## **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 5 m each. The open cast semi-mechanized method involving drilling and blasting is proposed to extract rough stone. The extracted rough stone will be loaded manually to the trucks for dispatch to the customers. In this project, NONEL blasting will be adopted to extract rough stone.

### **2.6.1 Conceptual Blasting Design**

In this project, NONEL blasting will be employed to win rough stone. This method will involve closed spaced perimeter holes to reduce the overbreak/backbreak on a blast. The objective of the blasting design is to prevent fly rocks from damaging the nearby structures.

#### **Rules of Thumb for Blast Design**

Based on practical experience and technical information, a set of rules for blasting have been provided as below ([Chapter8 \(nps.gov\)](#)). These rules will be applied to blast rocks in the proposed project.

**Rule 1: The detonation velocity (VOD) of the explosive should be close to the same value of the sonic velocity (VSO) of the rock to be blasted.**

The sonic velocity of a rock is considered to be a reliable indicator of its structural integrity and resistance to fragmentation. As the VOD of the explosive approaches close to the VSO of the rock, the blasting would result in relatively smaller size of fragmentation with uniformity. There is no value in using an explosive that has a VOD greatly in excess of the VSO of the rock, since there is little or no improvement in fragmentation above the VSO. When selecting an explosive to match up the VSO of a rock mass, variance of <10% in the velocities is acceptable.

**Rule 2: Generally, select the densest explosive possible.**

When the density of explosives is higher, the potential energy of the explosives can be greater and the more of it can be placed within a borehole of a given size.

**Rule 3: Select explosives according to the characteristics of the rock formation to be blasted.**

When planes of separation in the rock are smaller than the degree of fragmentation required, the rock can often be blasted by using lower density and lower detonation velocity explosives.

**Rule 4: When using slurry or water gel explosives, always determine the critical temperature below which the explosive will fail to reliably detonate.**

Almost all slurry explosives have a critical temperature below which they may not detonate, or may not sustain detonation in elongated columns. The explosives should not be used when the temperature of the explosive at time of loading is below that critical temperature.

**Rule 5: The distance between holes (spacing) should not be greater than one-half the depth of the borehole.**

When the distance between holes in a row is greater than one-half the depth of the hole, the angles of breakage intersect above the bottom of the holes. This causes both a great deal of vertical throw and a very uneven bottom.

**Rule 6: Stemming should be equal to the burden.**

Stemming is useful to confine and maximize efficient use of the explosive's energy. It also reduces noise as much as possible. If the stemming is greater than the burden, the rock at the top of the borehole will have less cracking from reflection and refraction of compressive and tensile waves. Therefore, stemming should be equal to burden. Drill fines can be used for loading the borehole.

**Rule 7: Subdrill (if necessary) should be between 0.3 and 0.5 of spacing/burden.**

Subdrill should be equal to 0.3 of burden. It will work when there is row-for-row delay. In blasts where the delay system is both row-for-row and hole-for-hole, the subdrill should be determined by the largest dimension, which can be the spacing or the burden. An average subdrill of 0.4 of spacing is best to use for planning purposes. Based on the above-mentioned rules, blasting design has been conceptualized and has been provided in Table 2.5.

**Table 2.5 Conceptual Blasting Design**

Blasthole Diameter (D) in mm	32
Burden (B) in m	1.5
Spacing (S) in m	1.30
Subdrill in m	0.45
Charge length (C) in m	0.64
Stemming	1.5
Hole Length (L) in m	2.6
Bench Height (BH) in m	2.1
Mass of explosive/hole in g	400
Stemming material size in mm	3.2
Burden stiffness ratio	1.43

Blast volume/hole in m <sup>3</sup>	4.16
Production of rough stone/day in m <sup>3</sup>	486
Number of blastholes/day	117
Blasthole pattern	Staggered / Rectangular
Mass of explosive /day in kg	46.73
Powder factor in kg/m <sup>3</sup>	0.10
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL
Fly rock distance in m	19

### 2.6.2 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 2.6.

**Table 2.6 Operational Details for Proposed Project**

	<b>Rough Stone / 5 years</b>
Proposed production	655613
Number of Working Days	270
Production /Day (m <sup>3</sup> )	486
No. of Lorry Loads	81

### 2.6.3 Extent of Mechanization

List of machineries proposed for the quarrying operation is given in Table 2.7.

**Table 2.7 Machinery Details**

S. No.	Type	No. of Unit	Size/Capacity	Make/Dia of Hole (mm)	Motive Power/ H.P
1	Jack Hammers	4	Hand Held	25.5 mm/Atlas Copco	Diesel Drive 60 H.P
2	Compressor	2	AIR	---	Diesel Drive
3	Excavator	1	1.2 M.T	L&T or EX200	Diesel Drive 120 H.P
<b>Haulage &amp; Transport Equipment</b>					
4	Tipper	10	10 M.T	Ashok Leyland	Diesel Drive 110 H.P

### 2.6.4 Progressive Quarry Closure Plan

The progressive quarry closure plan of the proposed project shows past, present, and future land use statistics. According to the land use results, at Present, about 0.22.75 ha of land is designated as unutilized area. Whereas, at the end of the mine life, about 2.88.4 ha of land would have been quarried; about 0.02.0 ha of land would have been used for establishing infrastructures; about 0.07.0 ha of land would have been used for road development; about 0.42.5 ha of land would have been used for green belt development.

**Table 2.8 Land Use Data at Present, During Scheme of Mining, and at The End of Mine Life**

Description	Present Area (ha)	Area at the end of life of quarry (ha)
Area under quarry	2.83.54	2.88.4
Infrastructure	Nil	0.02.0
Roads	0.03.0	0.07.0
Green Belt & Dump	0.95.21	0.42.5
Drainage & Settling Tank	Nil	Nil
Unutilized area	0.22.75	0.64.6
<b>Total</b>	<b>4.04.5</b>	<b>4.04.5</b>

### 2.6.5 Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, final mine closure plan is not proposed for now. Based on the environment management plan as discussed in Chapter X, the mine closure cost is given in Table 2.9.

**Table 2.9 Mine Closure Budget**

Activity	Capital Cost	Recurring Cost/Annum
809 Plants Inside the Lease Area	161800	24270
1214 Plants Outside the Lease Area	364050	36405
Wire Fencing	809000	40450
Garland Drain	40450	20225
<b>Total</b>	<b>13,75,300</b>	<b>1,21,350</b>

*Source: Environment Management Plan*



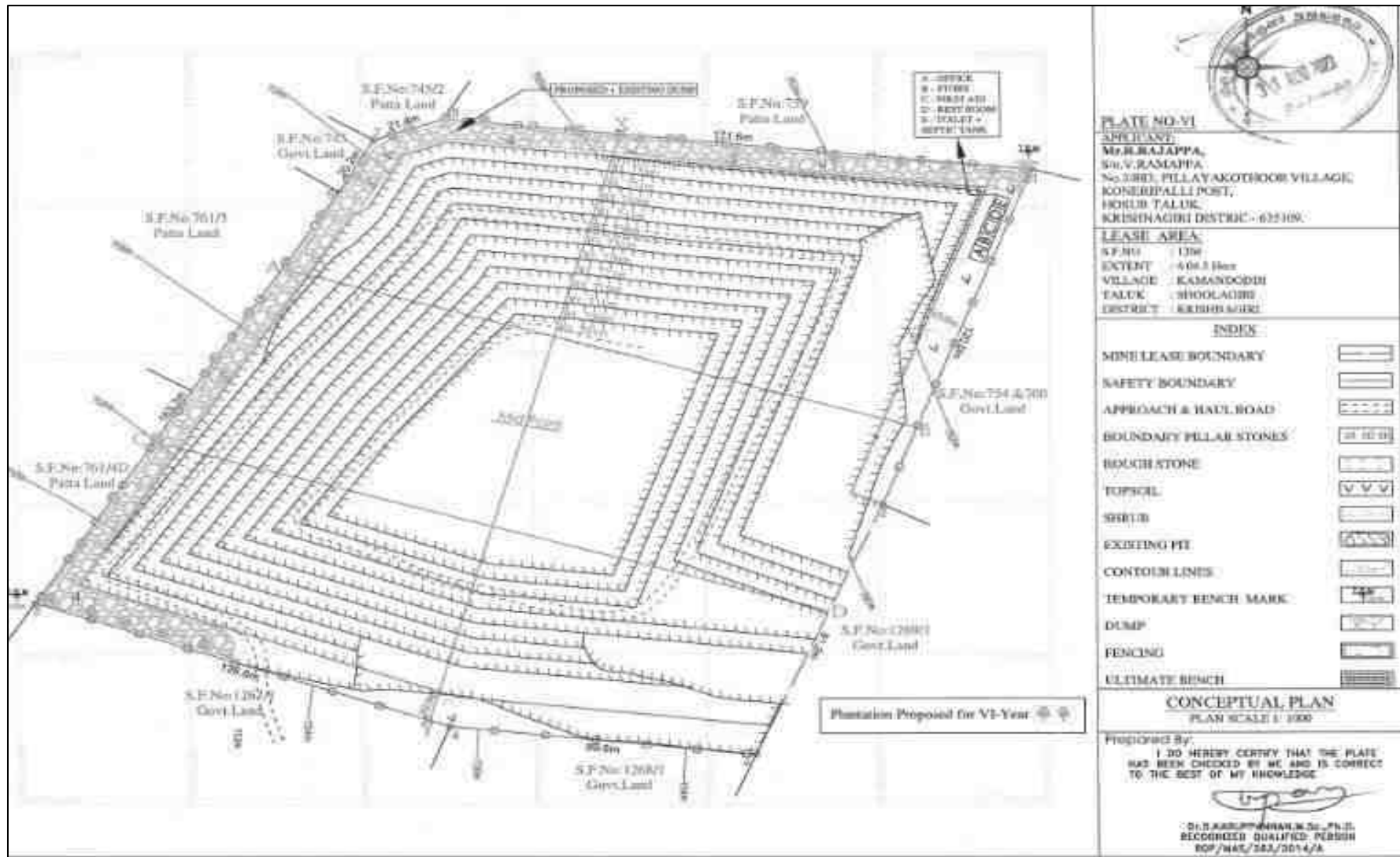


Figure 2.6 Conceptual Plan

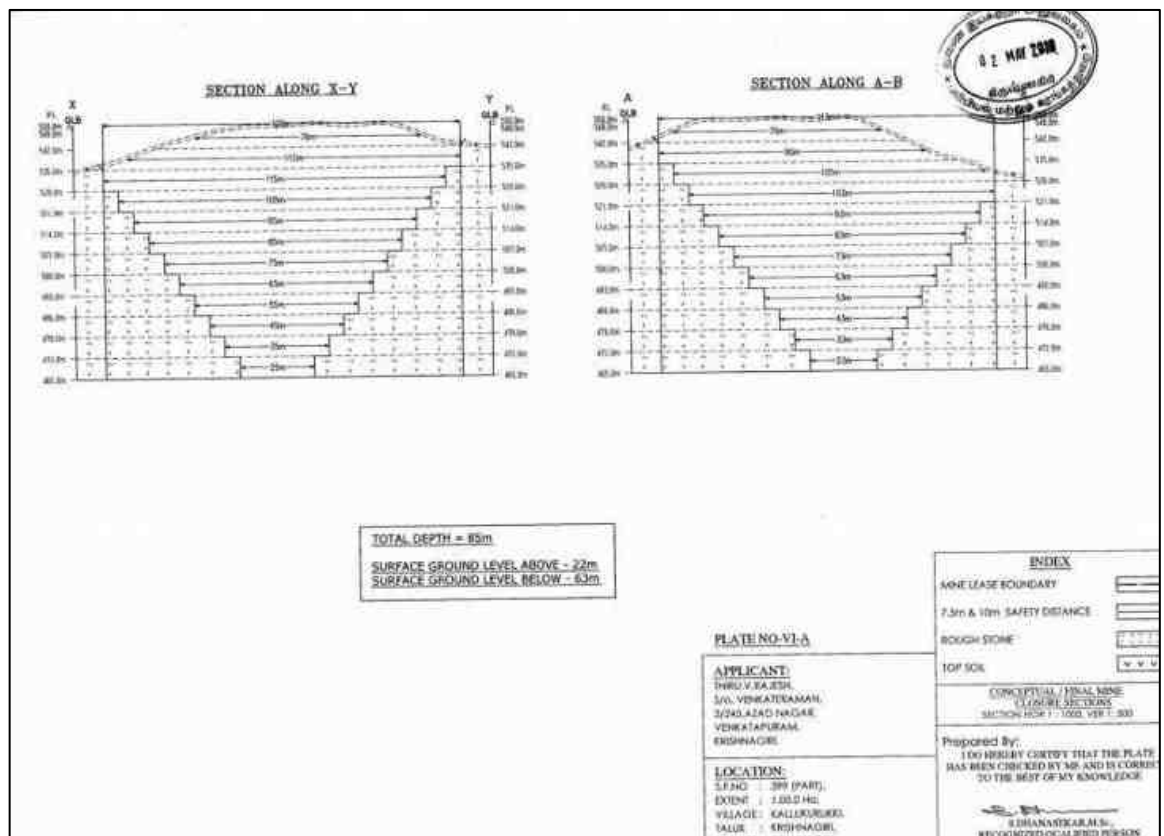
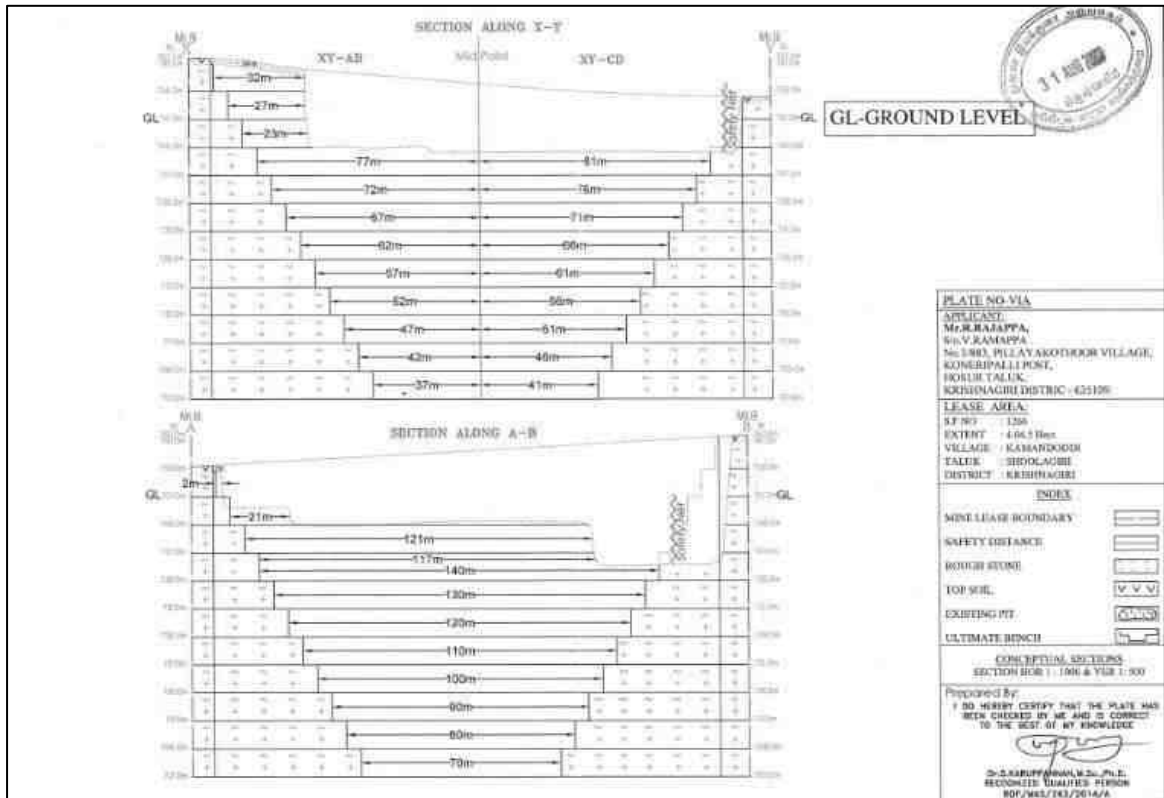


Figure 2.6a Conceptual Section

### 2.6.6 Conceptual Mining Plan

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc. The ultimate pit dimension derived from Figures 2.7 is provided in Table 2.10.

**Table 2.10 Ultimate Pit Dimension**

Pit	Length (m)	Width (m)	Depth (m)
I	81	175	61

*Source: Approved Mining Plan & ToR*

### 2.6.7 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.

#### ***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.

### 2.6.8 Water Requirement

Details of water requirement in 5.0 KLD is given in Table 2.11.

**Table 2.11 Water Requirement for the Project**

Purpose	Quantity	Source
Dust Suppression	1.5 KLD	Existing bore wells nearby the lease area
Green Belt development	1.0 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	2.5 KLD	Existing bore wells and approved water vendors
<b>Total</b>	<b>5.0 KLD</b>	

*Source: Prefeasibility Report*

### 2.6.9 Energy Requirement

High speed Diesel (HSD) will be used for quarrying machineries. As per the data shown in Table 2.12, Around 2773083 litres of HSD will be used for rough stone extraction during this 5 years plan period. The diesel will be brought to the site from nearby diesel pumps.

**Table 2.12 Fuel Requirement Details**

<b>Fuel Requirement for Excavator</b>			
<b>Details</b>	<b>Rough Stone (655613 m<sup>3</sup>)</b>	<b>Top Soil (218 m<sup>3</sup>)</b>	<b>Total Diesel (litre)</b>
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m <sup>3</sup> /hr)	20	60	---
Time Required (hours)	32781	4	---
Total Diesel Consumption for 5 years (litre)	524490	36	524527
<b>Fuel Requirement for Compressor</b>			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drillholes/day	117	---	---
Total Diesel Consumption for 5 years (litre)	63180	---	63180
<b>Fuel Requirement for Tipper</b>			
Average Rate of Fuel Consumption/Trip (litre)	20	0	---
Carrying Capacity in m <sup>3</sup>	6	6	---
Number of Trips / days	81	0	---
Number of Trips / 5 years	109269	0	---
Total Diesel Consumption for 5 years (litre)	2185377	0	2185377
<b>Total Diesel Consumption by Excavator, Compressor and Tipper</b>			<b>2773083</b>

**2.6.10 Capital Requirement**

The project proponent will invest Rs.1,71,82,000 to the project. The breakup summary of the investment has been given in Table 2.13.

**Table 2.13 Capital Requirement Details**

<b>S. No.</b>	<b>Description</b>	<b>Cost (Rs.)</b>
1	Fixed Asset	1,29,60,000
2	Machinery	30,00,000
3	EMP	12,22,000
<b>Total Project Cost</b>		<b>1,71,82,000</b>

*Source: Approved Mining Plan*

## 2.7 MANPOWER 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 2.14.

**Table 2.14 Employment Potential for the Proposed Project**

S. No.	Category	Role	Nos.
1	Highly Skilled	IInd class Mines Manager	1
		Mine geologist	1
		Blaster	1
2	Semi - Skilled	Driver	10
		Hitachi Operator	4
3	Unskilled	Musdoor/ Labours	7
<b>Total</b>			<b>24</b>

*Source: Prefeasibility Report*

## 2.8 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 2.15.

**Table 2.15 Expected Time Schedule**

S. No.	Particulars	Time Schedule (in Months)					Remarks if any
		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	
1	Environmental Clearance						
2	Consent to Establish						Project Establishment Period
3	Consent to operate						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. Field monitoring studies to evaluate the base line status of the project site were carried out covering **October-2023 through December-2023**, with CPCB guidelines. Environmental baseline data were collected by an NABL accredited and MoEF notified **Ekdant Enviro Services (P) Limited** 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 5 km radius from the periphery of the cluster, except for ecological study, which considers 10 km 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**

<b>Attribute</b>	<b>Parameters</b>	<b>Frequency of Monitoring</b>	<b>No. of Locations</b>	<b>Protocol</b>
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	7 (1 in core & 6 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	7 (3 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind speed Wind direction Temperature Cloud cover Dry bulb temperature Rainfall	1 hourly continuous mechanical/automatic weather station	1	Site specific primary data & secondary data from IMD Station
*Ambient Air Quality	PM <sub>10</sub> PM <sub>2.5</sub> SO <sub>2</sub> NO <sub>x</sub>	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	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	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

Study area is mainly composed of Grey Hornblende biotite gneiss and acid to intermediate Charnockite and pegmatite, as shown in Figure 3.1. The lease area occurs in Grey Hornblende biotite gneiss terrain.

Among the geomorphic units, shallow weathered/buried pediplain and pediment dominate the study area, as shown in Figure 3.2. The lease area occurs in shallow weathered/buried pediplain terrain.

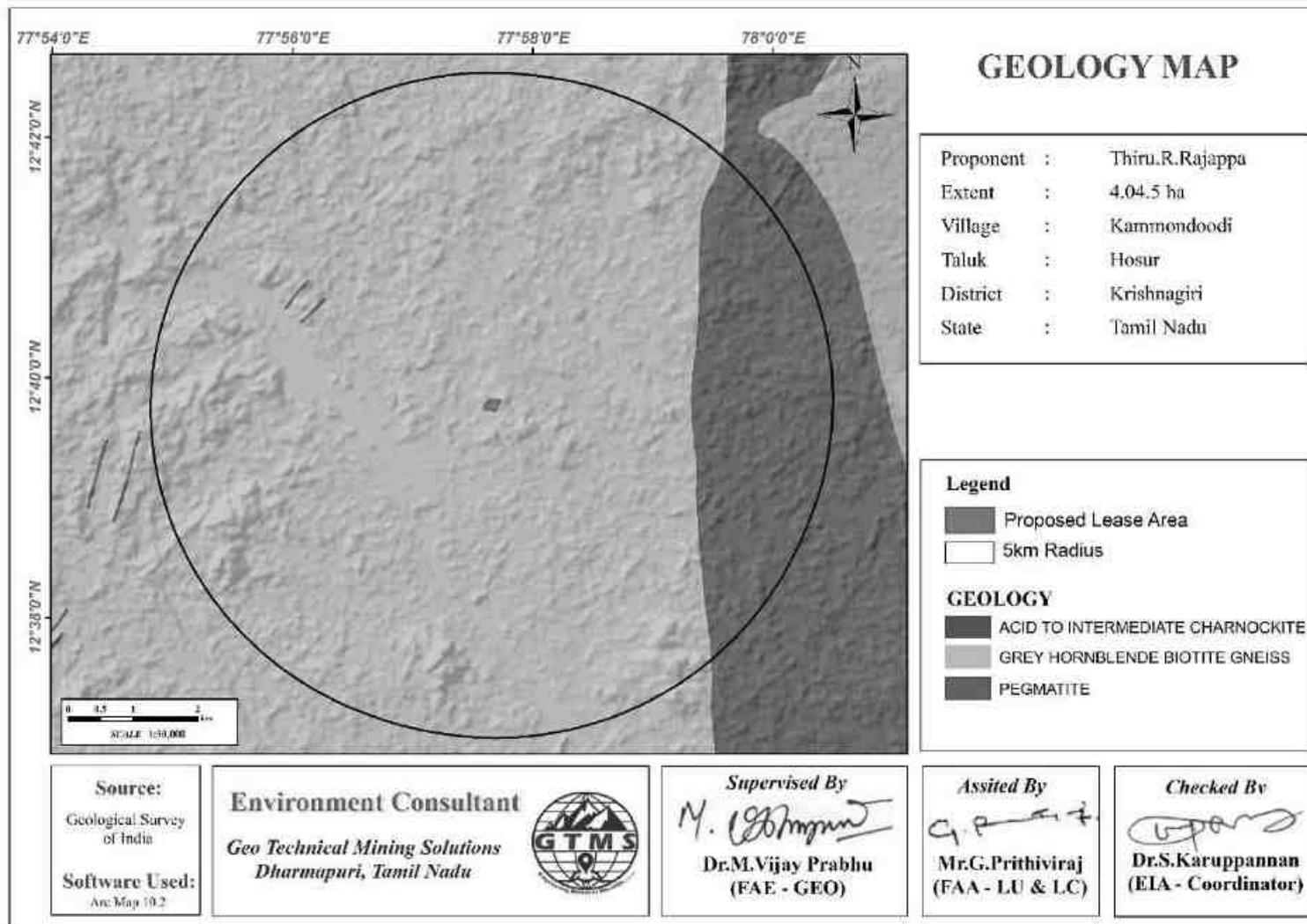


Figure 3.1 Geology Map of 5 km Radius from Proposed Project Site



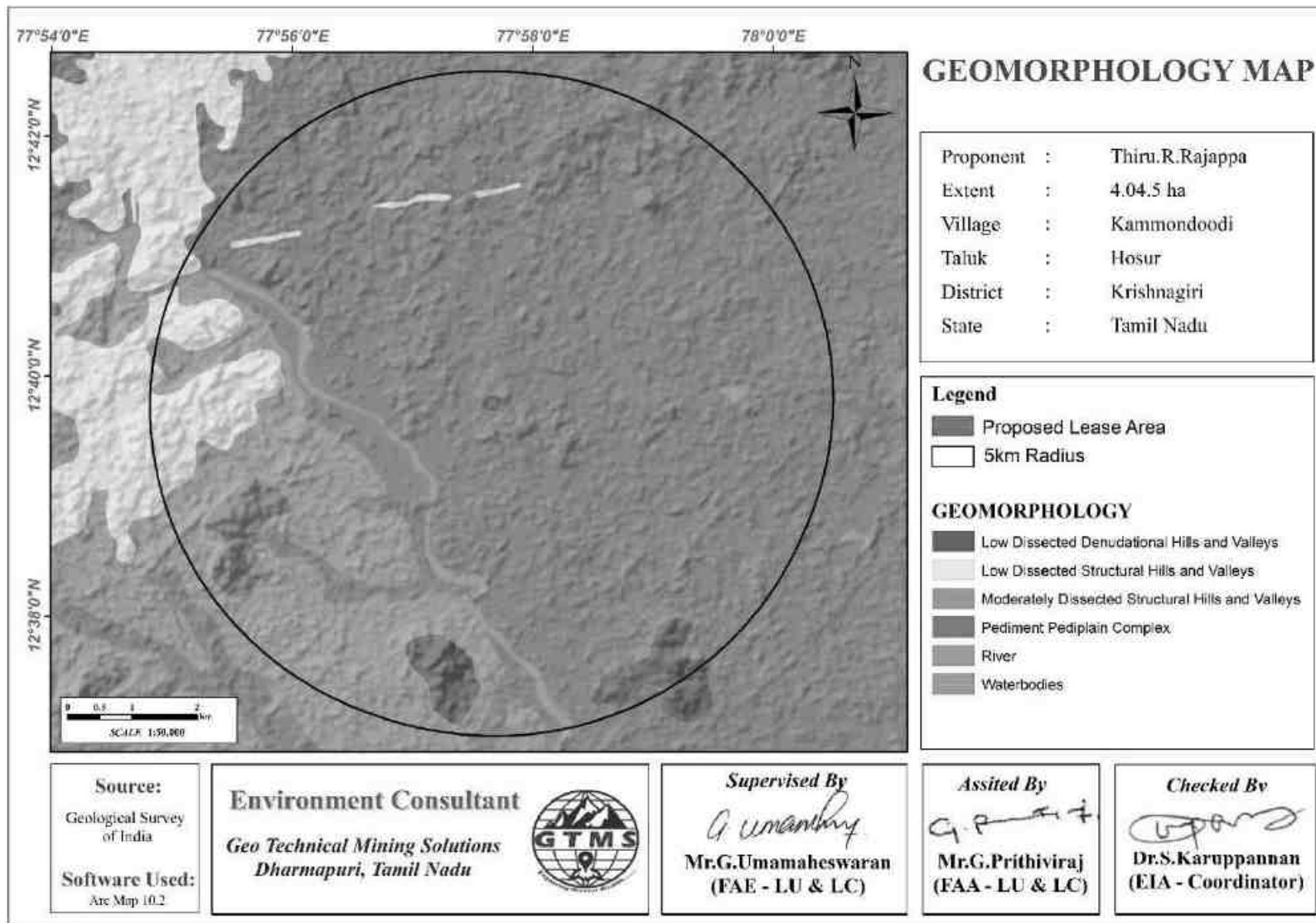


Figure 3.2 Geomorphology Map of 5 km Radius from Proposed Project Site

### 3.1.2 Land Use/ Land Cover

Land Use and Land Cover (LULC) map, as shown in Figure 3.3 was prepared using Sentinel II image for the study area of 5 km radius to provide a baseline status of the study area covering 5 km radius around the proposed mine site. Totally,9 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 23.10 ha accounting for 0.30 %, of which lease area of 4.04.5 ha contributes only about 0.0526 %. 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	Area (ha)	Area (%)
1	Barren Rocky / stony waste	531.28	6.91
2	Crop land	1909.43	24.85
3	Dense Forest	24.36	0.32
4	Fallow land	2703.86	35.19
5	Land with or without scrub	1717.95	22.36
6	Mining / Industrial wastelands	23.10	0.30
7	Plantations	733.58	9.55
8	Settlement	15.48	0.20
9	Water bodies	25.60	0.33
<b>Total</b>		<b>7684.64</b>	<b>100.0</b>

Source: Sentinel II Satellite Imagery

### 3.1.3 Topography

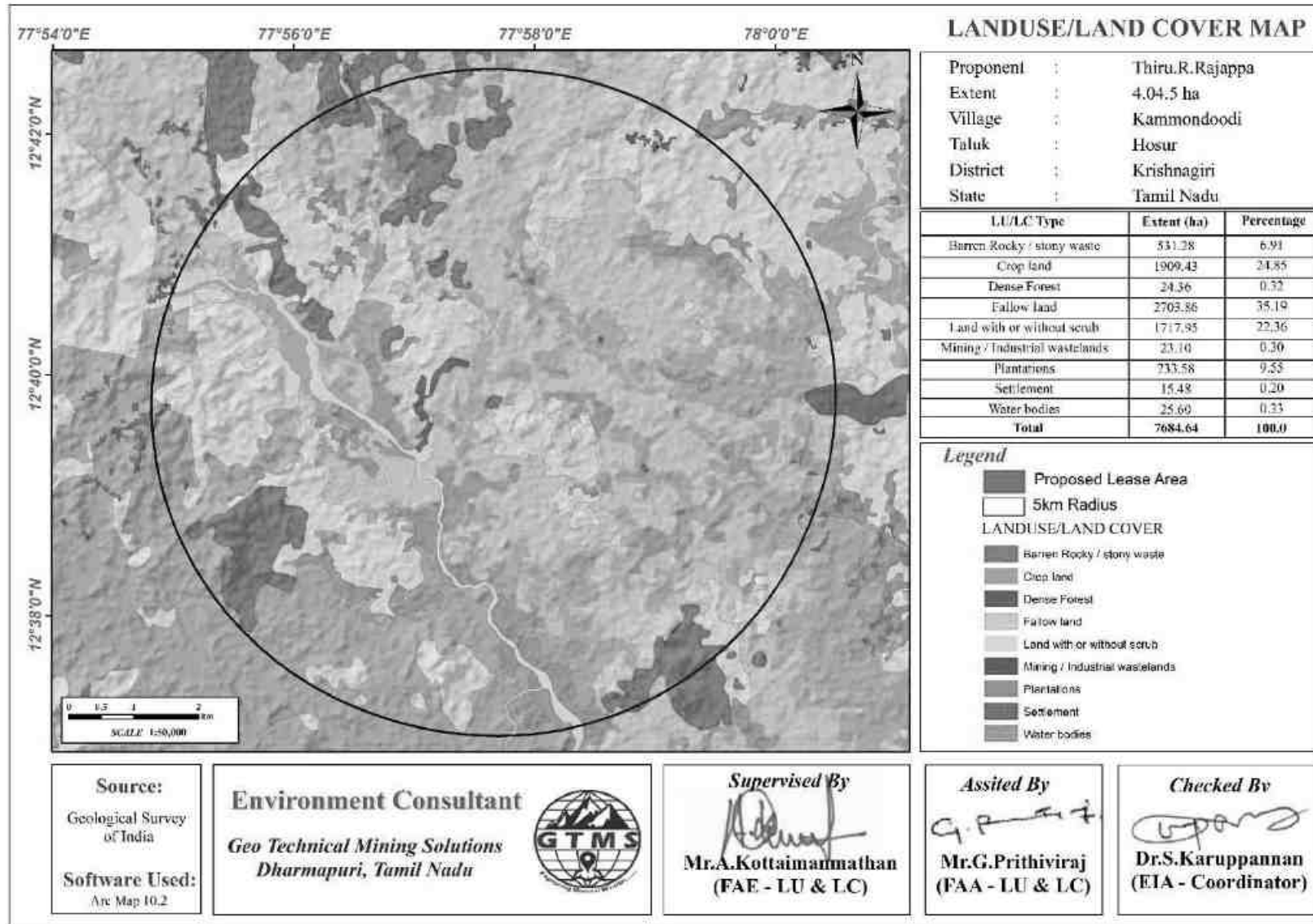
The proposed lease area is located in a flat terrain with an altitude range of 751-762 m AMSL, showing relief of 11m.

### 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 3.4.

### 3.1.5 Seismic Sensitivity

The proposed lease area is situated in a Seismic Zone II, as defined by National Center 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 3.3 LULC Map of 5 km Radius from Proposed Project Site**

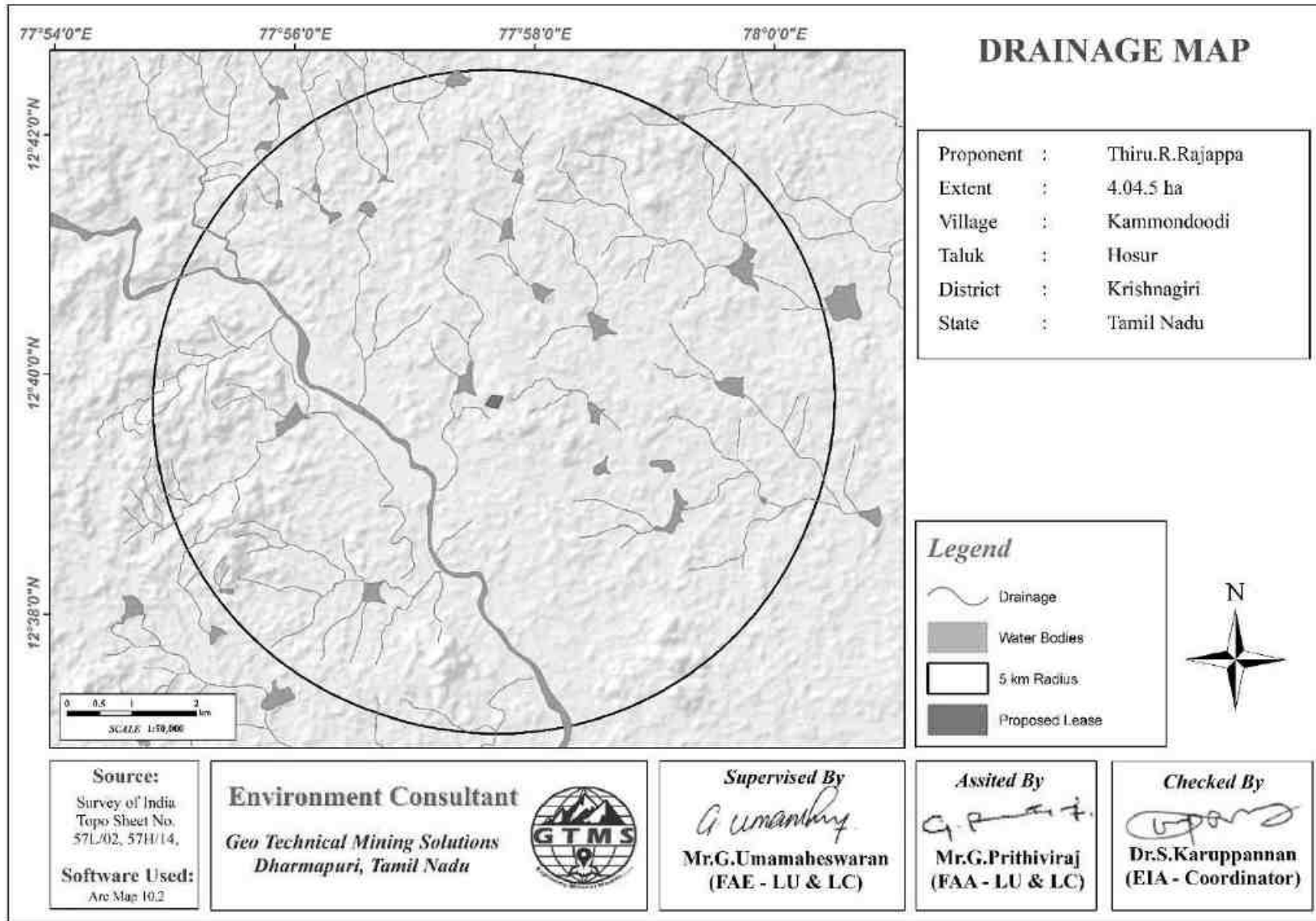


Figure 3.4 Drainage Map of 5 km Radius from Proposed Project Site

### 3.1.6 Soil

Composite soil samples were collected from 7 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, vegetative cover, and industrial & residential activities including infrastructure facilities. Soil samples were collected up to 90 cm depth, filled in polythene bags, coded and sent to laboratory for analysis. The locations of the sampling sites are shown in Table 3.3 and Figure 3.3. The samples thus collected were analysed for physical and chemical characteristics. The physical and chemical characteristic results of soil samples are provided in Table 3.4.

**Table 3.3 Soil Sampling Locations**

S. No.	Sampling ID	Location	Distance (km)	Direction	Coordinates
1	S1	Core	----	----	12°39'44.83"N 77°57'35.81"E
2	S2	Thirumalaigowni kotta	1.08	South	12°39'12.59"N 77°57'19.61"E
3	S3	Chinnabatakanapalli	3.74	SW	12°38'1.13"N 77°56'26.57"E
4	S4	Shoolagiri	3.81	SE	12°38'55.18"N 77°59'37.91"E
5	S5	Koneripalli	1.17	NW	12°41'15.21"N 77°58'52.75"E
6	S6	Gunduguriki	3.37	NE	12°40'26.59"N 77°57'29.30"E
7	S7	Kamanthoddi	3.62	NW	12°40'39.35"N 77°55'48.61"E

Source: Sampling Results by *Ekdant Enviro Services (P) Limited*, in Association with GTMS.

#### ***Physical Characteristics***

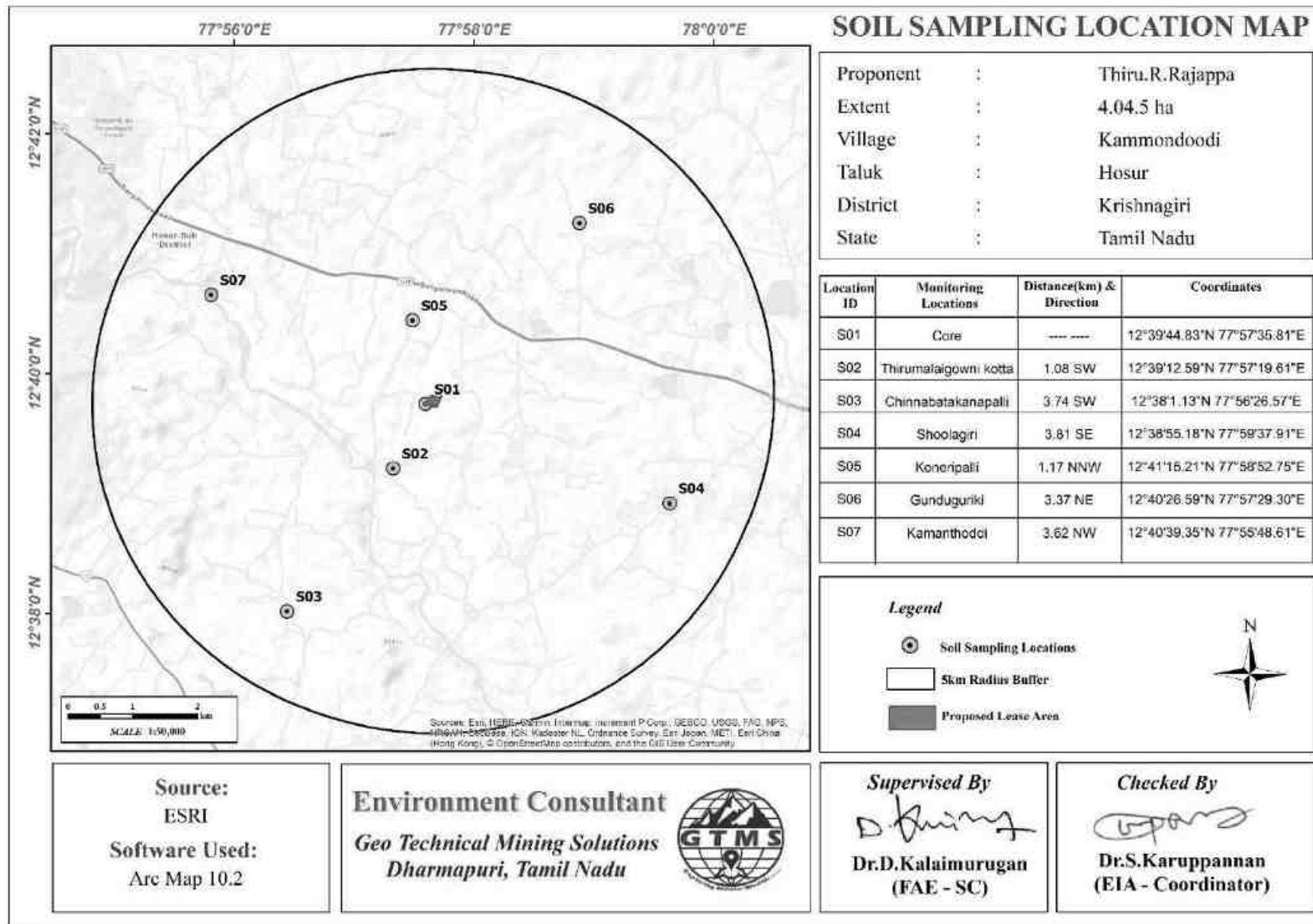
The soil samples in the study area show loamy textures varying between silty clay loam, silty loam and sandy loam. pH of the soil varies from 6.8 to 7.6 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 175 to 232.0  $\mu\text{s}/\text{cm}$ . Bulk density ranges between 1.25 and 1.4  $\text{g}/\text{cm}^3$ .

#### ***Chemical Characteristics***

Nitrogen ranges between 13.67 and 26.86  $\text{mg kg}^{-1}$ . Potassium ranges between 39.91 and 52.3  $\text{mg kg}^{-1}$ . Calcium ranges between 1127 and 1856  $\text{mg kg}^{-1}$ . Boron ranges between 0.89 and 1.88  $\text{mg kg}^{-1}$ . Zinc content ranges between 1.16 and 1.72  $\text{mg kg}^{-1}$  soil.

#### ***Soil Quality Assessment***

Soil quality is the foundation of sustainable crop production. Soil quality assessment helps to understand soil conditions and adopt suitable production practices. It can be done using physical, chemical, and biological properties of soil. For this assessment, four soil quality parameters including PH, EC, OM, CEC and BD were taken into account. The soil quality score for each sample has been provided in Table 3.4a.



**Figure 3.5 Map Showing Soil Sampling Locations within 5 km Radius around Proposed Project Site**

**Table 3.4 Soil Quality of the Study Area**

S. No	Parameters	Unit	S1	Minimum	Maximum	Average
<b>Physical Parameters</b>						
1	pH @ 10% solution	-	7.3	6.8	7.6	7.1
2	EC @ 10% solution	µs/cm	165	175	298	232.0
3	Moisture	%	14.5	12.5	18.4	15.3
4	Texture	-	Clay Loam	Sandy Clay Loam, sandy loam, silty loam, clay loam, clay loam.		
5	Sand	%	43.60	33.2	72.3	49.2
6	Slit	%	32.50	11.3	36.4	23.4
7	Clay	%	23.90	14.3	53.1	27.4
8	Water Holding Capacity	%	18.6	13.51	18.9	16.5
9	Bulk Density	g cm <sup>-3</sup>	1.63	1.25	1.66	1.4
<b>Chemical Parameters</b>						
10	Nitrogen (N)	mg kg <sup>-1</sup>	23.4	13.67	26.86	21.3
11	Phosphorus (P)	mg kg <sup>-1</sup>	2.65	1.37	3.42	2.6
12	Potassium (K)	mg kg <sup>-1</sup>	46.8	39.91	52.3	45.9
13	Calcium (Ca)	mg kg <sup>-1</sup>	1250	1127	1856	1504.7
14	Magnesium (Mg)	mg kg <sup>-1</sup>	202	167	229	192.8
15	Sodium (Na)	mg kg <sup>-1</sup>	212	157	263	195.2
16	Sulphur (S)	mg kg <sup>-1</sup>	74	48	72	59.3
17	Copper (Cu)	mg kg <sup>-1</sup>	0.38	0.26	0.43	0.4
18	Iron (Fe)	mg kg <sup>-1</sup>	3.23	2.22	3.45	3.0
19	Manganese (Mn)	mg kg <sup>-1</sup>	2.18	1.69	2.91	2.0
20	Zinc (Zn)	mg kg <sup>-1</sup>	1.46	1.16	1.72	1.4
21	Boron (B)	mg kg <sup>-1</sup>	1.36	0.89	1.88	1.4
22	Organic carbon	%	0.98	0.63	0.9	0.8
23	Organic matter	%	1.65	1.2	1.62	1.4
24	CEC	meq/100g	1.63	1.42	2.62	2.1

Source: Sampling Results by *Ekdant Enviro Services (P) Limited*, in Association with GTMS.

**Table 3.4a Assigning Scores to Soil Quality Indicators**

<b>Soil Quality Score</b>							<b>Recommendation</b>
S. No.	OM	BD	PH	CEC	EC	Total Score	
S01	30	6	12	2	10	60	The Soil Requires Major and Immediate Treatment
S02	30	12	18	2	10	72	
S03	30	12	12	2	10	66	
S04	30	12	18	2	10	72	
S05	30	12	12	2	10	66	
S06	30	12	18	2	10	72	
S07	30	6	18	2	10	66	

OM (Organic Matter) BD (Bulk Density) PH (Potential of Hydrogen) EC (Electrical Conductivity)

Source : *PSS-2262 Soil Quality Monitoring.pdf (okstate.edu)*

## 3.2 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**

S. No.	Sampling ID	Location	Distance (km)	Direction	Coordinates
1	SW 1	Addakurukki Lake	0.22	NE	12°39'49.52"N,77°57'30.40"E
2	SW 2	Thenpennai River Thirumalaigownikotta	1.34	SW	12°39'14.16"N, 77°57'4.70"E
3	SW 3	Kamandoddi Lake	2.49	NW	12°40'52.34"N,77°56'48.04"E
4	BW 1	Chappadi	1.60	E	12°39'33.01"N,77°58'32.15"E
5	BW 2	Addraganapalli	4.04	NE	12°40'17.40"N,77°59'52.27"E
6	BW 3	Kamandoddi	3.47	SE	12°41'5.77"N, 77°56'16.43"E
7	OW 1	Thuppuganapalli	3.79	SW	12°37'54.20"N,77°56'42.45"E

*Source: Sampling Results by Ekdant Enviro Services (P) Limited, in Association with GTMS.*

### 3.2.1 Surface Water Resources and Quality

Addakurukki Lake, Thenpennai River (Thirumalaigownikotta) and Kamandoddi Lake are the three prominent surface water resources present in the study area. The proposed project area is located 0.22 km NE of the lake Addakurukki Lake, 1.34 km SW of the Thenpennai River and 2.49 km NW Kamandoddi Lake as shown in Table 3.5 and Figure 3.4. Totally, three surface water samples, known as SW1, SW2 and SW3 were collected from the lakes to assess the baseline water quality.

Result for surface water sample in the Table 3.6 indicate that the physical, chemical and biological parameters are within permissible limits in comparison with standards of IS10500:2012.

### 3.2.2 Ground Water Resources and Quality

Groundwater in the study area occurs in the crystalline rocks of Archaean age and recent alluvium. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Dug wells and bore wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.



Four groundwater samples, known as BW1, BW2, BW3 and OW1 were collected from bore wells were analysed for physico-chemical conditions and bacteriological contents in order to assess baseline quality of ground water. Ground water sampling locations and their distance and direction from the lease area are provided in Table 3.5 and the spatial occurrence of water sampling locations is shown in Figure 3.7. Table 3.6 summarizes ground water quality data of the four samples.

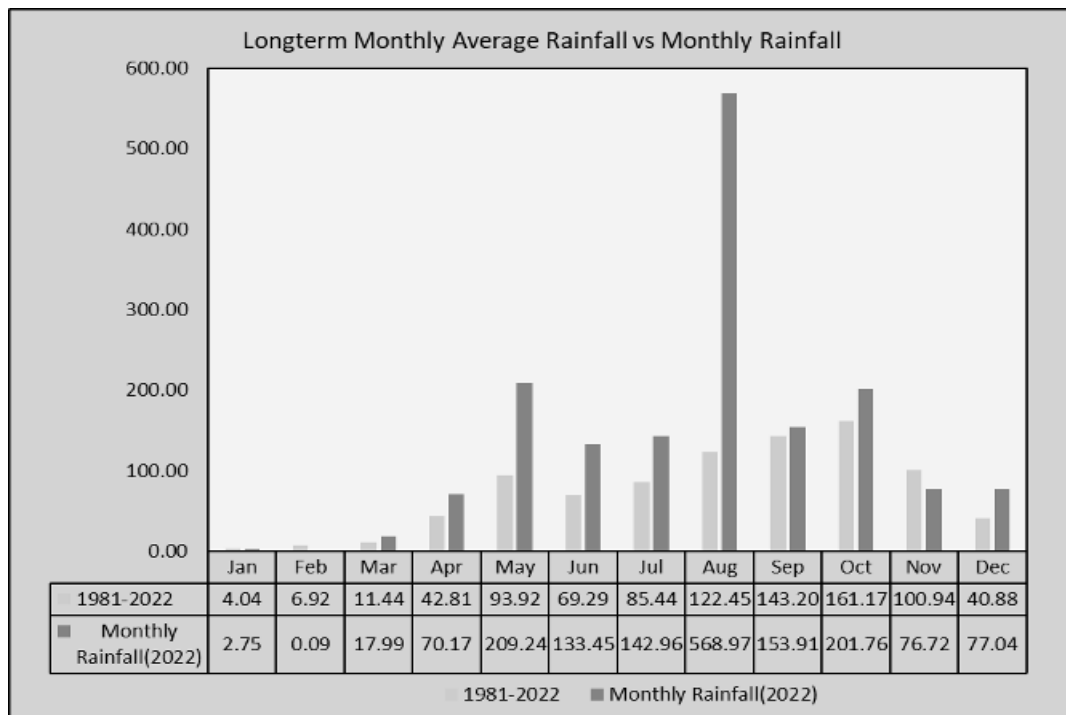
Results for ground water samples in the Table 3.6 indicate that the physical, chemical and biological parameters are within permissible limits in comparison with standards of IS10500:2012.

### 3.2.3 Hydrogeological Studies

The area within 2 km 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.

#### 3.2.3.1 Rainfall

Rainfall data for the study area were collected for the period of 1981-2022([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 3.6. The Figure 3.6 shows that monthly rainfall in 2022 is generally high in the months of May, August, October, and November when compared to the long term monthly average rainfall.



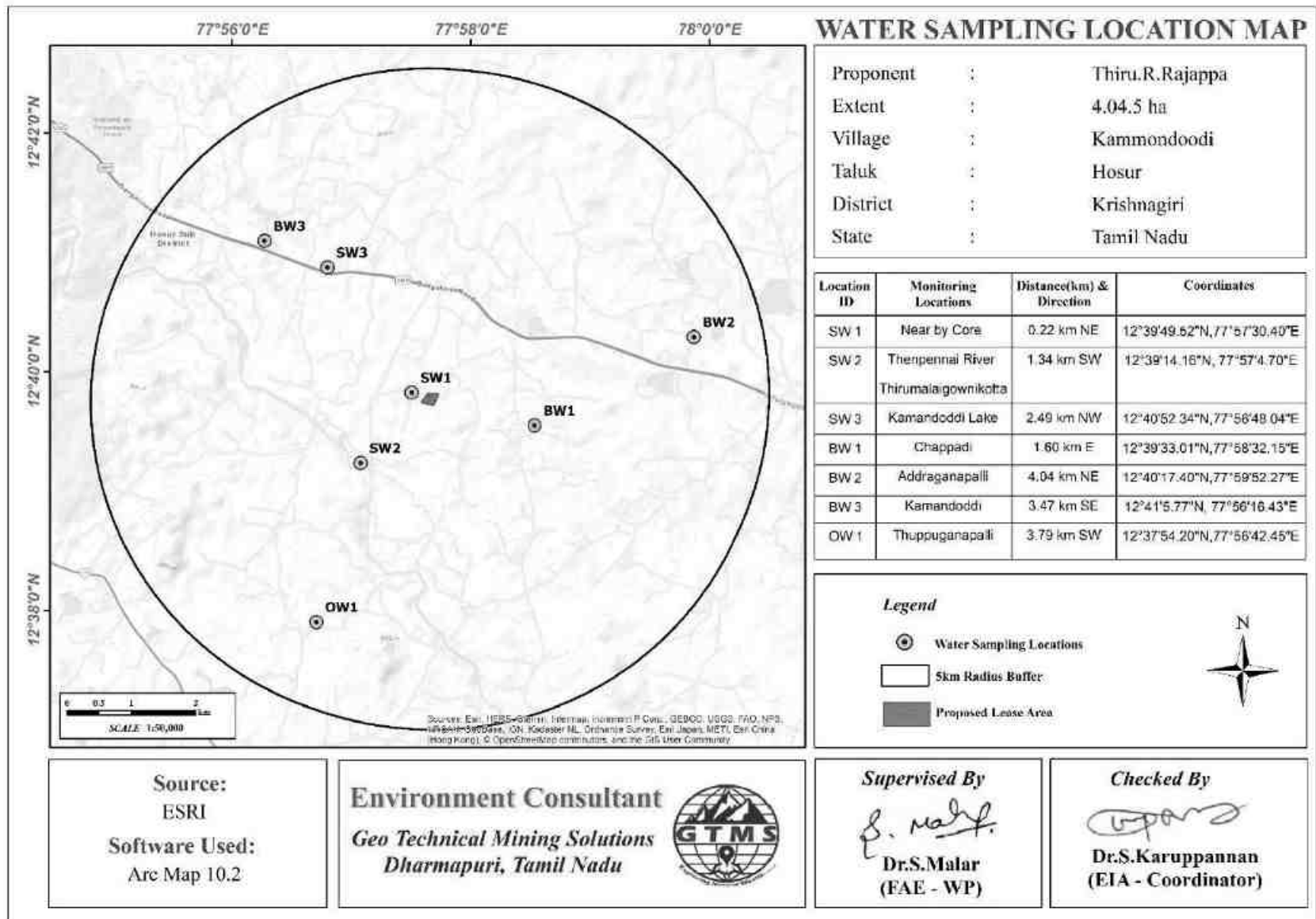
**Figure 3.6 Long-Term Monthly Average Rainfall Vs Monthly Rainfall**

### 3.2.3.1 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 3.7 and 3.8. According to the data, average depths to the static water table in open wells range from 24.60 to 25.60 m BGL in pre monsoon and 18.63-20.10 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of October through December 2023 (Post-Monsoon Season) vary from 81.17-82.92 m and from 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 3.8-3.9, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 5 located in northwestern direction of the proposed project site. The groundwater flow maps in Figures 3.10-3.11 show that most of the bore well groundwater for the post- and pre-monsoon seasons flow towards the bore well number 5 and 7. It is located in northwestern and northern 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.



**Figure 3.7 Map Showing Water Sampling Locations within 5 km Radius around Proposed Project Site**

**Table 3.6 Ground Water Quality Result**

S. No .	Parameters	Units	Ground Water Samples			10500:2012 (Acceptable)	10500:2012 (Permissible)
			Mini.	Max.	Avg.		
1	Colour	CU	1	1	1	5	15
2	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Turbidity	NTU	≤1	≤1	≤1	5	15
4	EC @ 25°C	µS/Cm	986	1349	1176.8	-	-
5	TDS	mg/l	592	807	702.8	500	2000
6	pH value @ 25°C	--	6.9	7.3	7.0	6.5-8.5	6.5-8.5
7	TH (CaCO <sub>3</sub> )	mg/l	610	824	722.6	200	600
8	Calcium (Ca)	mg /l	51	94	67.3	75	200
9	Magnesium (Mg)	mg/l	17	49	32.1	30	100
10	Sodium (Na)	mg/l	13	32	23.3	50	200
11	Potassium (K)	mg/l	2	7	4.5	12	12
12	Biocarbonate (HCO <sub>3</sub> )	mg/l	49	82	65.1	50	400
13	Sulphates (SO <sub>4</sub> )	mg/l	178	267	219.3	200	400
14	Chloride (Cl)	mg /l	174	310	256.1	250	1000
15	Nitrate (NO <sub>3</sub> )	mg /l	11	19	15	45	45
16	Fluoride (F)	mg /l	1.1	1.4	1.2	1	1.5
17	<i>Coliforms Bacteria</i>	MPN/100ml	Present	Present	Present	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
18	<i>E. Coli</i>	MPN/100ml	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 Ekdant Enviro Services (P) Limited, in association with GTMS*

**Table 3.6a Surface Water Quality Results**

S. No.	Parameters	Units	RESULTS			CPCB designated best use
			Min.	Max.	Avg.	
<b>I</b>	<b>Physical Parameters</b>					
1.	Color	Hazen	1	2	1.6	300
2.	Odor	-	Agreeable	Agreeable	Agreeable	Not specified
3.	pH@ 25°C	-	6.9	7.3	7.1	6.5-8.5
4.	Turbidity	NTU	2	3	2.6	10
5.	Electrical conductivity @ 25°C	µS/Cm	956	1083	1015.2	Not specified
<b>II</b>	<b>Chemical Parameters</b>					
6.	TDS	mg /l	583	668	622.6	1500
7.	Total Hardness	mg/l	176	294	234.8	Not specified
8.	Calcium (Ca)	mg/l	65	84	73.8	Not specified
9.	Magnesium (Mg)	mg/l	29	39	34.2	Not specified
10.	Sodium (Na)	mg/l	59	71	64	200(WHO)
11.	Potassium (K)	mg/l	3	5	4	3
12.	Bicarbonate (HCO <sub>3</sub> )	mg/l	59	67	62.6	400(WHO)
13.	Sulphate (SO <sub>4</sub> )	mg/l	122	142	132	400
14.	Chloride (Cl)	mg/l	196	234	218.8	600
15.	Nitrates (NO <sub>3</sub> )	mg/l	21	29	24.8	50
16.	Fluoride (F)	mg /l	0	0	0	1.5
17.	BOD3days@ 27°C	mg O <sub>2</sub> /l	1	3	2	5
18.	COD	mg O <sub>2</sub> /l	2	6	4	20
<b>III</b>	<b>Biological Parameters</b>					
19	Total Coliform	MPN/100ml	Present	Present	Present	5000
20	E-Coli	MPN/100ml	Present	Present	Present	Not specified

*Source: Sampling Results by Ekdant Enviro Services (P) Limited, in association with GTMS*

**Table 3.7 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		
DW01	20.5	21.2	23.1	21.60	12°40'0.87"N	77°57'30.30"E
DW02	20.9	21.9	22.9	21.90	12°39'33.86"N	77°57'13.16"E
DW03	20.6	21.1	22.8	21.50	12°39'7.81"N	77°58'6.75"E
DW04	20.9	21.8	22.1	21.60	12°40'26.24"N	77°56'54.48"E
DW05	20.1	21.6	22.8	21.50	12°40'29.04"N	77°58'16.29"E
DW06	20.8	21.5	22.9	21.73	12°39'49.31"N	77°58'17.34"E
DW07	20.2	25.8	26.8	24.27	12°39'17.57"N	77°57'23.30"E
DW08	20.5	24.9	27.1	24.17	12°39'46.96"N	77°56'52.12"E
DW09	20.90	24.5	26.7	24.03	12°39'0.05"N	77°56'50.38"E

*Source: Onsite monitoring data*

**Table 3.8 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		
DW01	19.2	17.5	16.2	17.63	12°40'0.87"N	77°57'30.30"E
DW02	19.3	17.1	16.5	17.63	12°39'33.86"N	77°57'13.16"E
DW03	19.7	18.9	16.8	18.47	12°39'7.81"N	77°58'6.75"E
DW04	19.6	18.2	16.4	18.07	12°40'26.24"N	77°56'54.48"E
DW05	19.8	19.1	16.9	18.60	12°40'29.04"N	77°58'16.29"E
DW06	19.8	18.9	16.2	18.30	12°39'49.31"N	77°58'17.34"E
DW07	19.2	19.3	16.5	18.33	12°39'17.57"N	77°57'23.30"E
DW08	20.1	19.1	16.1	18.43	12°39'46.96"N	77°56'52.12"E
DW09	20.90	18.5	16.9	18.77	12°39'0.05"N	77°56'50.38"E

Source: Onsite monitoring data

**Table 3.9 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	76.5	78.9	81.28	78.89	12°39'19.01"N	77°57'10.95"E
BW02	76.1	79.1	82.1	78.89	12°39'55.46"N	77°56'39.13"E
BW03	75.9	78.3	82.5	78.90	12°40'8.01"N	77°58'34.34"E
BW04	75.2	78.5	83.2	78.97	12°39'48.40"N	77°58'44.93"E
BW05	75.6	78.9	83.1	79.20	12°39'29.29"N	77°58'28.02"E
BW06	75.4	78.5	82.4	78.77	12°38'46.68"N	77°57'39.25"E
BW07	76.1	78.6	83.4	79.37	12°40'15.79"N	77°57'43.22"E
BW08	76.5	79.2	82.1	79.27	12°39'55.99"N	77°57'16.26"E
BW09	75.1	78.5	81.8	78.47	12°40'43.52"N	77°57'29.48"E

Source: Onsite monitoring data

**Table 3.10 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	85	82	79.2	82.07	12°39'19.01"N	77°57'10.95"E
BW02	86.1	83.1	79.1	82.77	12°39'55.46"N	77°56'39.13"E
BW03	85.2	82.1	78.1	81.80	12°40'8.01"N	77°58'34.34"E
BW04	84.9	81.9	78.5	81.77	12°39'48.40"N	77°58'44.93"E
BW05	85	82.5	78.6	82.03	12°39'29.29"N	77°58'28.02"E
BW06	85.6	82.6	78.5	82.23	12°38'46.68"N	77°57'39.25"E
BW07	84.2	82.2	78.9	81.77	12°40'15.79"N	77°57'43.22"E
BW08	85.6	82.1	79.1	82.27	12°39'55.99"N	77°57'16.26"E
BW09	85.2	79.8	78.5	81.17	12°40'43.52"N	77°57'29.48"E

Source: Onsite Monitoring Data

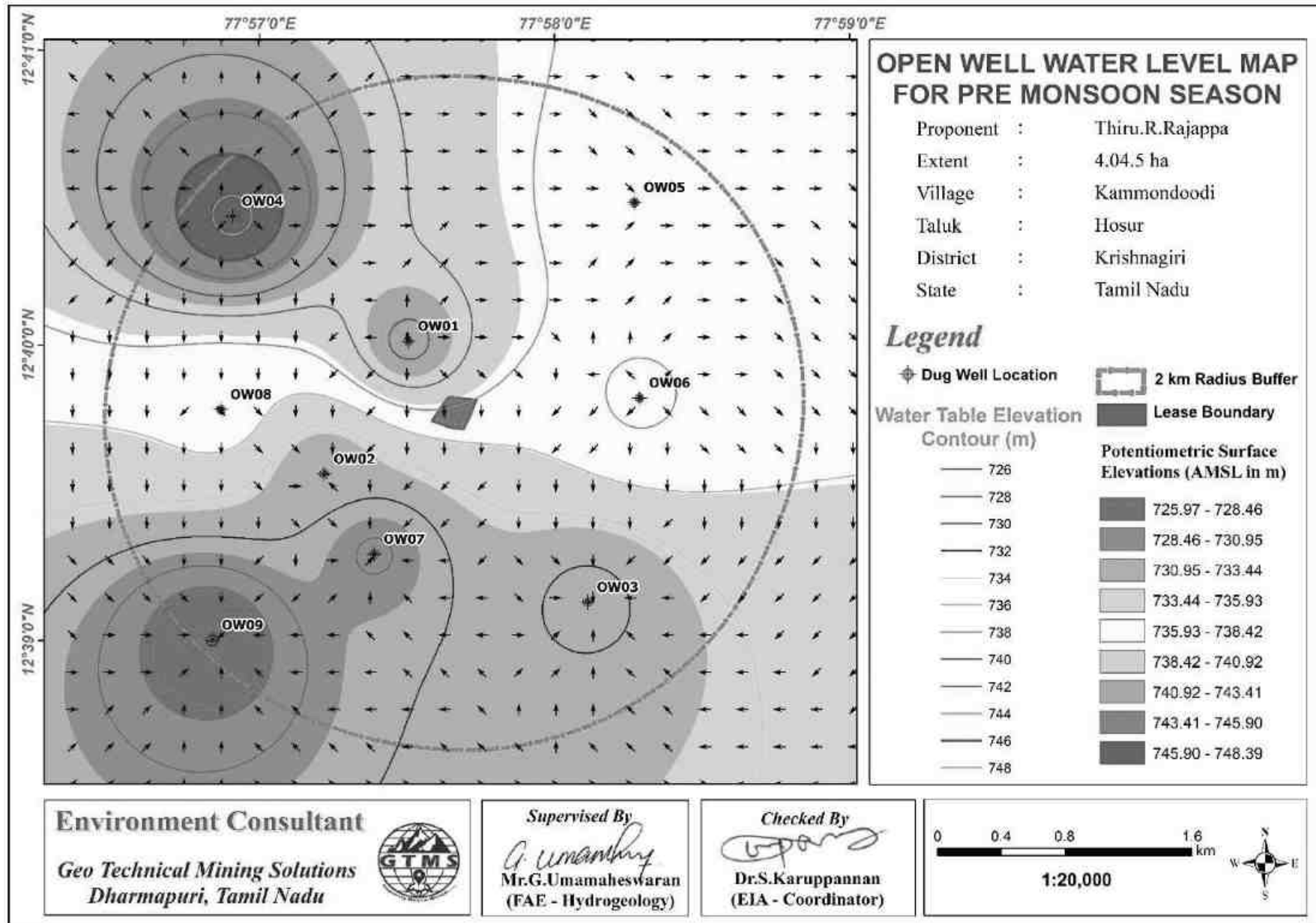


Figure 3.8 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Pre-Monsoon Season

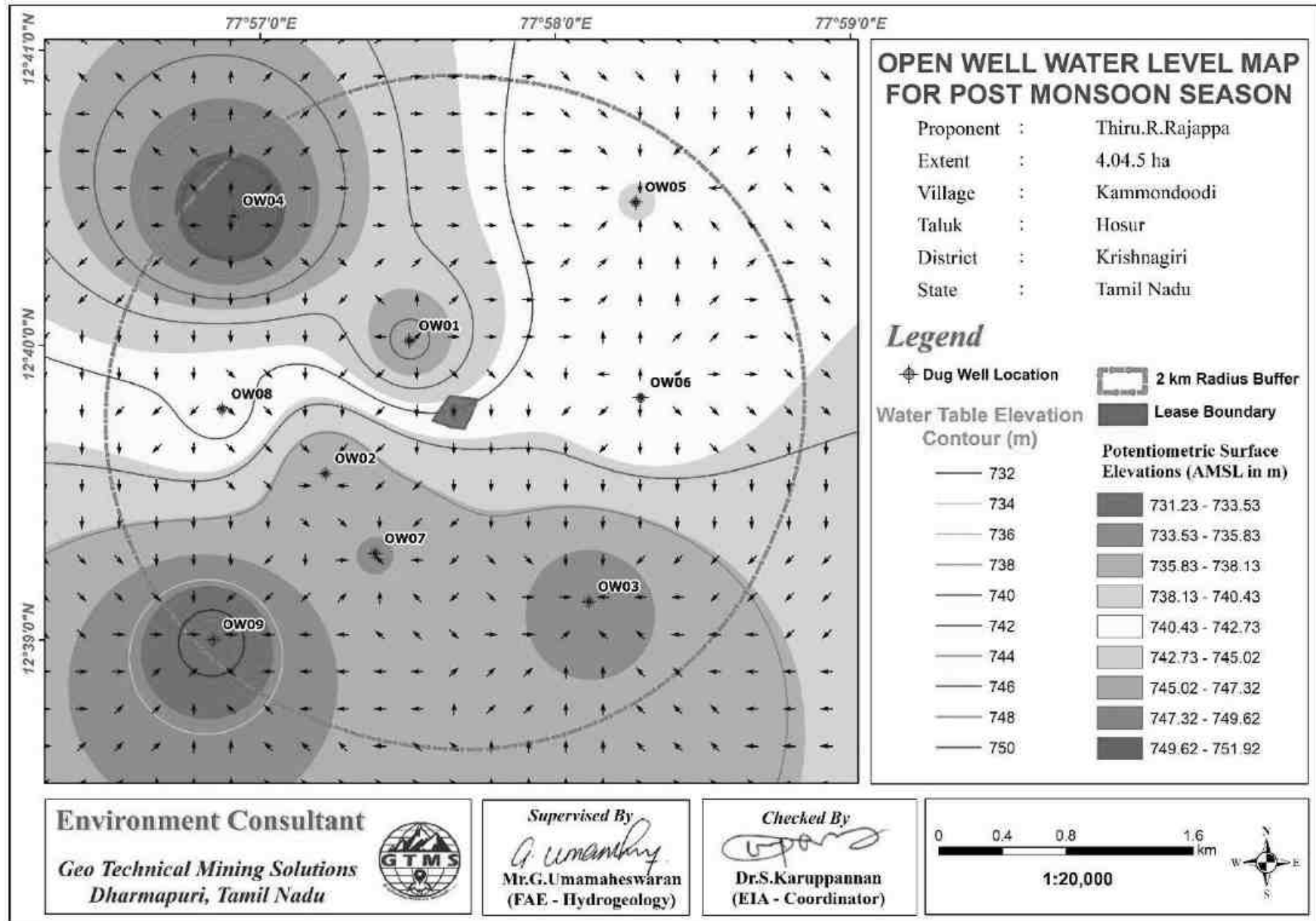


Figure 3.9 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Post-Monsoon Season



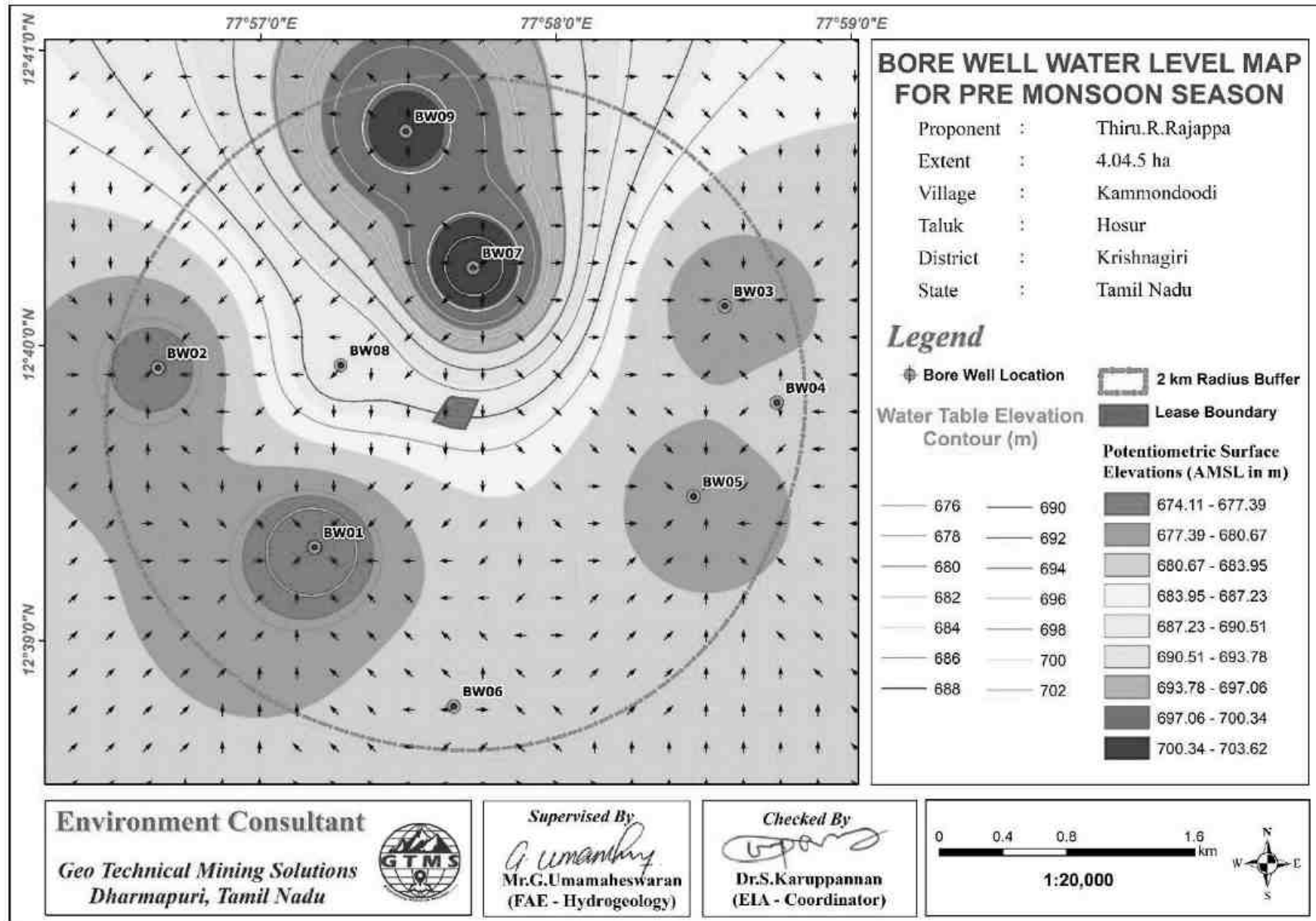


Figure 3.10 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Pre-Monsoon Season

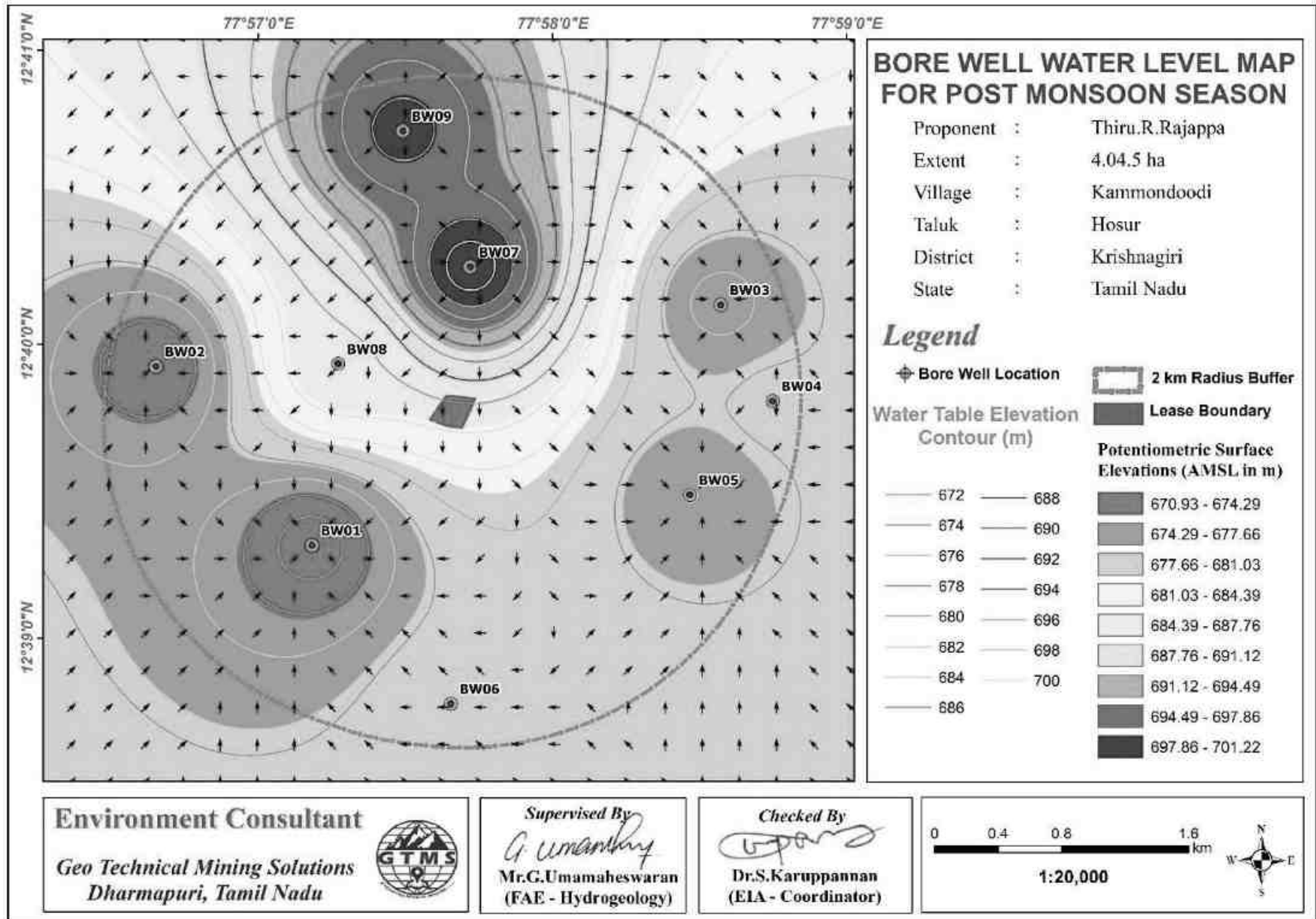


Figure 3.11 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Post-Monsoon Season

### 3.2.3.2 Electrical Resistivity Investigation

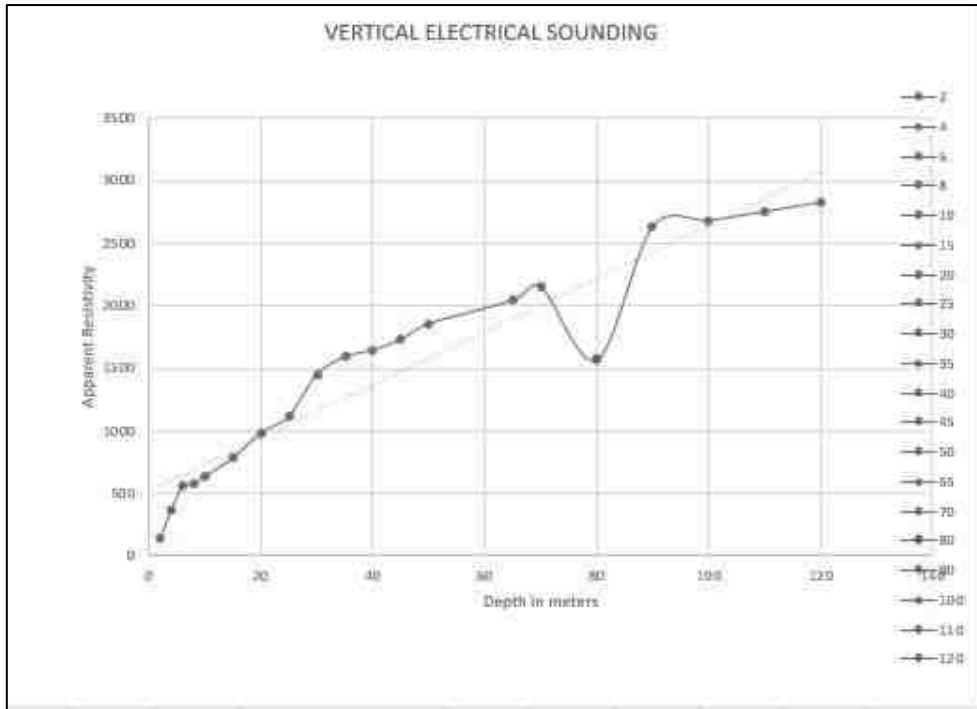
Electrical resistivity investigation is especially useful in the areas where there are no adequate exploratory well data about the aquifer conditions. The present study makes use of vertical electric sounding (VES) to delineate earth's subsurface layers. The electrical resistivity investigation uses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

#### **Result**

The Geophysical VES data obtained from the project site have been shown in Table 3.11. 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 3.11.

**Table 3.11 Vertical Electrical Sounding Data**

Location Coordinates - 12°39'49.28"N 77°57'41.19"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometrical Factor (G)	Resistance in $\Omega$	Apparent Resistivity in $\Omega\text{m}$
1	2	2	11.78	12.44	146.5
2	4	2	49.46	7.42	367.04
3	6	5	112.26	4.98	559.28
4	8	5	200.18	2.86	572.71
5	10	5	75.36	8.49	640.03
6	15	10	173.49	4.53	786.42
7	20	10	310.86	3.18	987.56
8	25	10	487.49	2.29	1118.76
9	30	10	274.75	5.28	1451.78
10	35	10	376.8	4.22	1590.54
11	40	10	494.55	3.33	1649.12
12	45	10	628	2.75	1729.18
13	50	10	777.15	2.39	1857.16
14	65	20	453.6	4.50	2041.05
15	70	20	989.1	2.17	2149.5
16	80	20	1256	1.25	1567.45
17	90	20	1554.3	1.69	2630.93
18	100	20	1653.6	1.62	2680.44
19	110	20	1724.10	1.59	2748.98
20	120	20	1960.00	1.44	2824.56



**Figure 3.12 Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 80 m Below Ground Level in Proposed Project**

The rock formation of low resistivity values indicates occurrence of water at the depth of about 61 m below ground level. The maximum depth proposed for the proposed project is 80 m below ground level. Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

### 3.3 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.

#### 3.3.1 Meteorology

##### 3.3.1.1 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 3.12.

According to the onsite data, the temperature in October, 2023 varied from 15.33<sup>0</sup> C to 30.59<sup>0</sup> C with the average of 23.88<sup>0</sup> C; in November, 2023 from 17.64 to 29.24<sup>0</sup> C with the average of 22.97<sup>0</sup> C; and in December, 2023 from 14.58 to 28.80<sup>0</sup> C with the average of 21.36<sup>0</sup>C. In October, 2023, relative humidity ranged from 40.81 to 100 % with the average of

81.44%; in November, 2023, from 56.38 to 100% with the average of 88.64%; and in December, 2023, from 42.94 to 100 % with the average of 85.59%. The wind speed in October, 2023 varied from 0.52 to 7.70m/s with the average of 2.56 m/s; in November, 2023 from 0.54 to 6.49 m/s with the average of 2.99 m/s; and in December, 2023 from 0.15 to 8.42 m/s with the average of 3.40m/s. In October,2023, wind direction varied from 1.07 to 359.60<sup>0</sup> with the average of 125.70<sup>0</sup>; in November, 2023, from 7.58 to 228.10<sup>0</sup> with the average of 75.10<sup>0</sup>; and in December, 2023, from 0.76 to 359.83<sup>0</sup> with the average of 100.87<sup>0</sup>. In October,2023, surface pressure varied from 93.56 to 94.47kPa with the average of 94.08 kPa; in November, 2023, from 93.76 to 94.52 kPa with the average of 94.15 kPa; and in December, 2023, from 93.32 to 94.80 kPa with the average of 94.15kPa.

**Table 3.12 Onsite Meteorological Data**

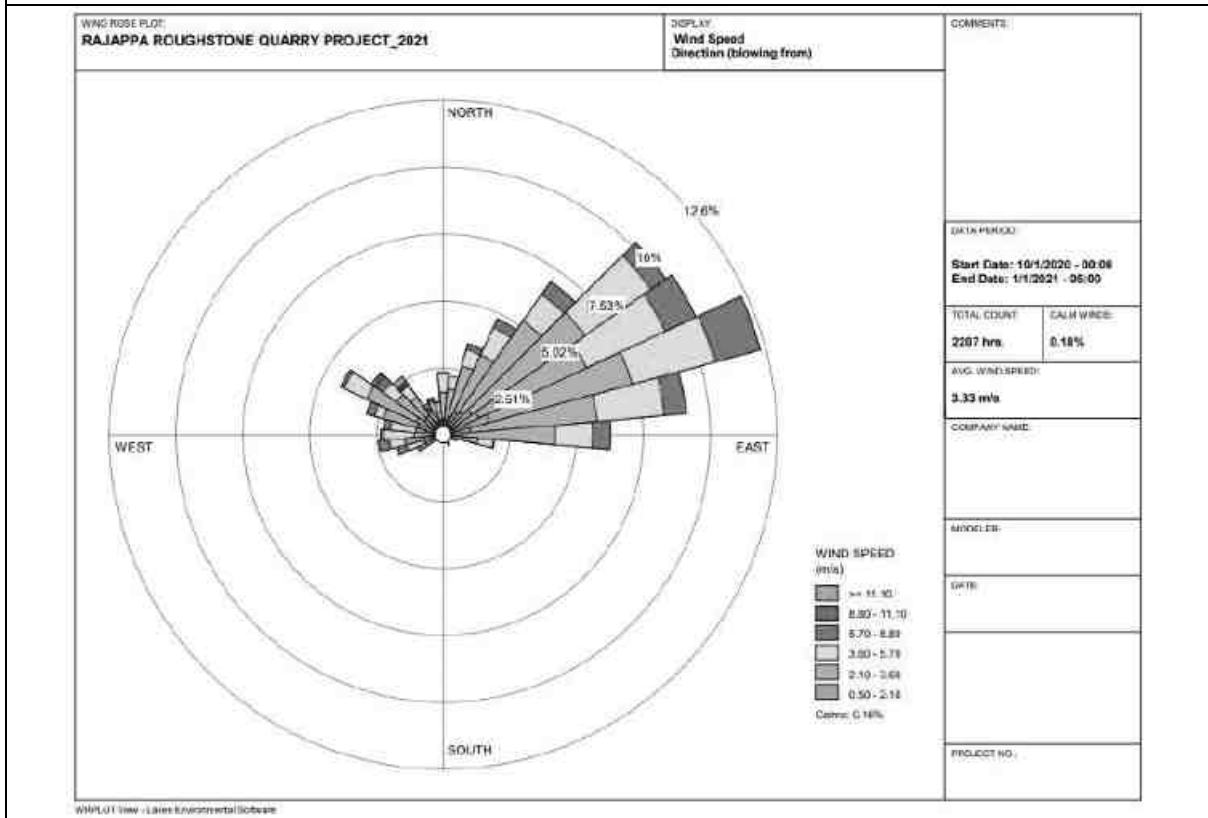
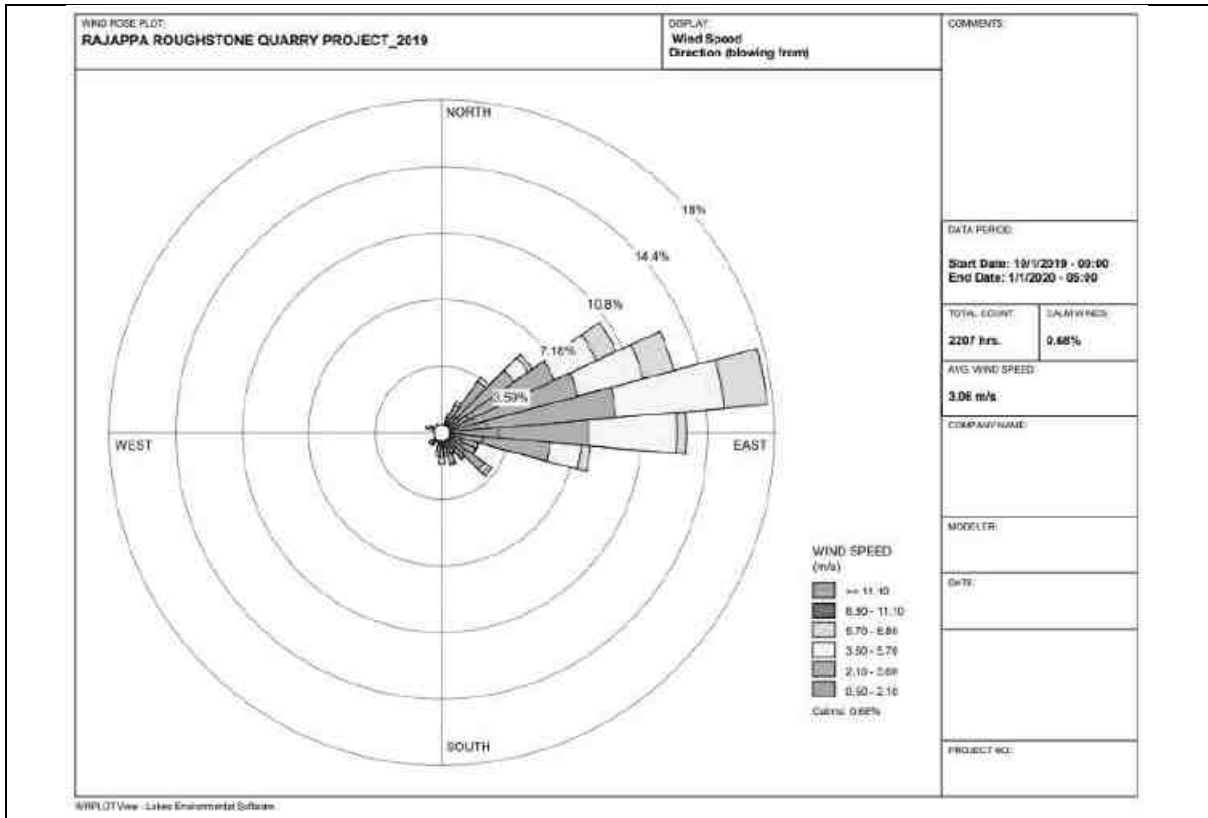
S. No.	Parameters		OCT,2023	NOV,2023	DEC,2023
1	Temperature (°C)	Min	15.33	17.64	14.58
		Max	30.59	29.24	28.80
		Avg	23.88	22.97	21.36
2	Relative Humidity (%)	Min	40.81	56.38	42.94
		Max	100.00	100.00	100.00
		Avg	81.44	88.64	85.59
3	Wind Speed (m/s)	Min	0.52	0.54	0.15
		Max	7.70	6.49	8.42
		Avg	2.56	2.99	3.40
4	Wind Direction (degree)	Min	1.07	7.58	0.76
		Max	359.60	228.10	359.83
		Avg	125.70	75.10	100.87
5	Surface Pressure(kPa)	Min	93.56	93.76	93.32
		Max	94.47	94.52	94.80
		Avg	94.08	94.15	94.15

Source: Sampling Results by *Ekdant Enviro Services (P) Limited*, in association with GTMS.

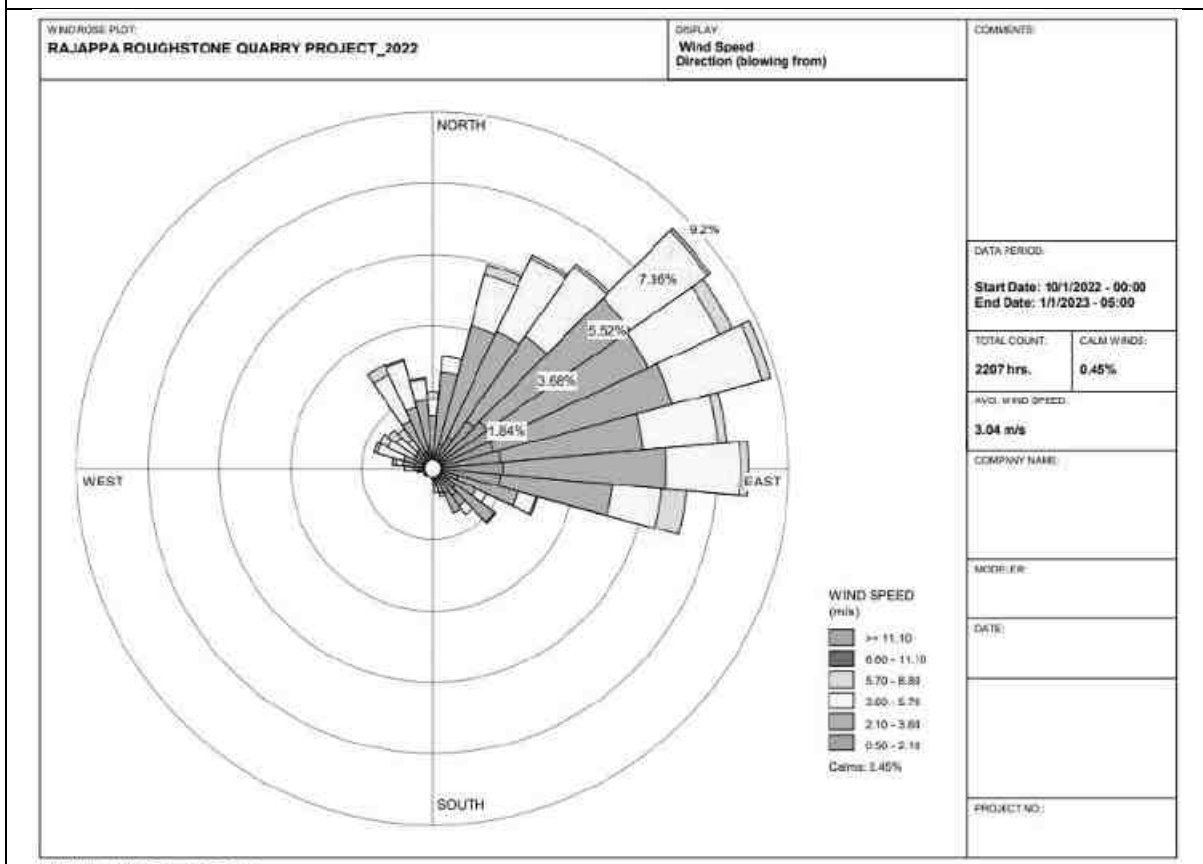
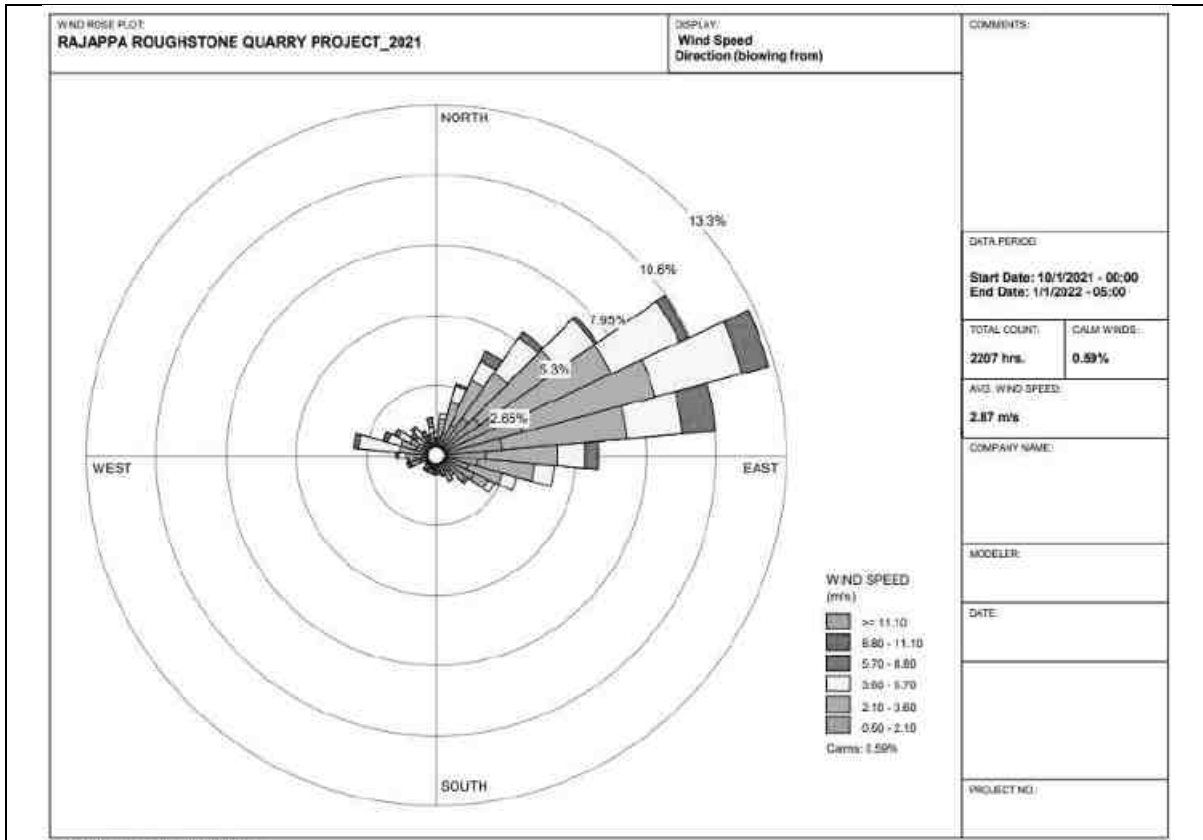
### 3.3.1.2 Wind Pattern

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 2019 to 2022 and the seasonal wind rose for the study period of October through December 2023. The wind rose diagrams thus produced are shown in Figures 3.13-3.13a. Figure 3.14 reveals that:

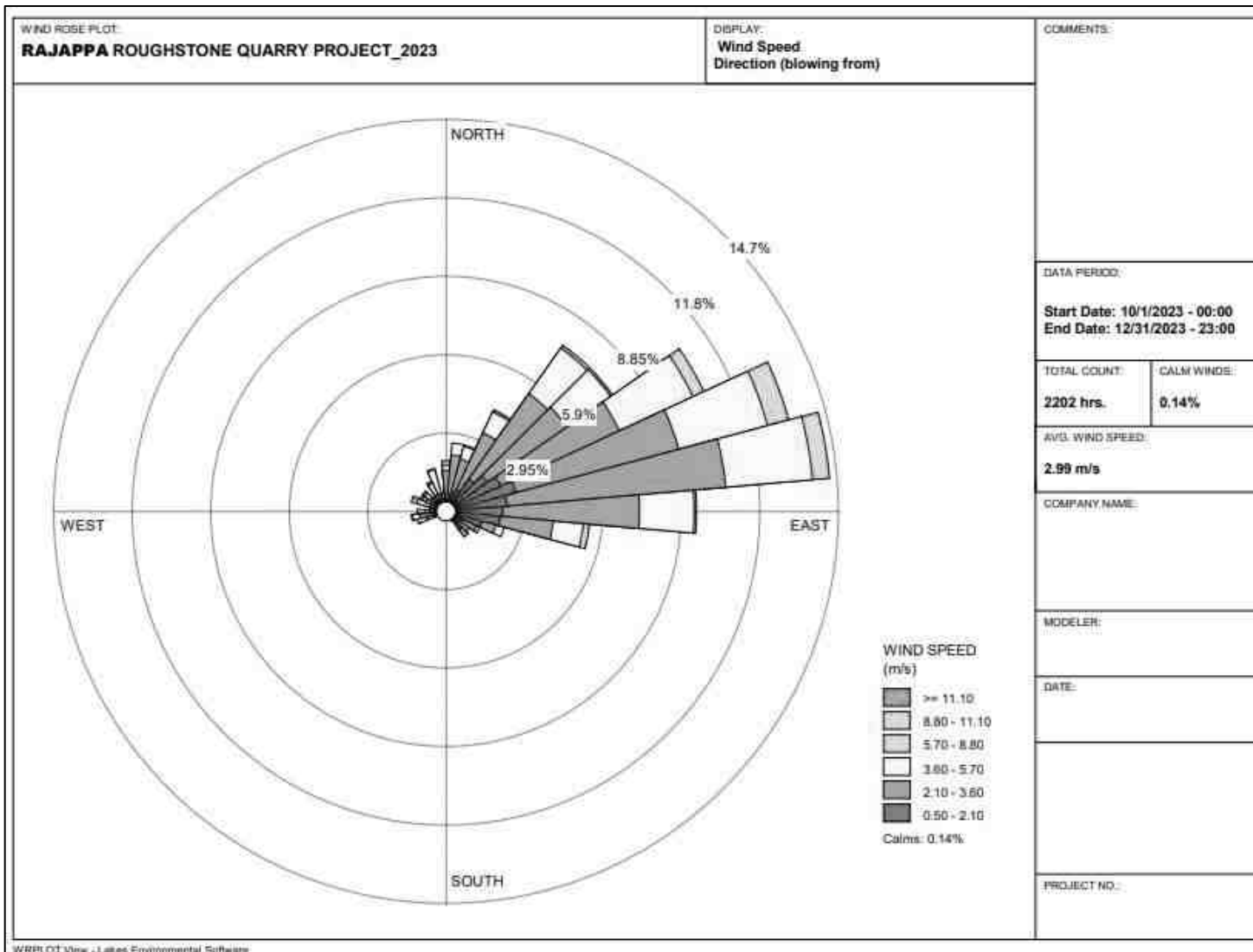
- ❖ The measured average wind velocity during the study period is 2.99m/s.
- ❖ Predominant wind was dominant in the directions ranging from Northeast to Southwest.



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



**Figure 3.13a Windrose Diagram for 2021-2022 (October to December)**



**Figure 3.14 Onsite Wind Rose Diagram**



### 3.3.2 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 3.13 Methodology and Instrument Used for AAQ Analysis**

Parameter	Method	Instrument
PM <sub>2.5</sub>	Gravimetric method Beta attenuation method	Fine Particulate Sampler
PM <sub>10</sub>	Gravimetric method Beta attenuation method	Respirable Dust Sampler
SO <sub>2</sub>	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO <sub>x</sub>	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 *Ekdant Enviro Services (P) Limited & CPCB Notification*

**Table 3.14 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 <sub>2</sub> (µg/m <sup>3</sup> )	Annual Avg.*	50.0	20.0
		24 hours**	80.0	80.0
2	NO <sub>x</sub> (µg/m <sup>3</sup> )	Annual Avg.	40.0	30.0
		24 hours	80.0	80.0
3	PM <sub>10</sub> (µg/m <sup>3</sup> )	Annual Avg.	60.0	60.0
		24 hours	100.0	100.0
4	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Annual Avg.	40.0	40.0
		24 hours	60.0	60.0

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

## Methodology

Ambient air quality monitoring was carried out with a frequency of two samples per week at Seven (07) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period **October through 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  $3 \pm 0.5$  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 PM<sub>2.5</sub>, PM<sub>10</sub>, sulphur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>x</sub>). The sampling locations are shown in Figure 3.15 and average concentrations of air pollutants are summarized in Tables 3.15 and are shown in Figures 3.16-3.20.

**Table 3.15 Ambient Air Quality (AAQ) Monitoring Locations**

S. No.	Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
					Latitude	Longitude
1	AAQ1	Core	--	--	12°39'44.57"N	77°57'35.60"E
2	AAQ2	Pillaikothur	0.72	N	12°40'13.04"N	77°57'37.11"E
3	AAQ3	Pathakotta	1.93	WSW	12°39'19.80"N	77°56'35.88"E
4	AAQ4	Nayakanapalli	4.29	WSW	12°39'12.85"N	77°55'16.28"E
5	AAQ5	Keeranapalli	3.15	S	12°38'1.33"N	77°57'56.68"E
6	AAQ6	Shoolagiri	4.96	E	12°39'56.50"N	78° 0'28.44"E
7	AAQ7	Kanalatti	3.40	N	12°41'40.17"N	77°57'32.75"E

Source: On-site monitoring/sampling by **Ekdant Enviro Services (P) Limited** in association with GTMS

## Results

As per the monitoring data, PM<sub>2.5</sub> ranges from 14.4 µg/m<sup>3</sup> to 16.2 µg/m<sup>3</sup>, PM<sub>10</sub> from 35.9 µg/m<sup>3</sup> to 40.5µg/m<sup>3</sup>, SO<sub>2</sub> from 2.8 µg/m<sup>3</sup> to 4.4 µg/m<sup>3</sup>, NO<sub>x</sub> from 8.5µg/m<sup>3</sup> to 13.6g/m<sup>3</sup>. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

## Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 38 causing minimal impact to human health.

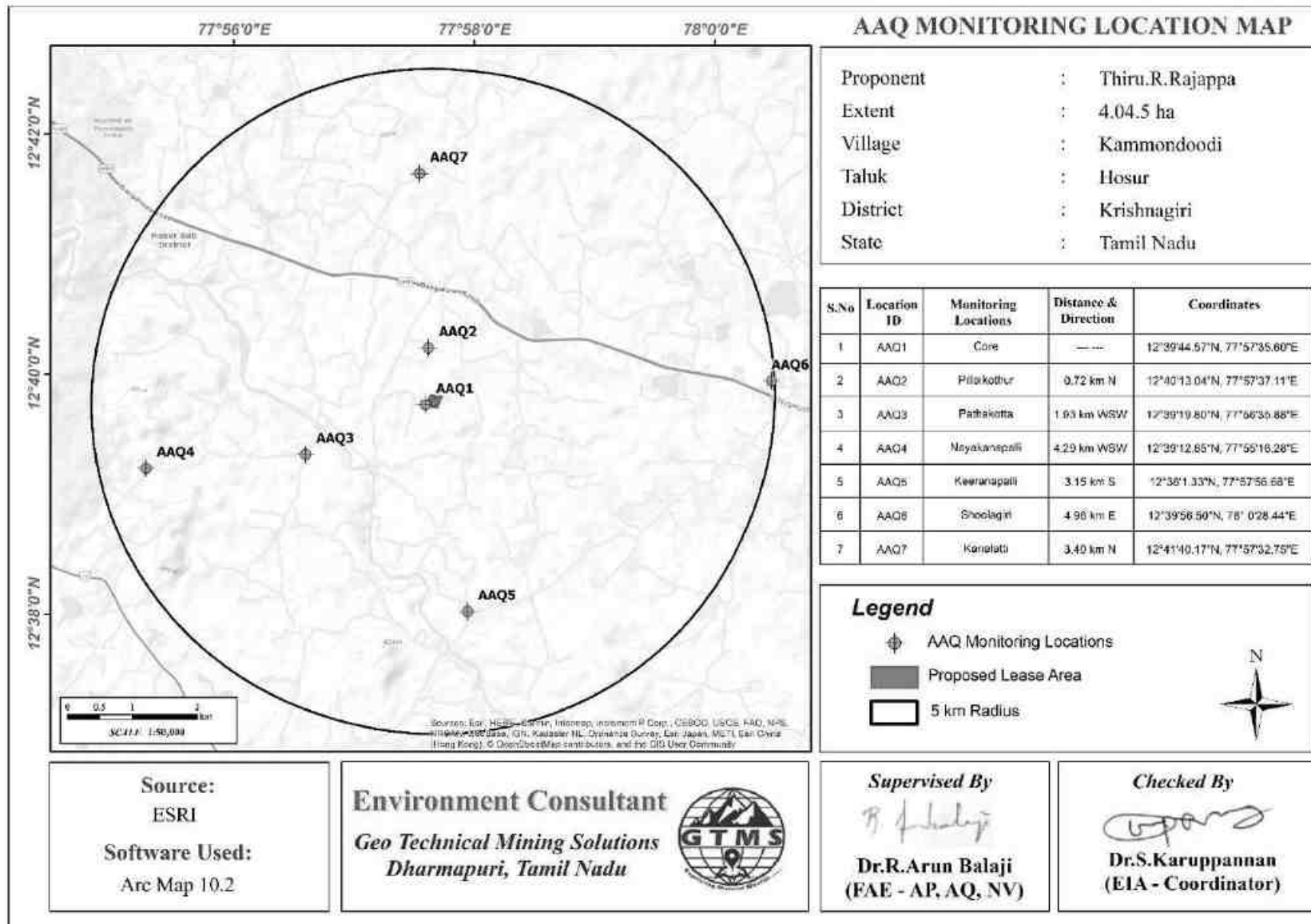
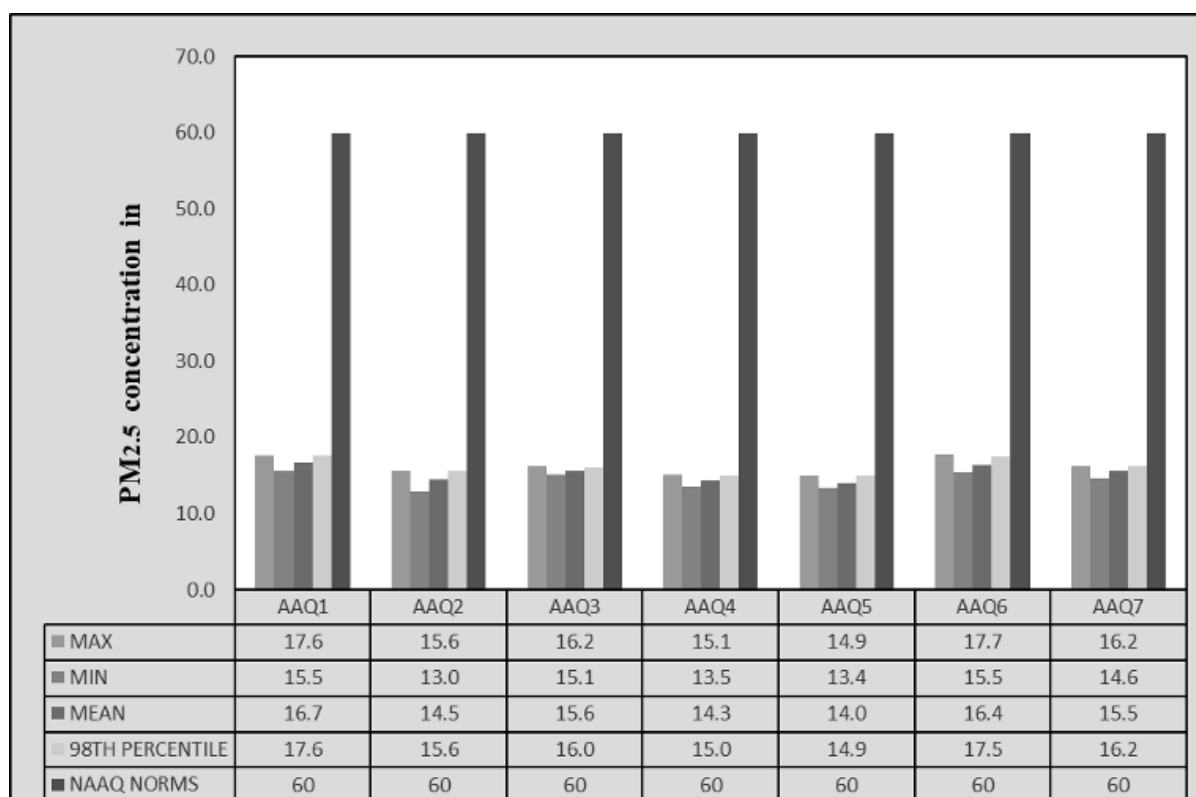


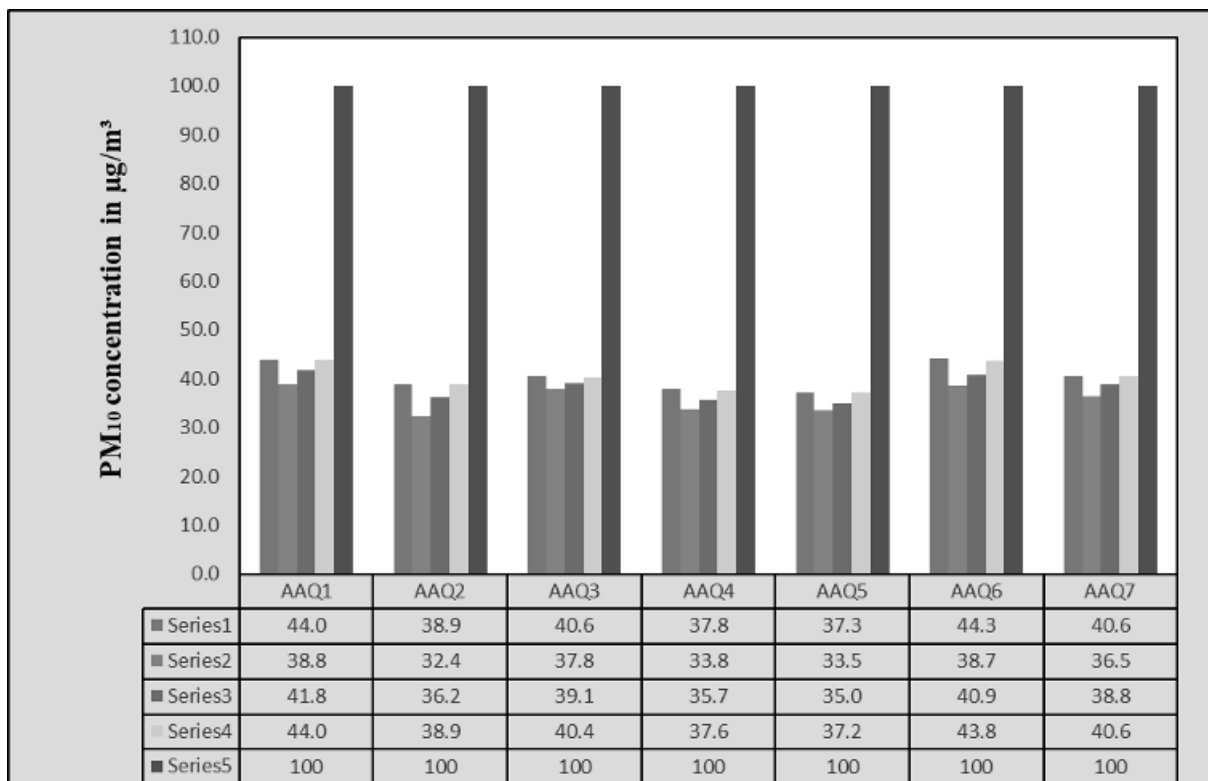
Figure 3.15 Map Showing Ambient Air Quality Monitoring Station Locations Around 5 km Radius from Proposed Project Site

**Table 3.16 Summary of AAQ Result**

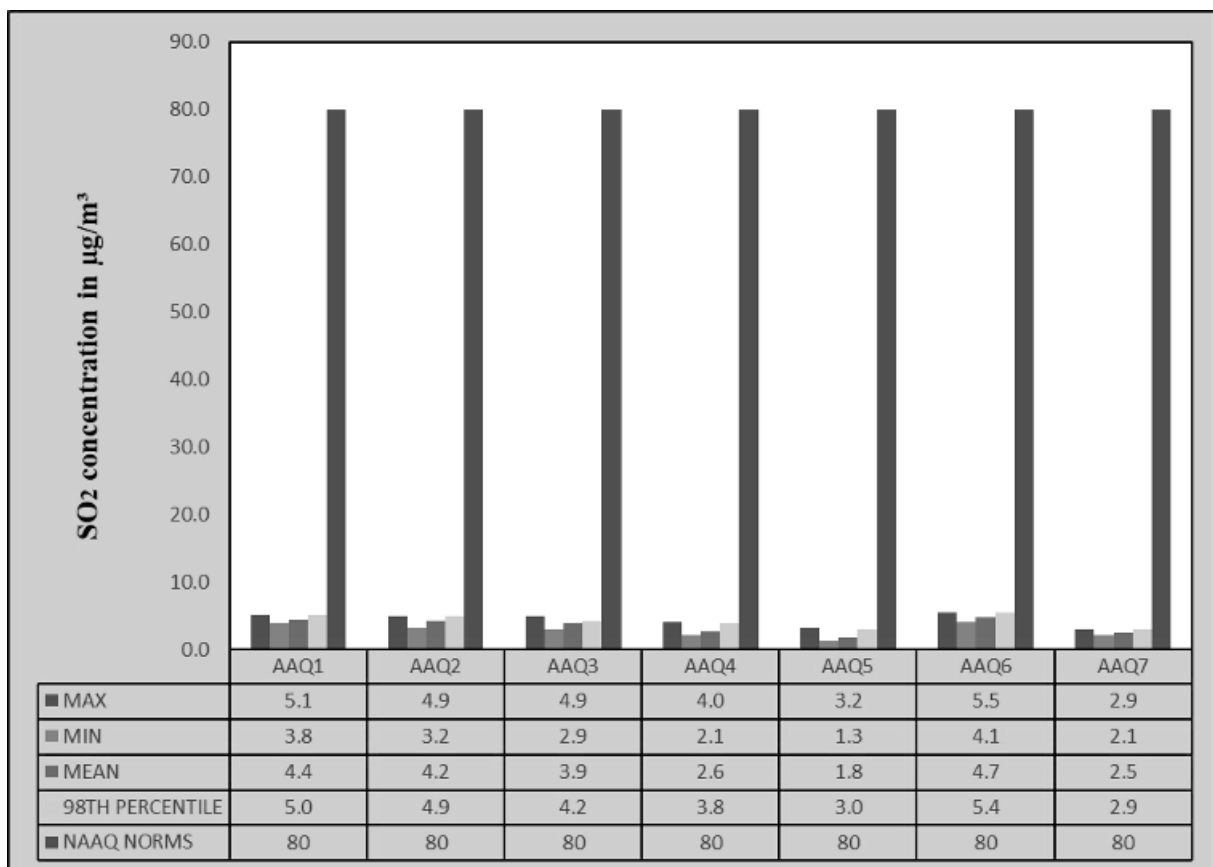
PM <sub>2.5</sub>					PM <sub>10</sub>			
Station ID	Max	Min	Mean	98 <sup>th</sup> Percentile	Max	Min	Mean	98 <sup>th</sup> Percentile
AAQ1	17.6	15.5	16.7	17.6	44.0	38.8	41.8	44.0
AAQ2	15.6	13.0	14.5	15.6	38.9	32.4	36.2	38.9
AAQ3	16.2	15.1	15.6	16.0	40.6	37.8	39.1	40.4
AAQ4	15.1	13.5	14.3	15.0	37.8	33.8	35.7	37.6
AAQ5	14.9	13.4	14.0	14.9	37.3	33.5	35.0	37.2
AAQ6	17.7	15.5	16.4	17.5	44.3	38.7	40.9	43.8
AAQ7	16.2	14.6	15.5	16.2	40.6	36.5	38.8	40.6
SO <sub>2</sub>					NO <sub>x</sub>			
AAQ1	5.1	3.8	4.4	5.0	15.8	11.8	13.6	15.5
AAQ2	4.9	3.2	4.2	4.9	15.4	10.1	13.1	15.4
AAQ3	4.9	2.9	3.9	4.2	15.2	9.0	12.0	15.0
AAQ4	4.0	2.1	2.6	3.8	12.4	6.5	8.2	11.8
AAQ5	3.2	1.3	1.8	3.0	9.9	4.0	5.7	9.3
AAQ6	5.5	4.1	4.7	5.4	17.1	12.7	14.5	16.8
AAQ7	2.9	2.1	2.5	2.9	9.1	5.3	6.4	7.0



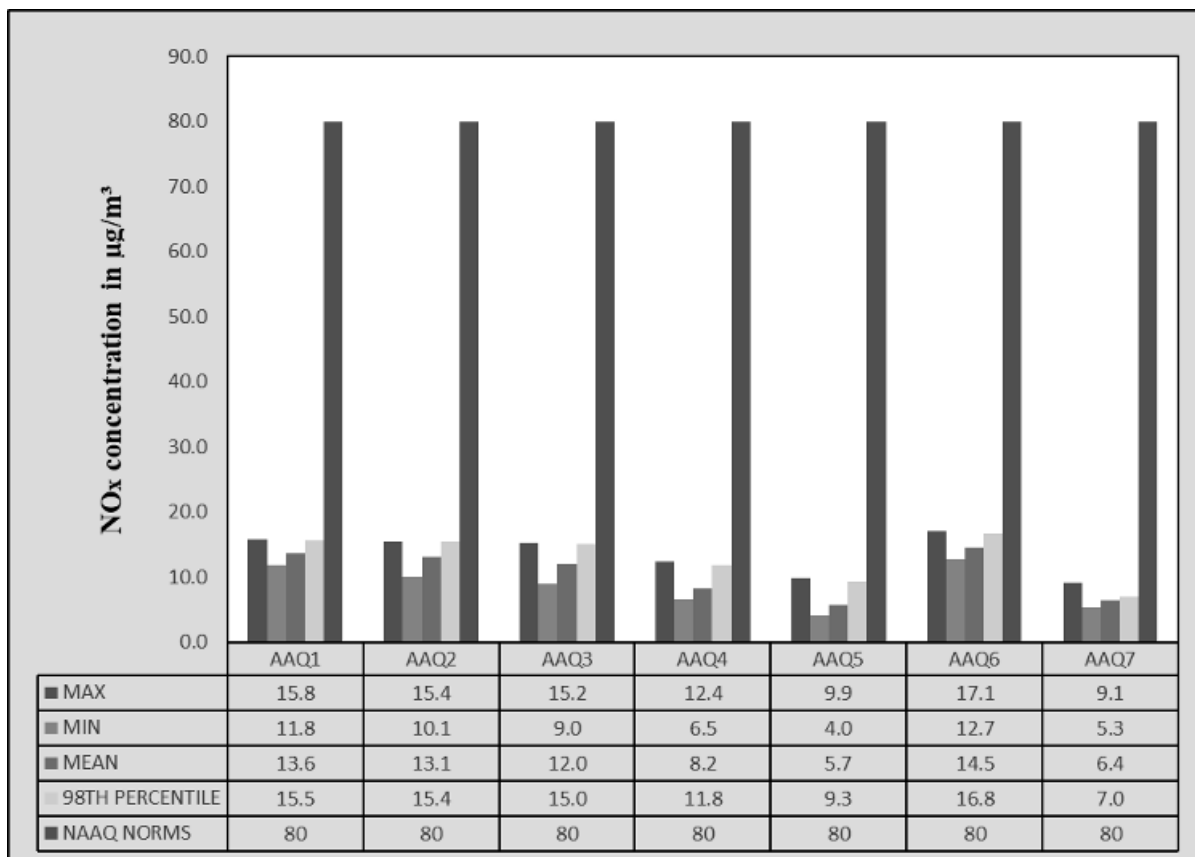
**Figure 3.16 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM<sub>2.5</sub> Measured from 7 Air Quality Monitoring Stations within 5 km Radius**



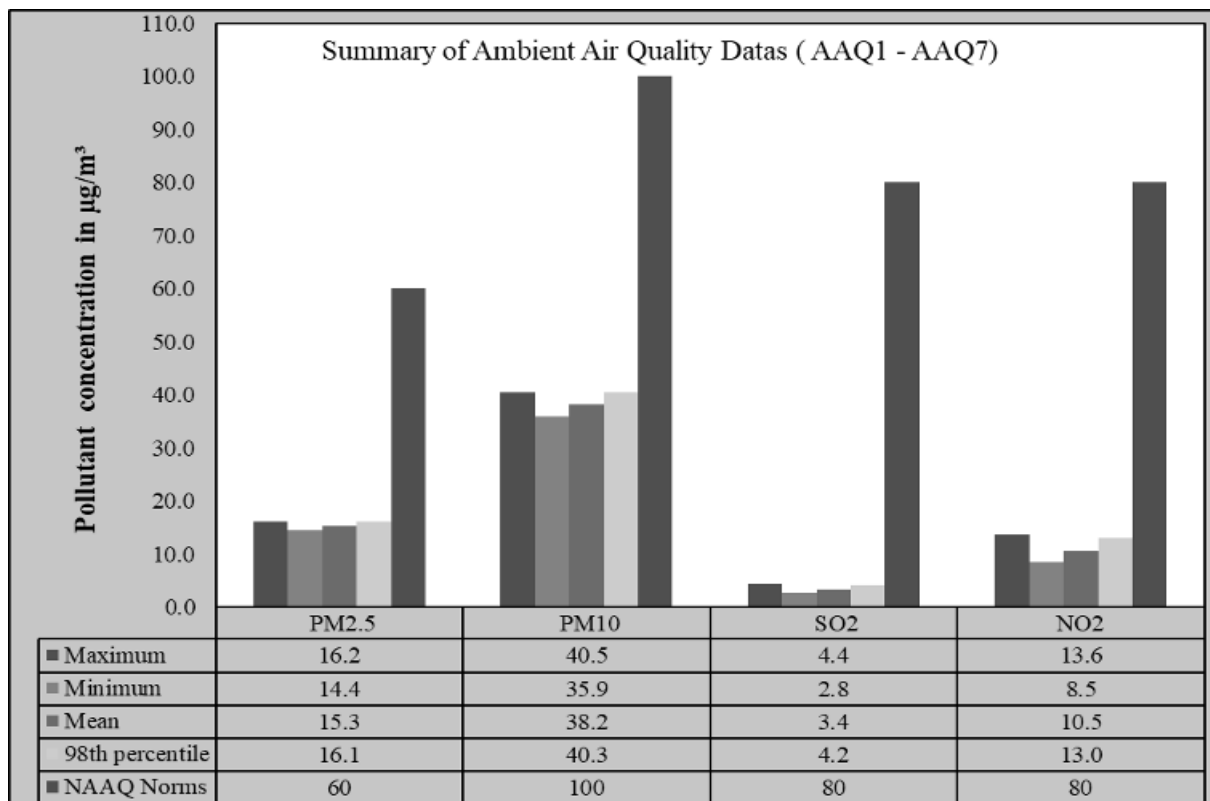
**Figure 3.17 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM<sub>10</sub> Measured from 7 Air Quality Monitoring Stations within 5 km Radius**



**Figure 3.18 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO<sub>2</sub> Measured from 7 Air Quality Monitoring Stations within 5 km Radius**



**Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of No<sub>x</sub> Measured from 7 Air Quality Monitoring Stations within 5 km Radius**



**Figure 3.20 Bar Chart Showing Maximum, Minimum, and Average Concentrations of Pollutants in Atmosphere within 5 km Radius**

### 3.4 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 3.17 and spatial occurrence of the locations are shown in Figure 3.21.

**Table 3.17 Noise Monitoring Locations**

S. No.	Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
					Latitude	Longitude
1	N1	Core	--	--	12°39'48.99"N	77°57'37.41"E
2	N2	Pillaikothur	0.74	N	12°40'14.00"N	77°57'38.17"E
3	N3	Pathakotta	1.95	SW	12°39'18.94"N	77°56'35.49"E
4	N4	Nayakanapalli	4.25	WSW	12°39'13.21"N	77°55'17.43"E
5	N5	Keeranapalli	3.14	SSE	12°38'1.95"N	77°57'58.19"E
6	N6	Shoolagiri	4.79	E	12°39'53.64"N	78° 0'22.85"E
7	N7	Kanalatti	3.45	N	12°41'42.08"N	77°57'34.81"E

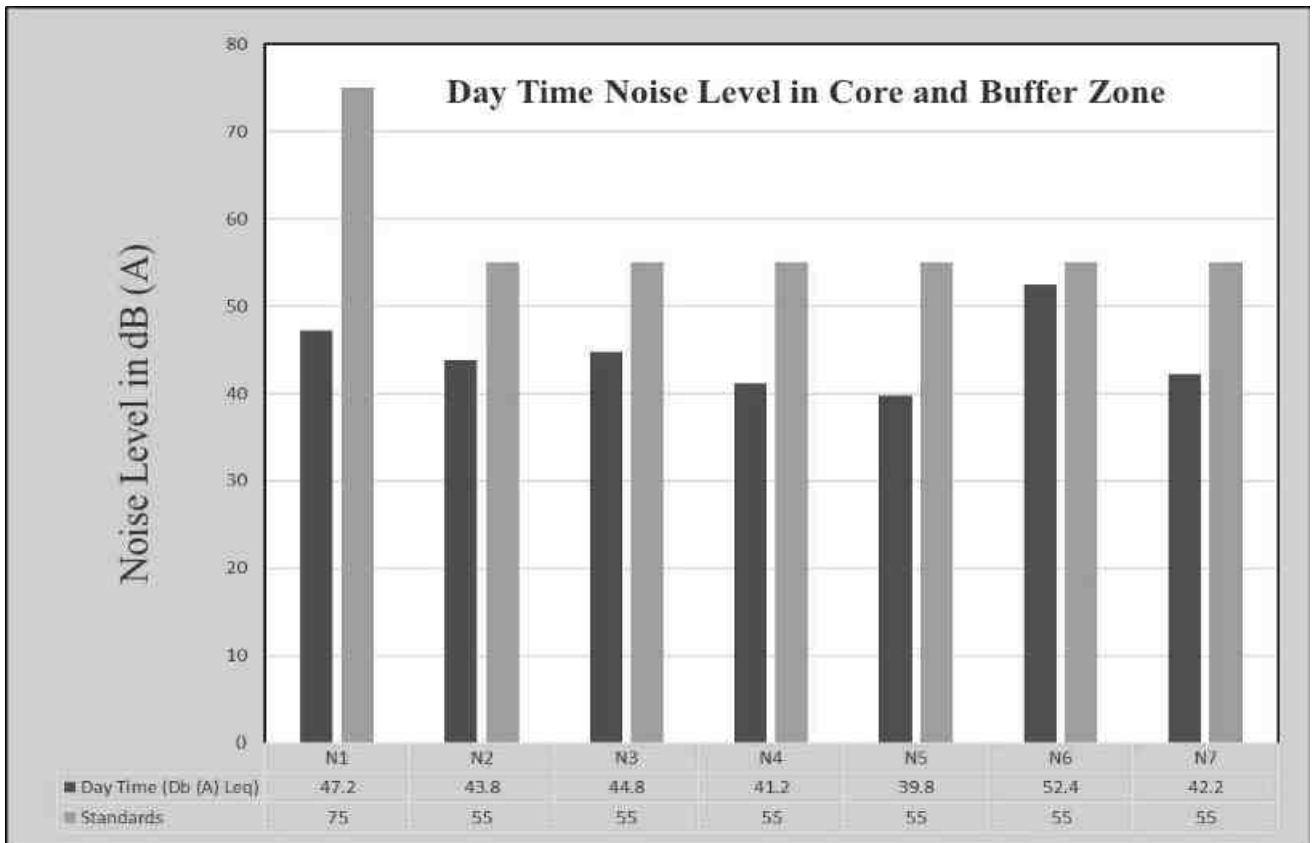
Source: On-site Monitoring/Sampling by *Ekdant Enviro Services (P) Limited* in Association with GTMS

**Table 3.18 Ambient Noise Quality Result**

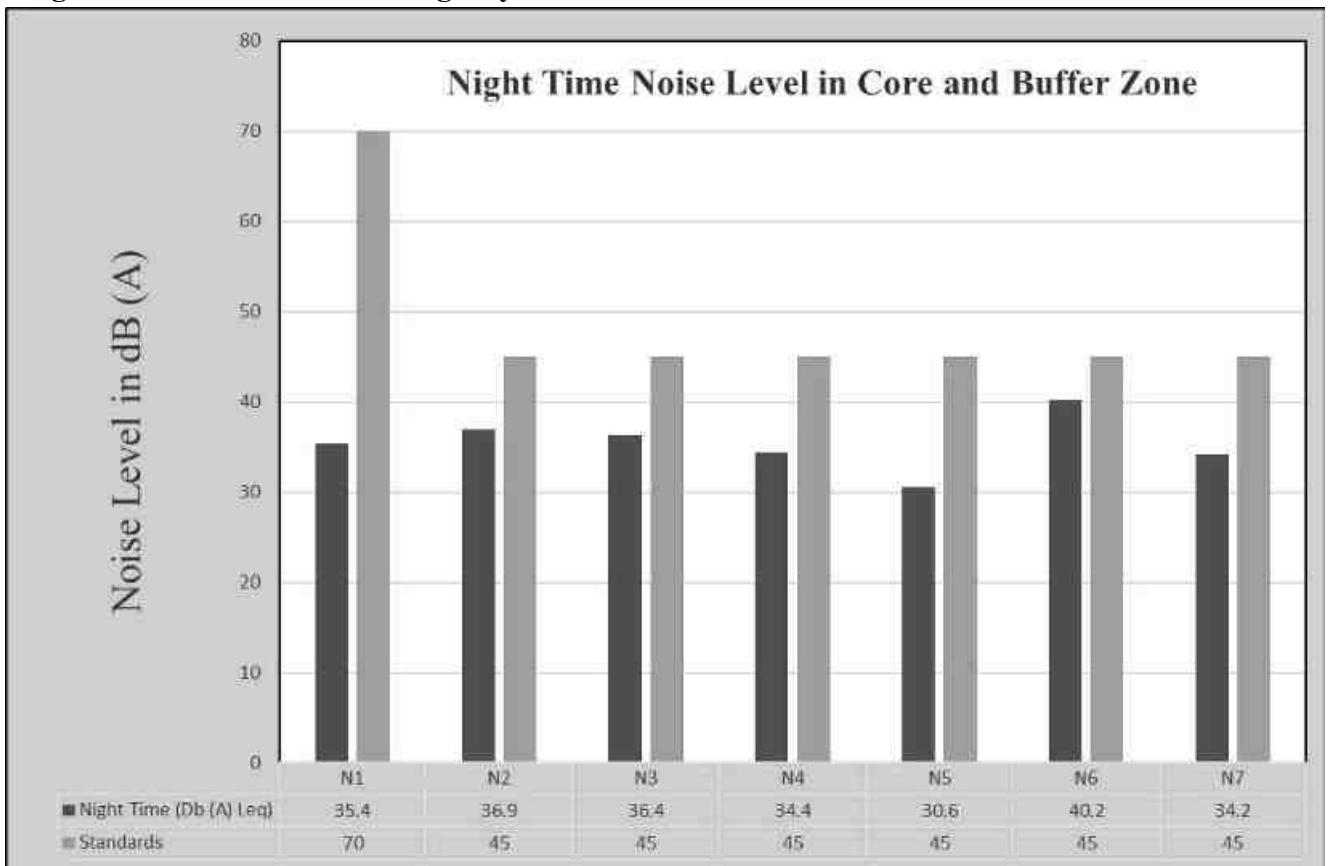
Station ID	Location	Environmental setting	Average day noise level (dB(A))	Average night noise level (dB(A))	Day time (6.00 AM – 10.00 PM)	Night time (10.00 PM – 6.00 AM)
					Standard (Leq in dB (A))	
N1	Core	Industrial Area	47.2	35.4	75	70
N2	Pillaikothur	Residential Area	43.8	36.9	55	45
N3	Pathakotta		44.8	36.4		
N4	Nayakanapalli		41.2	34.4		
N5	Keeranapalli		39.8	30.6		
N6	Shoolagiri		52.4	40.2		
N7	Kanalatti		42.2	34.2		

Source: On-site Monitoring/Sampling by *Ekdant Enviro Services (P) Limited* in Association with GTMS

The Table 3.18 shows that noise level in core zone was 47.2 dB (A) Leq during day time and 35.4dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 39.8 to 52.4dB (A) Leq and during night time from 30.6 to 40.2dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.21 and 3.22.



**Figure 3.21 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones**



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



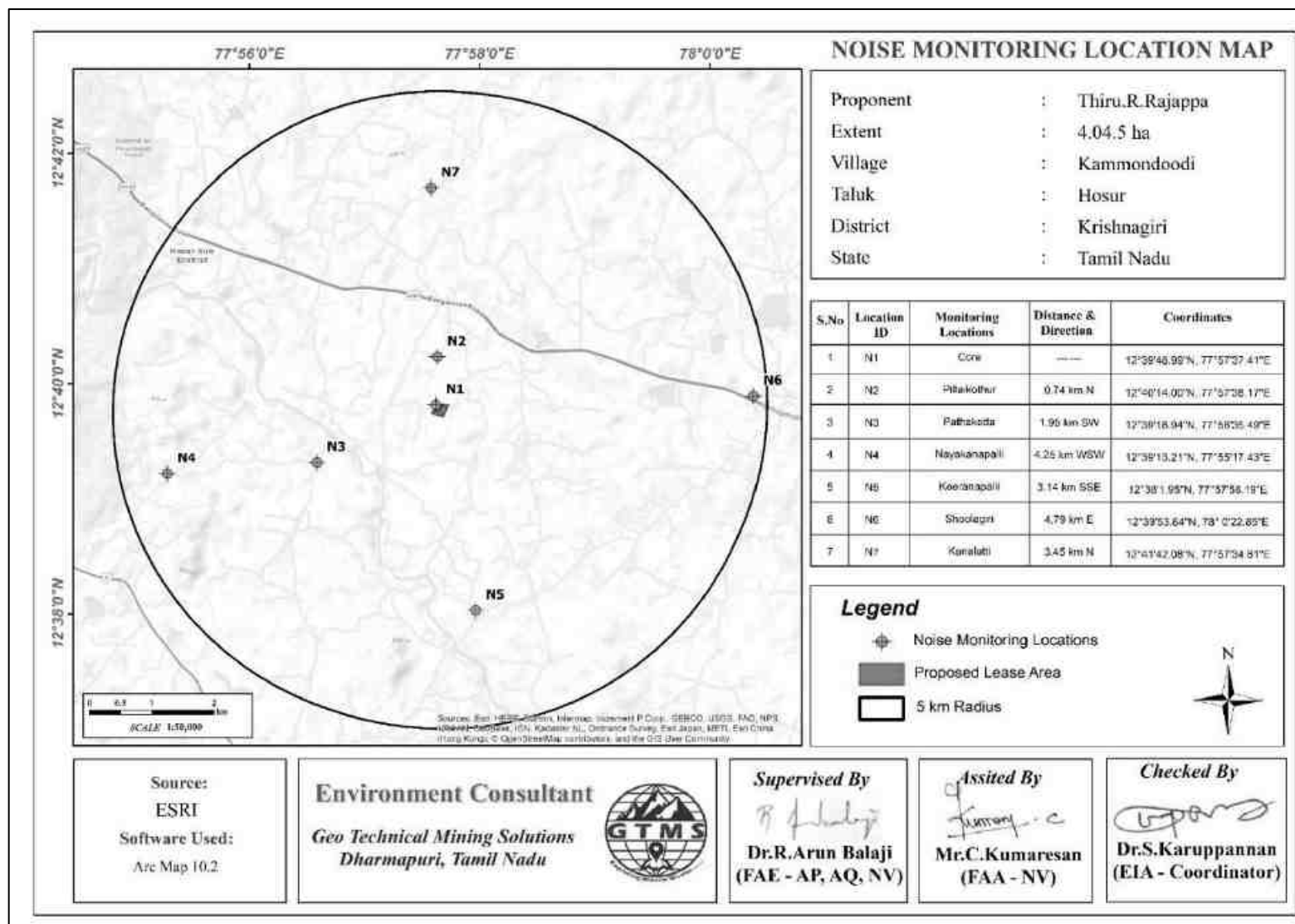


Figure 3.23 Map Showing Noise Level Monitoring Station Locations around 5 km Radius from Proposed Project Site

### 3.5 BIOLOGICAL ENVIRONMENT

An ecological survey was conducted to collect the baseline data regarding flora and fauna in the study area of 10 km radius. Data were also collected from different sources, i.e., government departments such as District Forest Office, Government of Tamil Nadu. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

#### ***Methodology***

Sampling locations were selected with reference to topography, land use, vegetation pattern, etc. In this study, quadrats of 25 m × 25 m were laid down to assess trees and quadrats of 10 m × 10 m were laid down for shrubs.



**Figure 3.24** Quadrates Sampling Methods of Flora

#### ***Phyto-Sociological Studies***

Phyto-sociological parameters, such as *Density*, *Frequency*, *Abundance* and *Importance Value Index* of individual species were determined in randomly placed quadrat of different sizes in the study area, as shown in Table 3.19. Relative frequency, and relative density were calculated and the sum of these three represented Importance Value Index (IVI)

for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found.*** Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 10 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

**Table 3.19 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index**

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied)100
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Important Value Index	Relative Density + Relative Frequency

### ***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 corresponding formulas are given in Table 3.20.

**Table 3.20 Calculation of Species Diversity by Shannon – Wiener Index, Evenness and Richness**

Description	Formula
Species diversity – Shannon – Wien Index	$H = \sum [(p_i) * \ln(p_i)]$ Where $p_i$ : Proportion of total sample represented by species $i$ : number of individuals of species $i$ / total number samples
Evenness	$H/H_{max}$ $H_{max} = \ln(s) = \text{maximum diversity possible}$ $S = \text{No. of species}$
Species Richness by Margalef	$RI = S - 1 / \ln N$ Where $S$ = Total Number of species in the community $N$ = Total Number of individuals of all species in the Community

### 3.5.1 Flora

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 mine lease area (core zone)*

There are no plants species in mine lease area.

#### *Flora in 300 m radius buffer zone*

Taxonomically 36 species belonging to 23 families have been recorded from the 300 m radius buffer zone. Based on habitat classification of the enumerated plants the majority of species were seven Tree 7 followed by Herbs & Climbers & Grass 21, Shrubs 8. Details of flora with the scientific name and species richness index were mentioned in Table.3.21-3.23.

#### *Flora in 10 km radius buffer zone*

Similar type of environment also in buffer area but with more flora diversity compare than core zone area, because of nearby agriculture land was found to be dominate in all the directions. Majority of the flat landscape around project unit is occupied by agriculture fields. It contains a total of 57 species belonging to 34 families have been recorded from the buffer zone. The floral (89) varieties among them Trees 26 Shrubs 9 and Herbs & Climbers & Creeper & Cactus 22. Details of flora with the scientific name were mentioned in Table.3.24

**Table 3.21 Flora in 300-meter 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
<b>TREE</b>													
1	Velikathan maram	<i>Prosopis juliflora</i>	Fabaceae	5	3	5	1.0	60	1.67	18.52	16.67	35.19	Not Listed
2	Pongam oiltree	<i>Pongamia pin nata</i>	Fabaceae	3	2	5	0.6	40	1.50	11.11	11.11	22.22	Not Listed
3	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	2	1	5	0.4	20	2.00	7.41	5.56	12.97	Not Listed
4	Nochi	<i>Vitex negundo</i>	Lamiaceae	4	3	5	0.8	60	1.33	14.81	16.67	31.48	Not Listed
5	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	3	2	5	0.6	40	1.50	11.11	11.11	22.22	Not Listed
6	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	5	3	5	1.0	60	1.67	18.52	16.67	35.19	Not Listed
7	Vembu	<i>Azadirachta indica</i>	Meliaceae	5	4	5	1.0	80	1.25	18.52	22.22	40.74	Not Listed
<b>SHRUBS</b>													
1	Icham	<i>Phoenix pusilla</i>	Arecaceae	2	1	10	2.00	10	2.00	3.45	2.04	5.49	Not Listed
2	Unichedi	<i>Lantana camara</i>	Verbenaceae	7	6	10	1.17	60	1.17	12.07	12.24	24.31	Not Listed
3	Sundaika	<i>Solanum torvum</i>	Solanaceae	8	7	10	1.14	70	1.14	13.79	14.29	28.08	Not Listed
4	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	6	5	10	1.20	50	1.20	10.34	10.20	20.54	Not Listed
5	Avarai	<i>Senna auriculata</i>	Fabaceae	9	8	10	1.13	80	1.13	15.52	16.33	31.85	Not Listed
6	Sappathikalli	<i>Cereus pterogonus</i>	Cactaceae	5	4	10	1.25	40	1.25	8.62	8.16	16.78	Not Listed

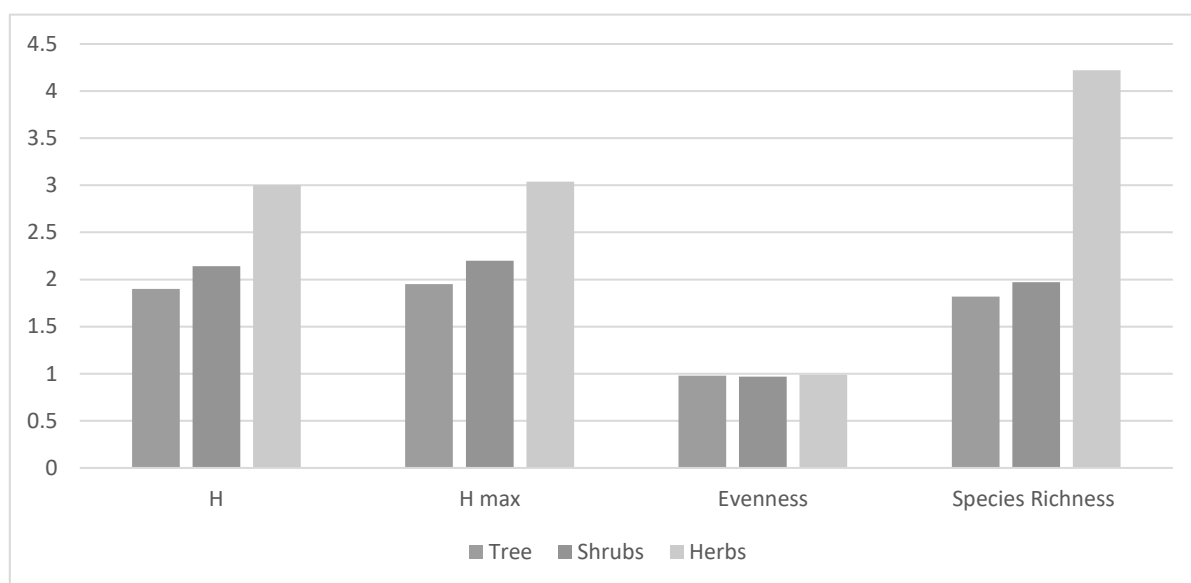
7	Kattamanaku	<i>Jatropha gossypifolia</i> <i>L</i>	Euphorbiaceae	7	6	10	1.17	60	1.17	12.07	12.24	24.31	Not Listed
8	Karunochi	<i>Vitex negundo</i>	Lamiaceae	9	8	10	1.13	80	1.13	15.52	16.33	31.85	Not Listed
<b>Herbs &amp; Climbers &amp; Grass</b>													
1	Thumbai	<i>Leucas aspera</i>	Lamiaceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed
2	Kantang kathrikai	<i>Solanum virginianum</i>	Solanaceae	3	2	15	0.20	13.33	1.50	2.61	2.15	4.76	Not Listed
3	Arugampul	<i>Cynodon dactylon</i>	Poaceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed
4	Poolai poondu	<i>Aerva lanata</i>	Amaranthaceae	5	4	15	0.33	26.67	1.25	4.35	4.30	8.65	Not Listed
5	Korai	<i>Cyperus rotundus</i>	Cyperaceae	4	3	15	0.27	20.00	1.33	3.48	3.23	6.71	Not Listed
6	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales	2	1	15	0.13	6.67	2.00	1.74	1.08	2.82	Not Listed
7	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae	7	6	15	0.47	40.00	1.17	6.09	6.45	12.54	Not Listed
8	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	8	7	15	0.53	46.67	1.14	6.96	7.53	14.49	Not Listed
9	Mulli	<i>Solanum violaceum</i> <i>Ortega</i>	Solanaceae	5	4	15	0.33	26.67	1.25	4.35	4.30	8.65	Not Listed
10	Kombumul	<i>Acanthospermum</i> <i>hispidum</i>	Asteraceae	5	3	15	0.33	20.00	1.67	4.35	3.23	7.58	Not Listed
11	Ponnangani	<i>Alternanthera pungens</i>	Amaranthaceae	8	7	15	0.53	46.67	1.14	6.96	7.53	14.49	Not Listed
12	wild thulasi	<i>Hyptis suaveolens (L.)</i>	Lamiaceae	7	6	15	0.47	40.00	1.17	6.09	6.45	12.54	Not Listed
13	Gopuram Tangi	<i>Andrographis echiioides</i>	Acanthaceae	4	3	15	0.27	20.00	1.33	3.48	3.23	6.71	Not Listed
14	Amman Paccharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed
15	Paca poondu	<i>Pavonia gallaensis</i>	Malvaceae	5	4	15	0.33	26.67	1.25	4.35	4.30	8.65	Not Listed
16	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	3	2	15	0.20	13.33	1.50	2.61	2.15	4.76	Not Listed
17	Vishnukrandi	<i>Evolvulus alsinoides</i>	Convolvulaceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed
18	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae	8	7	15	0.53	46.67	1.14	6.96	7.53	14.49	Not Listed
19	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed
20	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	5	4	15	0.33	26.67	1.25	4.35	4.30	8.65	Not Listed
21	Agave	<i>Agave weberi</i>	Asparagaceae	6	5	15	0.40	33.33	1.20	5.22	5.38	10.6	Not Listed

**Table 3.22 Calculation of Species Diversity in 300 m Radius**

S.No	Common name	Scientific name	No. of Species	Pi	In (Pi)	Pi x In (Pi)
<b>Trees</b>						
1	Velikathan maram	<i>Prosopis juliflora</i>	5	0.19	-1.69	-0.31
2	Pongam oiltree	<i>Pongamia pin nata</i>	3	0.11	-2.20	-0.24
3	Panai maram	<i>Borassus flabellifer</i>	2	0.07	-2.60	-0.19
4	Nochi	<i>Vitex negundo</i>	4	0.15	-1.91	-0.28
5	Karuvelam maram	<i>Vachellia nilotica</i>	3	0.11	-2.20	-0.24
6	Nuna maram	<i>Morinda citrifolia</i>	5	0.19	-1.69	-0.31
7	Vembu	<i>Azadirachta indica</i>	5	0.19	-1.69	-0.31
<b>H (Shannon Diversity Index) =1.90</b>						
<b>Shrubs</b>						
1	Icham	<i>Phoenix pusilla</i>	2	0.03	-3.37	-0.12
2	Unichedi	<i>Lantana camara</i>	7	0.12	-2.11	-0.26
3	Sundaika	<i>Solanum torvum</i>	8	0.14	-1.98	-0.27
4	Erukku	<i>Calotropis gigantea</i>	6	0.10	-2.27	-0.23
5	Avarai	<i>Senna auriculata</i>	9	0.16	-1.86	-0.29
6	Sappathikalli	<i>Cereus pterogonus</i>	5	0.09	-2.45	-0.21
7	Kattamanaku	<i>Jatropha gossypifolia L</i>	7	0.12	-2.11	-0.26
8	Karunochi	<i>Vitex negundo</i>	9	0.16	-1.86	-0.29
<b>H (Shannon Diversity Index) =2.14</b>						
<b>HERBS</b>						
1	Thumbai	<i>Leucas aspera</i>	6	0.05	-2.95	-0.15
2	Kantang kathrikai	<i>Solanum virginianum</i>	3	0.03	-3.65	-0.10
3	Arugampul	<i>Cynodon dactylon</i>	6	0.05	-2.95	-0.15
4	Poolai poondu	<i>Aerva lanata</i>	5	0.04	-3.14	-0.14
5	Korai	<i>Cyperus rotundus</i>	4	0.03	-3.36	-0.12
6	Nerunji	<i>Tribulus terrestris</i>	2	0.02	-4.05	-0.07
7	Nayuruv	<i>Achyranthes aspera</i>	7	0.06	-2.80	-0.17
8	Thottalchinungi	<i>Mimosa pudica</i>	8	0.07	-2.67	-0.19
9	Mulli	<i>Solanum violaceum</i> <i>Ortega</i>	5	0.04	-3.14	-0.14
10	Kombumul	<i>Acanthospermum hispidum</i>	5	0.04	-3.14	-0.14
11	Ponnangani	<i>Alternanthera pungens</i>	8	0.07	-2.67	-0.19
12	wild thulasi	<i>Hyptis suaveolens (L.)</i>	7	0.06	-2.80	-0.17
13	Gopuram Tangi	<i>Andrographis echioides</i>	4	0.03	-3.36	-0.12
14	Amman Paccharisi	<i>Euphorbia hirta</i>	6	0.05	-2.95	-0.15
15	Paca poondu	<i>Pavonia gallaensis</i>	5	0.04	-3.14	-0.14
16	Perandai	<i>Cissus quadrangularis</i>	3	0.03	-3.65	-0.10
17	Vishnukrandi	<i>Evolvulus alsinoides</i>	6	0.05	-2.95	-0.15
18	Musumusukkai	<i>Mukia maderaspatana</i>	8	0.07	-2.67	-0.19
19	Sirupunaikkali	<i>Passiflora foetida</i>	6	0.05	-2.95	-0.15
20	Nagathali	<i>Opuntia dillenii</i>	5	0.04	-3.14	-0.14
21	Agave	<i>Agave weberi</i>	6	0.05	-2.95	-0.15
<b>H (Shannon Diversity Index) =3.00</b>						

**Table 3.23 Species Richness (Index) in 300 m Radius**

Details	H	H max	Evenness	Species Richness (margalef Index)
Tree	1.90	1.95	0.98	1.82
Shrubs	2.14	2.20	0.97	1.97
Herbs	3.00	3.04	0.99	4.22



**Figure 3.25 Species Richness pattern in 300m Radius**

**Table 3.24 Flora in Buffer Zone**

S. No	Local Name	Scientific name	Family name	IUCN Conservation Status
Trees				
1	Vembu	<i>Azadirachta indica</i>	Meliaceae	Not Listed
2	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	Not Listed
3	Manga	<i>Mangifera indica</i>	Anacardiaceae	Not Listed
4	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	Not Listed
5	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	Not Listed
6	Moonkil	<i>Bambusa arundanacea</i>	Poaceae	Not Listed
7	Chiru-illanthai	<i>Ximenia americana</i>	Olacaceae	Not Listed
8	Sapota	<i>Manilkara zapota</i>	Sapotaceae	Not Listed
9	Puliyamaram	<i>Tamarindus indica</i>	Legumes	Not Listed
10	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	Not Listed
11	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae	Not Listed
12	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	Not Listed
13	Kambimaram	<i>Gummifera lucida Roxb</i>	Rubiaceae	Not Listed
14	Koyya	<i>Psidium guajava</i>	Myrtaceae	Not Listed
15	Atthi	<i>Ficus racemosa</i>	Moraceae	Not Listed



16	Vilvam	<i>Aegle marmelos</i>	Rutaceae	Not Listed
17	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	Not Listed
18	Kalyana murungai	<i>Erythrina variegata L</i>	Papilionoide	Not Listed
19	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	Not Listed
20	Ichchimaram	<i>Ficus infectoria Roxb</i>	Moraceae	Not Listed
21	Ilanthai	<i>Ziziphus jujuba</i>	Rhamnaceae	Not Listed
22	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	Not Listed
23	Karuvagai	<i>Albizia odoratissima</i>	Mimosaceae	Not Listed
24	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	Not Listed
25	Pappali maram	<i>Carica papaya L</i>	Caricaceae	Not Listed
26	Vazhaimaram	<i>Musa</i>	Musaceae	Not Listed
Shrubs				
1	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	Not Listed
2	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	Not Listed
3	Arali	<i>Nerium indicum</i>	Apocynaceae	Not Listed
4	Kundumani	<i>Abrus precatorius</i>	Fabaceae	Not Listed
5	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	Not Listed
6	Icham	<i>Phoenix pusilla</i>	Arecaceae	Not Listed
7	Nalla nochi	<i>Vitex negundo</i>	Verbinaceae	Not Listed
8	Kundumani	<i>Abrus precatorius</i>	Fabaceae	Not Listed
9	Unichedi	<i>Lantana camara</i>	Verbenaceae	Not Listed
Herbs				
1	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	Not Listed
2	Korai	<i>Cyperus rotundus</i>	Cyperaceae	Not Listed
3	Yanainerunjil	<i>Pedaliium murex</i>	Pedaliaceae	Not Listed
4	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	Not Listed
5	Milagai	<i>Capsicum frutescens</i>	Solanaceae	Not Listed
6	Thumbai	<i>Leucas aspera</i>	Lamiaceae	Not Listed
7	Nerunjil	<i>Tribulus terrestri</i>	Zygophyllaceae	Not Listed
8	Sirupasalai	<i>Portulaca quadrifida</i>	Portulacaceae	Not Listed
9	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	Not Listed
10	Manathakkali	<i>Solanumnigrum</i>	Solanaceae	Not Listed
11	Vishnikiranthi	<i>Evolvulus alsinoides</i>	Convolvulaceae	Not Listed
CLIMBER				
1	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	Not Listed
2	Karkakartum	<i>Clitoria ternatea</i>	Fabaceae	Not Listed
3	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae	Not Listed
4	Nannari	<i>Hemidesmus indicus</i>	Asclepiadaceae	Not Listed
CREEPER				
1	Korai	<i>Cyperus rotandus</i>	Poaceae	Not Listed
2	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae	Not Listed
3	Sambal pushani kai	<i>Benincasa cerifera Savi</i>	Cucurbitaceae	Not Listed
GRASS				
1	Pullu	<i>Eragrostis ferruginea</i>	Poaceae	Not Listed
2	Moongilpul	<i>Apluda aristat</i>	Poaceae	Not Listed
3	Arugampul	<i>Cynodon dactylon</i>	Poaceae	Not Listed
CACTUS				
1	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	Not Listed

### **Forest Vegetation**

There Are No Biosphere Reserves or Wildlife Sanctuary or National Parks or Important Bird Areas (Ibas), Settipatti R. F Located On 3.04km - North, Sulagiri R. F 3.5km -North, Settipatti R. F 3.04km – North, Perandapalli R. F 4.04km-West. The *Azadirachta Indica*, *Vachellia Leucophloea*, *Albizia Amara*, *Zizyphus Oenoplia*, *Pterolobium Hexapetalum*, *Lannea Coromandelica*, *Melia Azedarach*, *Mundulea Sericea*, *Pedaliium Murex*, *Pergularia Daemia*, *Barleria Prionitis*, *Lantana Camara*, *Agave Weberi*. These Types of Plants Are Abundant in The Reserve Forest. From The Study, It Is Confirmed That the Area Under Study (Mine Lease Area and the 10 Km Buffer Zone) Is Not Ecologically Sensitive.

### **3.5.2 Fauna**

The faunal survey was carried out for Mammals, Birds, Reptiles, Amphibians and Butterflies. There are no rare, endangered, threatened (RET) and endemic species present in Mine lease area.

**Table 3.25 Methodology applied during survey of fauna**

<b>S. No.</b>	<b>Taxa</b>	<b>Method of Sampling</b>	<b>References</b>
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); Ali S (1941)

### **Fauna in Core Zone**

A total of 26 varieties of species observed in the Core zone of Kammondoodi village, rough stone quarry (Table.3.26) among them numbers of Insects 8 (31%), Reptiles 5 (19%), Mammals 4 (15%) and Avian 9 (35%). A total of 26 species belonging to 19 families have been recorded from the core mining lease area. Number of species decreases towards the mining area this might be due the lack of vegetation. None of these species are threatened or endemic. There is no Schedule I species and nine species are under schedule IV according to Indian wild life Act 1972. A total nine species of bird were sighted in the mining lease area.

### **Fauna in Buffer Zone**

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 Insects 14 (28%), followed by Birds 15 (30%), Reptiles 13 (26%), Mammals 5 (10%) and amphibians 3 (6%). There are 7 Schedule II species and twenty-eight species are under schedule IV according to Indian wild life Act 1972. A total fifteen species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

**Table 3.26 Fauna in Core Zone**

S. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife protection act 1972	IUCN Red List data
<b>Insects</b>					
1	Plain Tiger	Nymphalidae	<i>Dananuschrysippus</i>	NL	NE
2	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
3	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NE	LC
4	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
5	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
6	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
7	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
8	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
<b>Reptiles</b>					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NE	NE
2	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NE	NE
3	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
4	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	LC
5	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
<b>Mammals</b>					
1	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
2	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule II	LC
3	Rat	Murids	<i>Rattusrattus</i>	Schedule IV	LC
4	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
<b>Avian</b>					
1	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NE	LC
2	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	NE	LC
3	Koel	Cucalidae	<i>Eudynamys scolopaceus</i>	Schedule IV	LC
4	Common cuckoo	Cucalidae	<i>Cuculus canorus</i>	NE	LC
5	House crow	Corvidae	<i>Corvus splendens</i>	NE	LC
6	Crow Pheasant	Cucalidae	<i>Centropus sinensis</i>	Schedule IV	LC
7	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV	LC
8	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
9	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NE	LC

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

**Table 3.27 Fauna in Buffer Zone**

SI. No	Common name/ English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
<b>Insects</b>					
1	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
2	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
3	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
4	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
5	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
6	Jewel beetle	Buprestidae	<i>Eurythyrea austriaca</i>	Schedule IV	NA
7	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
8	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
9	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
10	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
11	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
12	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
13	Lesser grass blue	Lycaenidae	<i>Zizina Otis indica</i>	Schedule IV	LC
14	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
<b>Reptiles</b>					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2	Chameleon	Chamaeleonidae	<i>Chameleon zeylanicus</i>	Schedule II	LC
3	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
4	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
5	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
6	Olive keel back water snake	Natricidae	<i>Atretium schistosum</i>	Sch II (Part II)	LC
7	Whip Snake	Elapidae	<i>Dryphis nasutus</i>	Sch II (Part II)	LC

8	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	LC
9	Indian wall lizard	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV	NL
10	Saw scaled viper	Elapidae	<i>Echis carinatus</i>	Sch II (Part II)	LC
11	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
12	Russell's viper	Viperidae	<i>Vipera russeli</i>	Sch II (Part II)	LC
13	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
<b>Mammals</b>					
1	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
2	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
3	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule IV	LC
4	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
5	Brown rat	Muridae	<i>Rattus norvegicus</i>	Schedule IV	LC
<b>Aves</b>					
1	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
2	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
3	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
4	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
5	Asian green bee-eater	Meropidae	<i>Merops orientalis</i>	NL	LC
6	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
7	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV	LC
8	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
9	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
10	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
11	Two-tailed Sparrow	Dicruridae	<i>Passer domesticus</i>	Schedule IV	LC
12	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
13	Common Quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
14	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	NL	LC

15	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
<b>Amphibians</b>					
1	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
2	Green Pond Frog	Ranidae	<i>Rana hexadactyla</i>	Schedule IV	LC
3	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus</i> ( <i>Rana tigerina</i> )	Schedule IV	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. Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; *Catla* (*Catla catla*), *Channa striata*, *Oreochromis niloticus*.

**Table 3.28 Aquatic Fauna and Flora**

Sl. No	Common Name	Scientific name	Family Name	IUCN Red List of Threatened Species
<b>Flora</b>				
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
4	Scutch grass	<i>Cynodon dactylon</i>	Poaceae	LC
<b>Fauna</b>				
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

### **Phytoplankton's:**

Microcystis, Nitzschia, Oscillatoria, Navicula and Pediastrum sps.

### **Zooplanktons:**

These consist of microscopic organisms from groups Protozoa, Rotifers, Cladocera and Copepoda etc. Some common species of zooplanktons are; *Deflandre*, *Arcella vulgaris*,

*Centropyxis spinosa*, *Arcella discoides*, *Arcella hemispherica*, *Centropyxis aculeate*, *Trigonopyxis arcuata*, *Brachionus calyciflorus*, *Lecane curvicornis*, *Brachionus angularis*, *Polyarthra vulgaris*, *Filinia longiseta*.

### **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

### **3.5.3 Agriculture & Horticulture in Krishnagiri district:**

Major horticulture crops cultivated in this district are fruits crops like mango, banana, sapota, aonla and guava, vegetables like brinjal, bhendi, capsicum, onion and chillies, spices like turmeric and pepper, and flower crops like rose, gerbera and carnations.

#### **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 Agricultural in 1km radius is given in Table. 3.29.

**Table 3.29 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	Samai	<i>Panicum sumatrense</i>	Poaceae
6	Maize	<i>Zea mays</i>	Poaceae
7	Redgram	<i>Cajanus cajan</i>	Fabaceae
8	Bengalgram	<i>Cicer arietinum</i>	<u>Fabaceae</u>
9	Greengram	<i>Vigna radiata</i>	Fabaceae
10	Blackgram	<i>Vigna mungo</i>	Fabaceae
11	Horsegram	<i>Macrotyloma uniflorum</i>	Fabaceae
12	Ground Nut	<i>Arachis hypogaea</i>	Fabaceae
13	Gingelly	<i>Sesamum indicum</i>	Pedaliaceae
14	Sunflower	<i>Helianthus</i>	<u>Asteraceae</u>
15	Cotton	<i>Gossypium</i>	<u>Malvaceae</u>
16	Sugar cane	<i>Saccharum officinarum</i>	Poaceae

17	Tapioca	<i>Manihot esculenta</i>	Spurges
18	Banana	<i>Musa</i>	Musaceae
19	Coriander	<i>Coriandrum sativum</i>	Apiaceae
20	Chilles	<i>Capsicum frutescens</i>	Solanaceae
21	Onion	<i>Allium cepa</i>	Amaryllidaceae

### ***Major Horticulture Crops***

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***

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 3.30.

**Table 3.30 Major Field Crops & Horticulture cultivation in 1km radius.**

S.No	Name of the crop	Scientific name	Family
1	Banana	<i>Musa</i>	Musaceae
2	Mango	<i>Mangifera indica</i>	Anacardiaceae
3	Onion	<i>Allium cepa</i>	Amaryllidaceae
4	Chilies	<i>Capsicum frutescens</i>	Solanaceae
5	Tapioca	<i>Manihot esculenta</i>	Spurges

### ***Results***

Biological assessment of the site was done to identify ecologically sensitive areas and whether there are any rare, endangered, endemic or threatened (REET) species of flora & fauna in the core area as well its buffer zone to be impacted. The study has also been designed to suggest suitable mitigation measures, if necessary, for protection of wildlife habitats and conservation of REET species if any. The study found that there is no endemic, endangered migratory fauna found in the area according to IUCN Red List. 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.



## **3.6 SOCIO ECONOMICS ENVIRONMENT**

### **3.6.1 Introduction**

An essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic conditions in the area, which deals with the total environment. Socio economic study includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature of aesthetic significance such as temples, historical monuments etc. at the baseline level. This would help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. Socio-economic study of an area provides a good opportunity to assess the socio-economic condition and possibly makes a change in living and social standards of the particular area benefitted due to the project.

### **3.6.2 Objectives of the Study**

The main objectives of the study are as follows:

- ❖ To know the current socio-economic condition in the region to cover the sub sectors education, health, sanitation, and water & food security.
- ❖ To recommend practical strategic interventions in the sector.
- ❖ To help in providing better living standards.
- ❖ To understand skill sets and plan for employment opportunities which shall be created.

### **3.6.3 Scope of Work**

- ❖ To study the socio-economic environment of the area from the secondary sources
- ❖ Data collection & Analysis
- ❖ Prediction of project impact
- ❖ Mitigation Measures

### **3.6.4 Methodology & Analysis**

Data for this project was collected via a combination of secondary sources and primary source interviews, questionnaires, field research) in the study area.

### **3.6.5 Socio-Economic Status of Study area**

The study area covers 16 Villages including Deripalli, Sukkasagaram, Addakurukki, Marandapalli, Nallaganakothapalli, Kamandoddi, Shoolagiri, Subbagiri, Pathakkata, Thiyagarsanapalli, Samanapalli, Agaram Agraharam, Thiyarandurgam, Thuppuganapalli, Ullatti, Uddanapalli, is the village in which the proposed project site is located, the summary

of population facts for the village is exclusively provided in Table 3.31 and for other 8 villages in Tables 3.32 - 3.34

### 3.6.6 Presentation of Details

The collected data were presented in a suitable, concise form for further analysis. The collected data and Infrastructures available in the study area are provided in Tables 3.33- 3.36.

**Table 3.31 Kamandoddi Village Population Facts**

<b>Kamandoddi</b>	
Number of Households	1450
Population	6524
Male Population	3394
Female Population	3130
Children Population	797
Sex-ratio	922
Literacy	62.88%
Male Literacy	70.26%
Female Literacy	54.88%
Scheduled Tribes (ST)	130
Scheduled Caste (SC)	878
Total Workers	3003
Main Worker	2221
Marginal Worker	782

*Source: DCHB Census 2011, Tamil Nadu.*

**Table 3.32 Population and Literacy Data of Study Area**

Village	No of Households	Total Population Person	Total Population Male	Total Population Female	Literates Population Person	Literates Population Male	Literates Population Female	Illiterate Persons	Illiterate Male	Illiterate Female
Bukkasagaram	460	2126	1109	1017	1213	742	471	913	367	546
Doripalli	852	3681	1898	1783	2013	1165	848	1668	733	935
Addakurukki	581	2504	1288	1216	1298	758	540	1206	530	676
Nallaganakothapalli	968	3933	2028	1905	2309	1378	931	1624	650	974
Marandapalli	963	4663	2355	2308	2363	1355	1008	2300	1000	1300
Shoolagiri	2101	9530	4788	4742	6403	3480	2923	3127	1308	1819
Thiyagarsanapalli	990	4479	2291	2188	2286	1304	982	2193	987	1206
Kamandoddi	1450	6524	3394	3130	3601	2093	1508	2923	1301	1622
Subbagiri	158	656	333	323	360	194	166	296	139	157
Halekotta	707	2990	1535	1455	1831	1071	760	1159	464	695
Samanapalli	721	3198	1635	1563	1652	922	730	1546	713	833
Ullatti	737	3311	1762	1549	1638	1023	615	1673	739	934
Agaram Agraharam	288	1219	620	599	687	389	298	532	231	301
Thuppuganapalli	989	4281	2192	2089	2328	1340	988	1953	852	1101
Thiyarandurgam	919	4143	2136	2007	2245	1337	908	1898	799	1099
Uddanapalli	1091	4691	2387	2304	2779	1563	1216	1912	824	1088

*Source: DCHB Census 2011, Tamil Nadu.*

**Table 3.33 Educational Facilities & Water & Drainage Facilities Data of Study Area**

Village	Private Primary School (Numbers)	Govt Vocational Training School/ITI (Numbers)	Primary Health Centre (Numbers)	Tap Water Untreated	River/Canal	Is the Area Covered under Total Sanitation Campaign (TSC)?	Telephone (landlines)	Public Bus Service	Gravel (kutcha) Roads	Commercial Bank	Agricultural Credit Societies	Self - Help Group (SHG)	Nutritional Centres- Anganwadi Centre	Community Centre with/without TV	Power Supply for Domestic Use
Bukkasagaram	0	0	0	1	2	1	1	2	1	2	2	1	1	1	1
Doripalli	0	0	0	1	2	2	1	2	1	2	1	1	1	1	1
Addakurukki	0	0	1	1	2	2	1	1	1	2	1	1	1	1	1
Nallaganakothapalli	1	0	0	1	2	2	1	1	1	2	2	1	1	1	1
Marandapalli	0	0	0	1	2	2	2	2	1	2	1	1	1	1	1
Shoolagiri	0	0	0	1	2	2	1	1	1	2	2	1	1	1	1
Thiyagarsanapalli	0	0	0	1	2	2	1	1	1	2	1	1	1	1	1
Kamandoddi	0	0	0	1	2	2	1	1	1	2	2	1	1	1	1
Subbagiri	2	0	0	1	2	2	1	1	1	2	1	1	1	1	1
Halekotta	1	0	0	1	2	2	1	2	1	2	2	1	1	2	1
Samanapalli	0	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Ullatti	0	1	1	1	2	1	1	1	1	2	2	1	1	1	1
Agaram Agraharam	1	0	0	1	2	2	1	1	1	2	2	1	1	2	1
Thuppuganapalli	0	1	0	1	2	2	1	1	1	2	2	1	1	1	1
Thiyarandurgam	0	0	0	1	2	2	1	1	1	2	2	1	1	1	1
Uddanapalli	0	1	0	1	2	2	1	1	1	2	2	1	1	1	1

Source: DCHB Census 2011, Tamil Nadu.

**Table 3.34 Other Facilities in the Study Area**

<b>Village</b>	<b>Total Worker Population Person</b>	<b>Total Worker Population Male</b>	<b>Total Worker Population Female</b>	<b>Main Working Population Person</b>	<b>Main Working Population Male</b>	<b>Main Working Population Female</b>	<b>Main Cultivator Population Person</b>	<b>Main Agricultural Labourers Population Person</b>	<b>Main Other Workers Population Person</b>	<b>Non-Working Population Person</b>
Bukkasagaram	364	246	118	278	201	77	104	53	99	1762
Doripalli	1140	775	365	1056	732	324	353	243	444	2541
Addakurukki	1023	709	314	682	505	177	199	272	210	1481
Nallaganakothapalli	1659	1201	458	1383	1012	371	489	118	751	2274
Marandapalli	2427	1411	1016	1688	1053	635	796	651	204	2236
Shoolagiri	3600	2652	948	3292	2473	819	473	393	2281	5930
Thiyagarsanapalli	2369	1437	932	1772	1177	595	459	961	337	2110
Kamandoddi	3003	1982	1021	2221	1536	685	863	403	906	3521
Subbagiri	208	190	18	208	190	18	174	18	16	448
Halekotta	1263	809	454	1098	726	372	493	397	192	1727
Samanapalli	1630	954	676	1585	925	660	443	894	221	1568
Ullatti	1854	1068	786	1727	1031	696	877	586	231	1457
Agaram Agraharam	741	416	325	692	391	301	290	276	112	478
Thuppuganapalli	2395	1381	1014	2322	1346	976	445	1563	290	1886
Thiyarandurgam	2137	1306	831	1692	1092	600	598	524	551	2006
Uddanapalli	2306	1473	833	1820	1176	644	1049	81	619	2385

*Source: DCHB Census 2011, Tamil Nadu.*

### **3.6.7 Recommendation and Suggestion**

- ❖ Awareness program should be conducted to make the population aware of education and to get a better livelihood.
- ❖ Vocational training programme should be organized to make the people self - employed, particularly for women and unemployed youth.
- ❖ On the basis of qualification and skills local community may be preferred. Long term and short-term employments should be generated.
- ❖ Health care centre and ambulance facility should be provided to the population to get easy access to medical facilities. Apart from that, as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- ❖ While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. Therefore, that special attention can be given to these groups with special provisions while making action plans.

### **3.6.8 Summary & Conclusion**

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

The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn, the social standards will improve.

### **3.7 TRAFFIC DENSITY**

The traffic survey conducted based on the transportation route of material, the Rough Stone and gravel is proposed to be transported mainly through Village Road Hosur to Krishnagiri (SH-45) as shown in Table 3.37 and in Figure 3.29. 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 3.35 Traffic Survey Locations**

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	0.68 km-W	Village Road
TS2	Hosur to Krishnagiri (SH-45)	1.51 km-N	Hosur to Krishnagiri (SH-45)

Source: On-site monitoring by GTMS FAE & TM

**Table 3.36 Existing Traffic Volume**

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	65	195	49	49	82	41	285
TS2	98	294	57	57	92	46	397

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 3.37 Rough Stone Transportation Requirement**

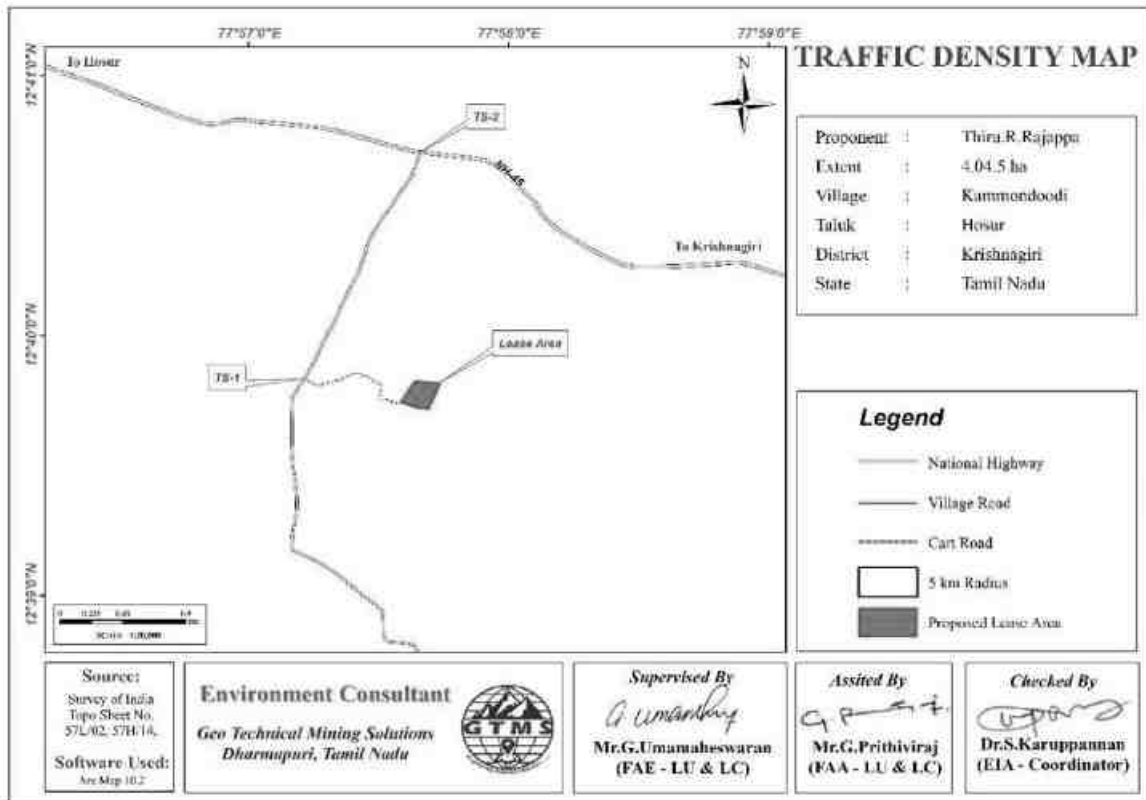
Transportation of Rough and Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
15 tonnes	81	243

Source: Approved Mining Plan

**Table 3.38 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 Road	285	243	528	1200
Hosur to Krishnagiri (SH-45)	397	243	640	1200

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



**Figure 3.26 Traffic Density Map**

- 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 1,500 PCU in hour. Hence there will not be any conjunction due to this proposed transportation.

### 3.8 SITE SPECIFIC FEATURES

There are no Wildlife Sanctuaries and National Park within 10 km radius. Therefore, there will be no need of acquisition/diversion of forest land. The details related to the environmentally sensitive areas around the proposed mine lease area i.e., 10 km radius and the nearby water bodies are given in the Table 3.39.

**Table 3.39 Details of Environmentally Sensitive Ecological Features in the Study Area**

S. No.	Sensitive Ecological Features	Name	Areal Distance in km
1	National Park / Wild life Sanctuaries	None	Nil within 10 km radius
		None	Nil within 10 km radius
2	Reserve Forest	Thekkalapalli R.F	9.80 -East
		Sulagiri R.F	3.5 -North



		Errandapalli R.F	10.94 -East
		Kariyanapalli R.F	15.65-NE
		Melumalai R.F	11.48 -East
		Sulagunda R.F	15.5-SE
		Settipatti R.F	3.04 - North
		Sanamavu R.F	7.28-SW
		Udedurgam R.F	13.70- South
		Perandapalli R.F	4.04-West
		Veppanapalli R.F	23.92-NE
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Ponnaiyar River	1.31-SW
		Pillayakottur lake	0.230-NW
		Kurupachappadi Lake	1.37- East
		Chappadi North lake	1.66-NE
		Chappadi South lake	1.82-SE
		Kottoor lake	2.58-SE
		Narur Lake	2.70-West
		Pannapalli lake	2.23-NW
		Kamandoddi lake	2.88-NW
		Sivapellai lake	1.80-North
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	Centrally Protected 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 10 km radius

Source: Survey of India Toposheet

## CHAPTER IV

### ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### 4.0 GENERAL

Environmental impacts both direct and indirect on various environmental attributes due to proposed mining activity will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development. 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. The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail: land, soil, water, air, noise, biological and socio-economic environments. Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

#### 4.1 LAND ENVIRONMENT

##### 4.1.1 Anticipated Impact

The proposed project would result in:

- ❖ Permanent impact on mineral resources due to removal of 655613 m<sup>3</sup> of rough stone and 218 m<sup>3</sup> of topsoil in the five years.
- ❖ Substantial change to topographic features or significant change in surface relief
- ❖ Permanent or temporary change on land use and land cover.
- ❖ Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- ❖ Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season
- ❖ Siltation of water course due to wash off from the exposed working area

##### 4.1.2 Common Mitigation measures for the proposed Project

In order to minimize the adverse effects, the following control measures will be implemented:

- ❖ After completion of the quarrying operation, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir

- ❖ Topsoil will be utilized for greenbelt development in the safety barrier to prevent noise and sound propagation to the nearby lands
- ❖ Garland drains will be constructed all around the quarry pit and check dams will be constructed at suitable locations in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water within the proposed area
- ❖ Barbed wire fencing will be reconstructed 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**

This project does not result in any impact on the soil of the project site, as topsoil is neither removed from the project site nor preserved in the safety margin area. However, some of the common mitigation measures have been discussed in the following sections to protect the immediate soil environment surrounding the lease area.

### **4.2.2 Mitigation Measures for Soil Conservation**

- ❖ The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved topsoil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench
- ❖ Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
- ❖ Retaining wall with weep hole, garland drain will be provided around the dump areas
- ❖ Proper angle of repose will be maintained
- ❖ Grasses will be grown over the dump areas for stability.

## **4.3 WATER ENVIRONMENT**

### **4.3.1 Anticipated Impact**

- ❖ As the water required for the mining operations, as given in Table 2.10 is obtained from the approved water supplying agency, the project does not develop any abstraction structures in the lease area. Therefore, no impact responsible for the water table declination is anticipated.
- ❖ Surface and ground water resources may be contaminated due to mine pit water discharge, domestic sewage, waste water from vehicle washing, washouts from surface exposure or working areas, discharge of oil & grease, and suspended solids due to waste from washing of machineries. To address this impact, some of the important mitigation measures is provided as below.

### **4.3.2 Common Mitigation Measures for the Proposed Project**

- ❖ Garland drainage system and settling tank will be constructed along the proposed mining lease area. 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
- ❖ Rainwater from the mining pits will be collected in sump and will be allowed to store and pumped out to surface settling tank of 15 m x 10 m x 3 m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- ❖ Benches will be provided with inner slopes and through a system of drains and channels, rain water will be allowed to descent into surrounding drains to minimize the effects of erosion and water logging arising out of uncontrolled descent of water.
- ❖ The water collected will be reused during storm for dust suppression and greenbelt development within the mines.
- ❖ Interceptor traps/oil separators will be installed to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse.
- ❖ Flocculating or coagulating agents will be used to assist in the settling of suspended solids during monsoon seasons.
- ❖ Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted.
- ❖ Domestic sewage from site office and urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- ❖ Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- ❖ De-silting will be carried out before and immediately after the monsoon season.
- ❖ Regular monitoring (once every 6 months) and analysing the quality of water in open well, bore wells and surface water.

### **4.4 AIR ENVIRONMENT**

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

#### 4.4.1 Anticipated Impact from Proposed Project

- ❖ During mining at various stages of activities such as excavation, drilling, blasting 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.

##### 4.4.1.1 Emission Estimation

Emission resulting from different mining activities is estimated using relevant empirical formulae developed by Chaulya et al., 2001. The equations used for SPM, SO<sub>2</sub>, and NO<sub>x</sub> 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	$E = [0.4a + 0.2 \{9.7 + 0.01p + b/(4 + 0.3b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm <sup>3</sup> /yr); a = Lease area(km <sup>2</sup> ); E = Emission rate(g/s).
Overall Mine	SO <sub>2</sub>	Area	$E = a0.14 \{u/(1.83 + 0.93u)\} [ \{p/(0.48 + 0.57p)\} + \{b/(14.37 + 1.15b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm <sup>3</sup> /yr); a = Lease area(km <sup>2</sup> ); E = Emission rate(g/s).
Overall Mine	NO <sub>x</sub>	Area	$E = a0.25 \{u/(4.3 + 32.5u)\} [1.5p + \{b/(0.06 + 0.08b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm <sup>3</sup> /yr); a = Lease area(km <sup>2</sup> ); 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. As the SPM emission calculation for overall mine is not considering pollution control measures, one-third of the SPM value is taken for derivation of PM<sub>10</sub> keeping in mind that proper control measures are followed. It is important to note that PM<sub>10</sub> emission rate is derived from the SPM estimation in the background that PM<sub>10</sub> constitutes 52% of SPM emission. The PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub> 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 <sup>2</sup>	Calculated Value (g/s/m <sup>2</sup> )
Overall Mine	PM <sub>2.5</sub>	0.205653426	40450	5.08414E-06
Overall Mine	PM <sub>10</sub>	1.371022839	40450	3.38943E-05
Overall Mine	SO <sub>2</sub>	0.228588811	40450	5.65114E-06
Overall Mine	NO <sub>x</sub>	0.015458744	40450	3.82169E-07

#### 4.4.1.2 Frame Work of Computation and Model Details

By using the above-mentioned inputs, Ground Level Concentrations (GLC) due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere.

Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction includes the impacts of excavation, drilling, blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and cloud cover.

The model was used to predict the impact on the ambient air environment at each receptor at various localities within 5 km radius around the project site and the maximum incremental GLC at the project site. All the prediction models in Figures 4.1- 4.4 shows the maximum concentrations of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub> close to the proposed project site due to low to moderate wind speeds.

#### 4.4.1.3 Modelling of Incremental Concentration

The air borne particulate matter such as PM<sub>10</sub> and PM<sub>2.5</sub> generated by quarrying operation, transportation, and wind erosion of the exposed areas and emissions of oxides of sulphur (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) due to excavation and loading equipment and vehicles plying on haul roads are the significant air pollutants arising from mining operation, leading to an adverse impact on the ambient air environment in and around the project area. Anticipated incremental concentration and net increase in emissions due to quarrying activities is predicted by 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 4.3-4.6.

#### 4.4.1.4 Model Results

The post project resultant concentrations of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> & NO<sub>x</sub> were given in Tables 4.3-4.6.

**Table 4.3 Incremental & Resultant GLC of PM<sub>2.5</sub>**

Station ID	Distance to core area (km)	Direction	PM <sub>2.5</sub> Concentrations(µg/m <sup>3</sup> )			Comparison against air quality standard (60 µg/m <sup>3</sup> )	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	16.7	9.2	25.9	Below Standard	55.1	Not Significant
AAQ2	0.72	N	14.5	0	14.5		0.0	
AAQ3	1.93	WSW	15.6	0.5	16.1		3.2	
AAQ4	4.29	WSW	14.3	0	14.3		0.0	
AAQ5	3.15	S	14.0	0.5	14.5		3.6	
AAQ6	4.96	E	16.4	0.5	16.9		3.0	
AAQ7	3.40	N	15.5	0	15.5		0.0	

**Table 4.4 Incremental & Resultant GLC of PM<sub>10</sub>**

Station ID	Distance to core area (km)	Direction	PM <sub>10</sub> Concentrations (µg/m <sup>3</sup> )			Comparison against air quality standard (100 µg/m <sup>3</sup> )	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	41.8	14	55.8	Below Standard	33.5	Not Significant
AAQ2	0.72	N	36.2	5	41.2		13.8	
AAQ3	1.93	WSW	39.1	0.5	39.6		1.3	
AAQ4	4.29	WSW	35.7	0	35.7		0.0	
AAQ5	3.15	S	35.0	0.5	35.5		1.4	
AAQ6	4.96	E	40.9	0.5	41.4		1.2	
AAQ7	3.40	N	38.8	0	38.8		0.0	

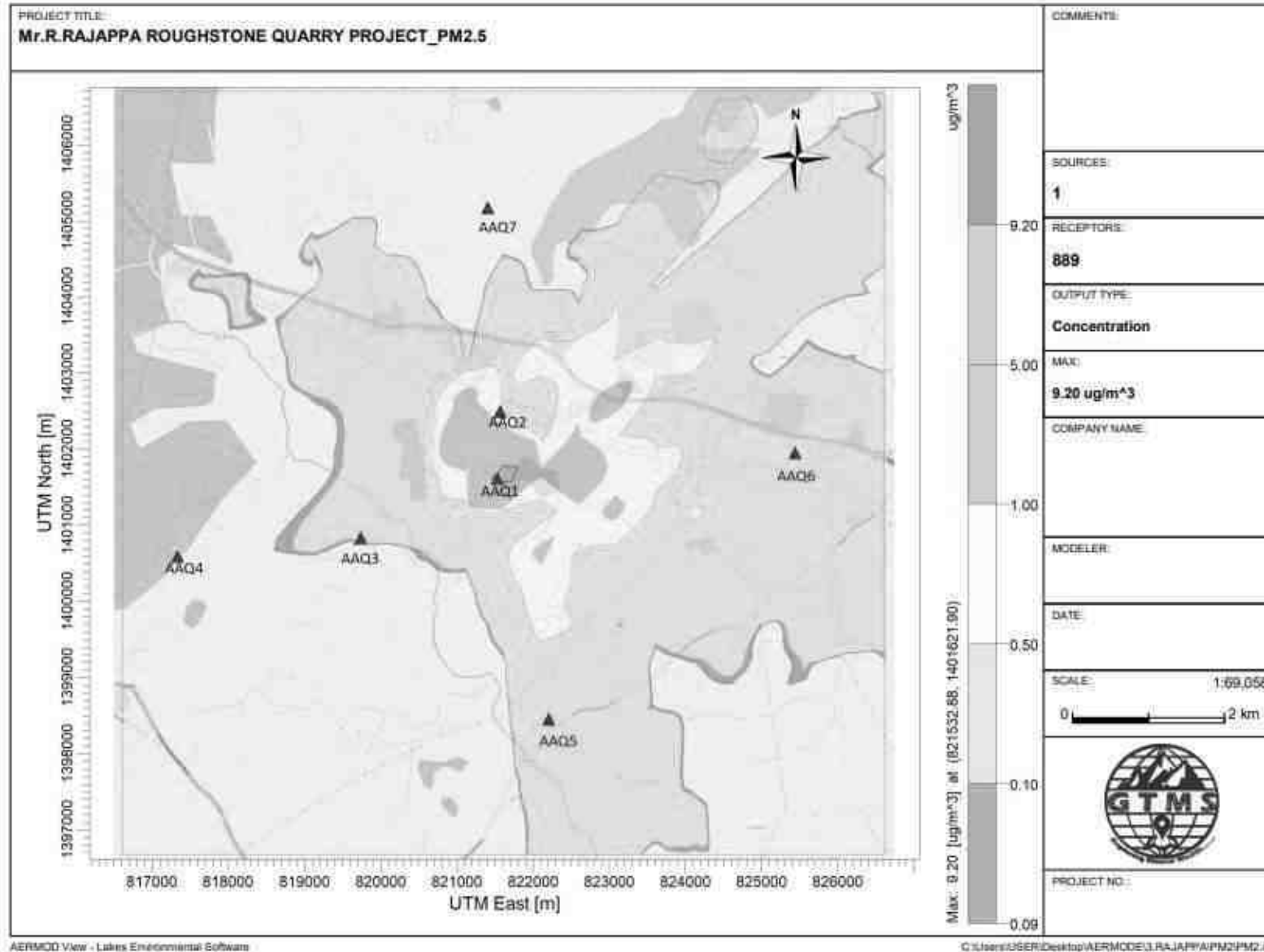
**Table 4.5 Incremental & Resultant GLC of SO<sub>2</sub>**

Station ID	Distance to core area (km)	Direction	SO <sub>2</sub> concentrations (µg/m <sup>3</sup> )			Comparison against air quality standard	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	4.4	5.30	9.7	Below Standard	120.5	Not Significant
AAQ2	0.72	N	4.2	0.5	4.7		11.9	
AAQ3	1.93	WSW	3.9	0	3.9		0.0	
AAQ4	4.29	WSW	2.6	0	2.6		0.0	
AAQ5	3.15	S	1.8	0.5	2.3		27.8	
AAQ6	4.96	E	4.7	0.5	5.2		10.6	
AAQ7	3.40	N	2.5	0	2.5		0.0	

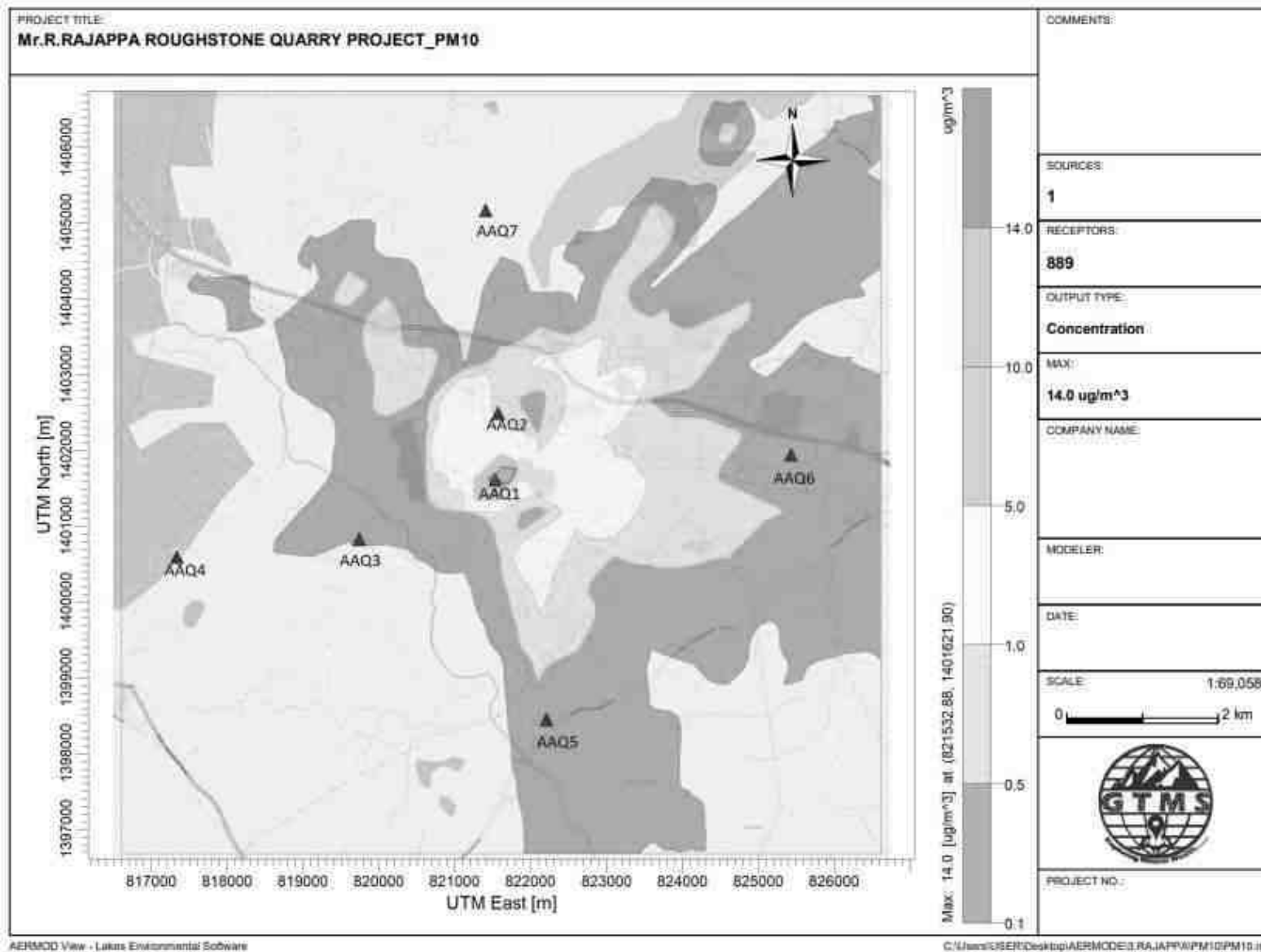
**Table 4.6 Incremental & Resultant GLC of NO<sub>x</sub>**

Station ID	Distance to core area (km)	Direction	NO <sub>x</sub> Concentrations(µg/m <sup>3</sup> )			Comparison against air quality standard	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	13.6	7.55	21.15	Below Standard	55.5	Not Significant
AAQ2	0.72	N	13.1	1	14.1		7.6	
AAQ3	1.93	WSW	12.0	0	12		0.0	
AAQ4	4.29	WSW	8.2	0	8.2		0.0	
AAQ5	3.15	S	5.7	0.5	6.2		8.8	
AAQ6	4.96	E	14.5	0.5	15		3.4	
AAQ7	3.40	N	6.4	0	6.4		0.0	

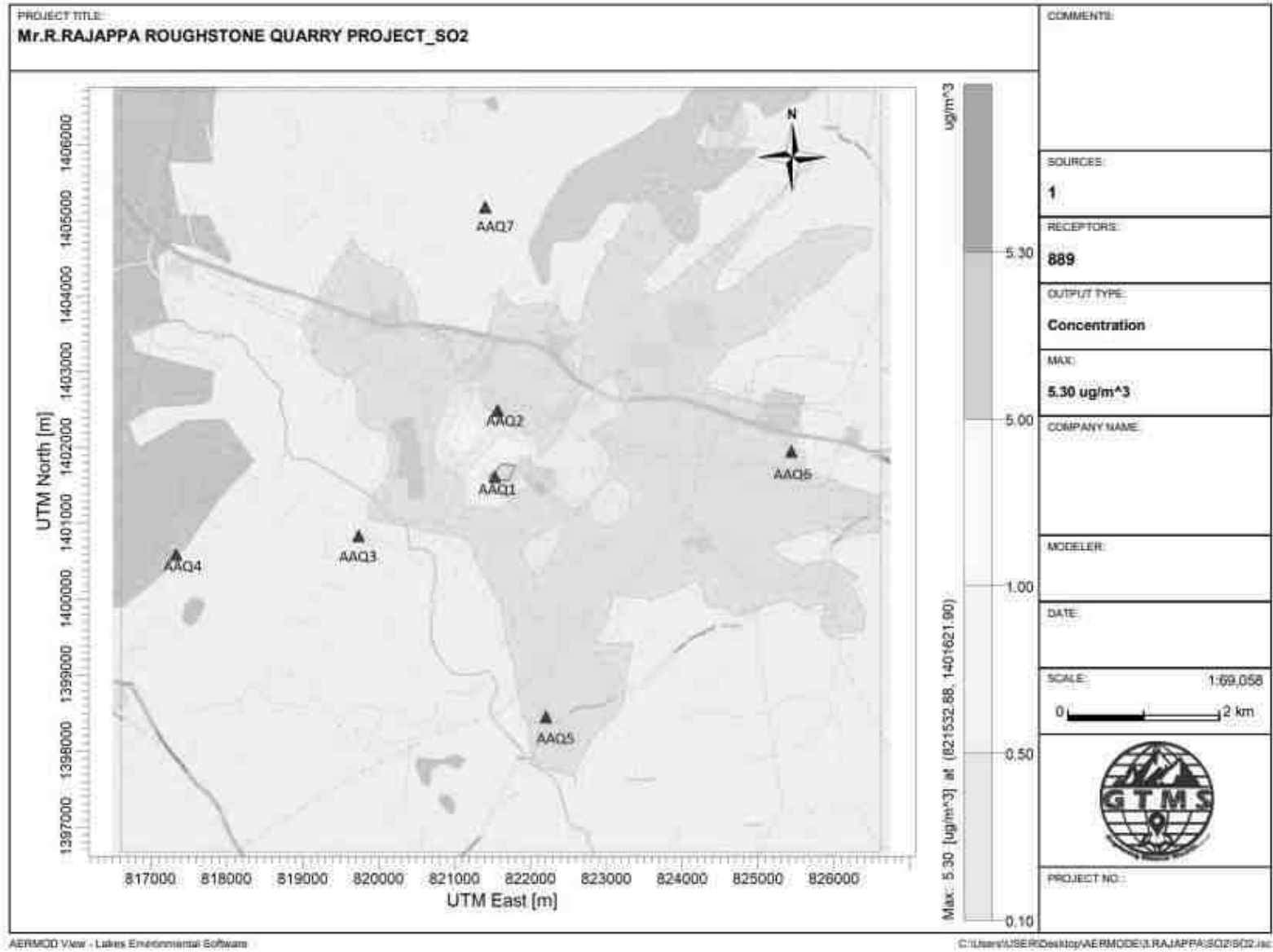




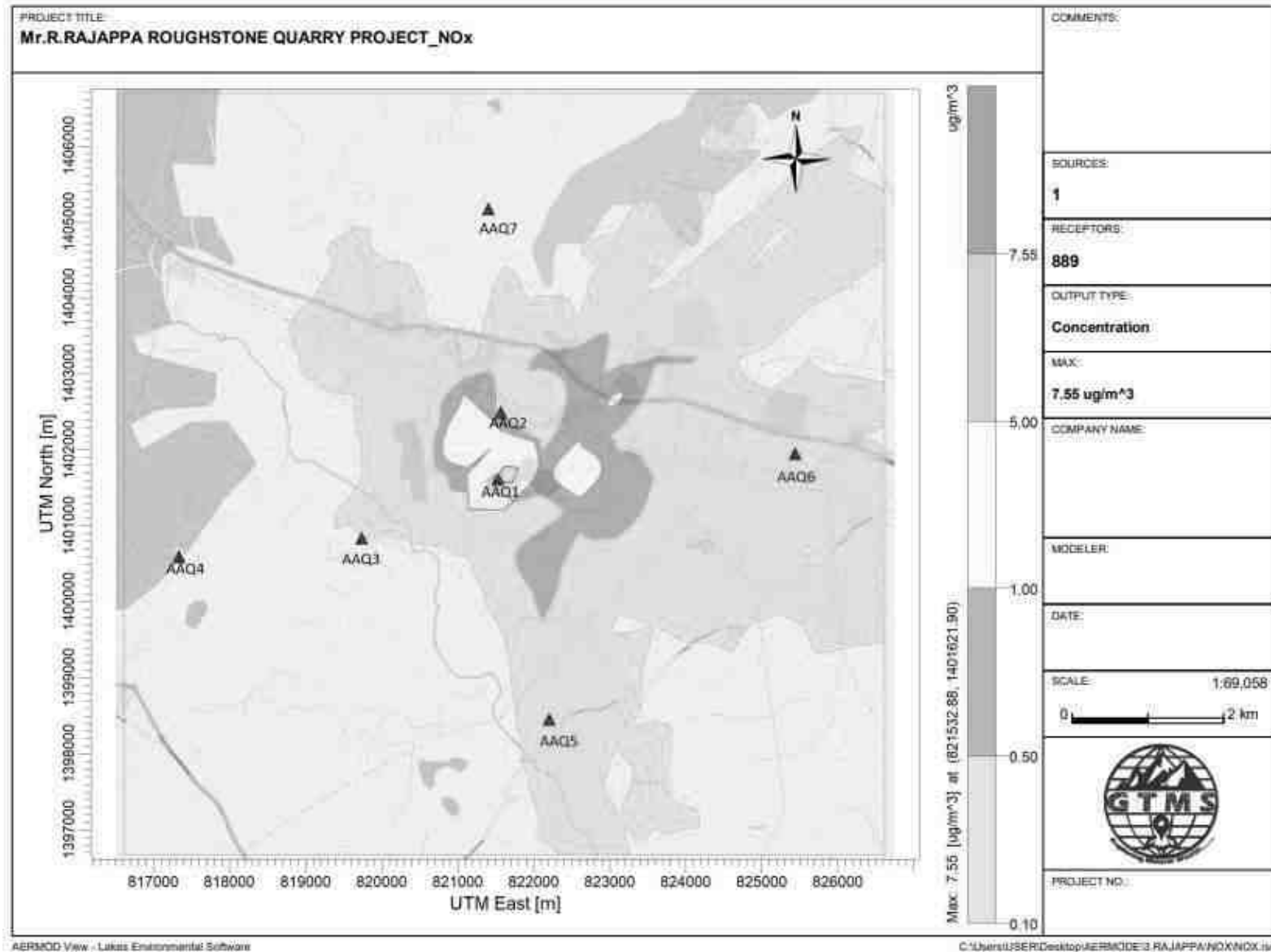
**Figure 4.1 Predicted Incremental Concentration of PM<sub>2.5</sub>**



**Figure 4.2 Predicted Incremental Concentration of PM<sub>10</sub>**



**Figure 4.3 Predicted Incremental Concentration of SO<sub>2</sub>**



**Figure 4.4 Predicted Incremental Concentration of NO<sub>x</sub>**

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.

#### **4.4.2 Common Mitigation Measures**

##### ***Drilling***

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

##### ***Haul Road and Transportation***

- ❖ Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- ❖ Transportation of material will be carried out during day time and material will be covered with tarpaulin
- ❖ The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- ❖ Water sprinkling on haul roads and loading points will be carried out twice a day
- ❖ Main source of gaseous pollution will be from vehicle used for transportation of mineral. Therefore, weekly maintenance of machines improves combustion process and reduces pollution.
- ❖ The un-metalled haul roads will be compacted weekly before being put into use.
- ❖ Overloading of tippers will be avoided to prevent spillage.
- ❖ 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.

##### ***Green Belt***

- ❖ Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers.
- ❖ Green belt of adequate width will be developed around the project site.

##### ***Occupational Health***

- ❖ Dust mask will be provided to the workers and their use will be strictly monitored.

- ❖ Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers.
- ❖ Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed.

#### 4.5 NOISE ENVIRONMENT

Noise pollution is mainly due to operation like drilling and playing of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. 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 working pit due to these major noise-generating sources. 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.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where,

$Lp_1$  &  $Lp_2$  are sound levels at points located at distances  $r_1$  and  $r_2$  from the source

$Ae_{1,2}$  is the excess attenuation due to environmental conditions.

Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots\}$$

##### 4.5.1 Anticipated Impact

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
- 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 4.7.

**Table 4.7 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	Blasting	Yes	94
2	Jack hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
<b>Total</b>			<b>95.8</b>

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). We have considered the total noise to be produced by mining activity to be 95.8 dB (A) for noise prediction modelling.

**Table 4.8 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)
Core	100	47.2	43.96	48.89
Pillaikothur	740	43.8	26.58	43.88
Pathakotta	1950	44.8	18.16	44.81
Nayakanapalli	4250	41.2	11.39	41.20
Keeranapalli	3140	39.8	14.02	39.81
Shoolagiri	4790	52.4	10.35	52.40
Kanalatti	3450	42.2	13.20	42.21
NAAQ Standards	Industrial Day Time - 75 dB (A) & Night Time- 70 dB (A) Residential Day Time -55 dB (A) & Night Time- 45 dB (A)			

The incremental noise level is found to be 43.96 dB (A) in core zone and ranges between 10.35 and 26.58 dB (A) in buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to several factors including ground reflection, atmosphere, wind speed, temperature, trees, and buildings as 35.5 dB (A), the barrier effect. 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 (The Principal Rules were published in the Gazette of India, vide S.O.123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E),dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

#### 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
- ❖ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise
- ❖ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise
- ❖ Silencers / mufflers will be installed in all machineries
- ❖ Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise
- ❖ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured 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

Ground vibrations due to the proposed mining activities are anticipated due to operation of mining machines like excavators, drilling and blasting, transportation vehicles, etc., however, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kutcha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

The empirical equation for assessment of peak particle velocity (PPV) is given below:

$$V = K [R/Q^{0.5}]^{-B}$$



Where,

V = Peak Particle Velocity (mm/s)

K = Site and rock factor constant (500)

Q = Maximum instantaneous charge (kg)

B = Constant related to the rock and site (usually 1.6)

R = Distance from charge (m)

**Table 4.9 Predicted PPV Values due to Blasting**

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	46.7	740	0.29	19	0.12	136

**Table 4.10 Predicted PPV Values due to Blasting at 100-500 m radius**

Location ID	Maximum Charge in kgs	Radial Distance in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	46.7	100	6.83	19	1.32	156
		200	2.25		0.58	149
		300	1.48		0.35	145
		400	0.74		0.25	142
		500	0.52		0.19	140

The peak particle velocity produced by the charge of 46.7 kg is well below that of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997 but the project proponent ensures that the charge per blast shall be less than 46.7kg and that the proponent shall carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

#### 4.5.3.1 Common Mitigation Measures

- ❖ The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations

- ❖ Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe 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
- ❖ The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- ❖ 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, 2<sup>nd</sup> Class Mines Manager/ 1<sup>st</sup> 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 minimise vibration effects
- ❖ Appropriate blasting techniques shall be adopted in such a way that the predicted peak particle velocity shall not exceed 1.09mm/s
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

## **4.6 ECOLOGY AND BIODIVERSITY**

### **4.6.1 Anticipated Impact on Flora**

- ❖ The proposed mining activities include removal of some scattered bushes and other thorny species.
- ❖ The Number of plants in the mining lease area is given in chapter-III Table 3.21 which vegetation in the lease area may be removed during mining.
- ❖ 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 5505 kg per day, 1486373 kg per year and 7431864 kg over five years, as provided in Table 4.11.

**Table 4.11 Carbon Released During Five Years of Rough Stone and Gravel Production**

	Per day	Per year	Per five years
Fuel consumption of excavator	389	104905	524527
Fuel consumption of compressor	46.8	12636	63180
Fuel consumption of tipper	1619	437075	2185377
Total fuel consumption in liters	2054	554617	2773083
CO <sub>2</sub> emission in kg	5505	1486373	7431864

#### 4.6.2 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.
- ❖ Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- ❖ None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone. Details of seedlings proposed to be planted in the safety margin of the lease area are given in Table 4.13.
- ❖ 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 48491 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 4.14), about 2023 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 242457 kg of the total carbon, as provided in Table 4.12.

**Table 4.12 CO<sub>2</sub> Sequestration**

CO <sub>2</sub> sequestration in kg	180	48491	242457
Remaining CO <sub>2</sub> not sequestered in kg	5325	1437881	7189406
Trees required for environmental compensation	59912		
Area required for environmental compensation in hectares	120		

**Greenbelt Development:**

Greenbelt development, species are recommended, as shown in Table 4.13 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 4.13 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	Vembu	Tree	Well distinct thick at both the layer 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 4.14 Greenbelt Development Plan**

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered(m <sup>2</sup> )
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	809	647	7281
	Number of plants outside the mine lease area		
	1214	971	10922
<b>Total</b>	<b>2023</b>	<b>1618</b>	<b>18203</b>

Source: EMP budget

**Table 4.15 Budget for Greenbelt Development Plan**

<b>Activity</b>	<b>Plantation in the construction phase(3Months)</b>	<b>Cost</b>	<b>Capital Cost (Rs.)</b>	<b>Recurring Cost/ annum</b>
Plantation inside the mine lease area (in safety margins)	809	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))"	161800	24270
Plantation outside the area	1214	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	364050	36405
<b>Total</b>			<b>5,25,850</b>	<b>60,675</b>

*Source: EMP budget*

#### **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. Aquatic Biodiversity**

##### **Impact**

- ❖ There is a small pond and lake within 1km around the quarry lease area and the dust generated during the quarrying may affect water bodies.
- ❖ Dust generated during quarrying can affect aquatic plants and animals in water bodies.

##### **Mitigation Measures**

- ❖ Planting trees around quarries prevents dust from escaping and prevents dust from spreading into water bodies. Aquatic plants and animals in water bodies are not affected.

#### **4.6.5 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.

#### **4.6.6 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**

#### **4.7.1 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.

#### **4.7.2 Common 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.
- ❖ 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 occur during the operational phase of mining and primarily include the following:

- ❖ Respiratory hazards
- ❖ Noise
- ❖ Physical hazards
- ❖ Explosive storage and handling

##### **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

- ❖ 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
- ❖ 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)
- ❖ 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.
- ❖ 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 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 the following tests

- ❖ General physical tests
- ❖ Audiometric tests
- ❖ Full chest, X-ray, Lung function tests, Spirometry tests
- ❖ Periodic Medical Examination – Yearly
- ❖ Lung function test – yearly, those who are exposed to dust
- ❖ 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 mining project. 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. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While



formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- ❖ 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.
- ❖ Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor. For example, development of green barriers
- ❖ The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

## **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 II, 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**

Manual open cast mining method with secondary blasting will be applied to extract rough stone and in the area. 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:

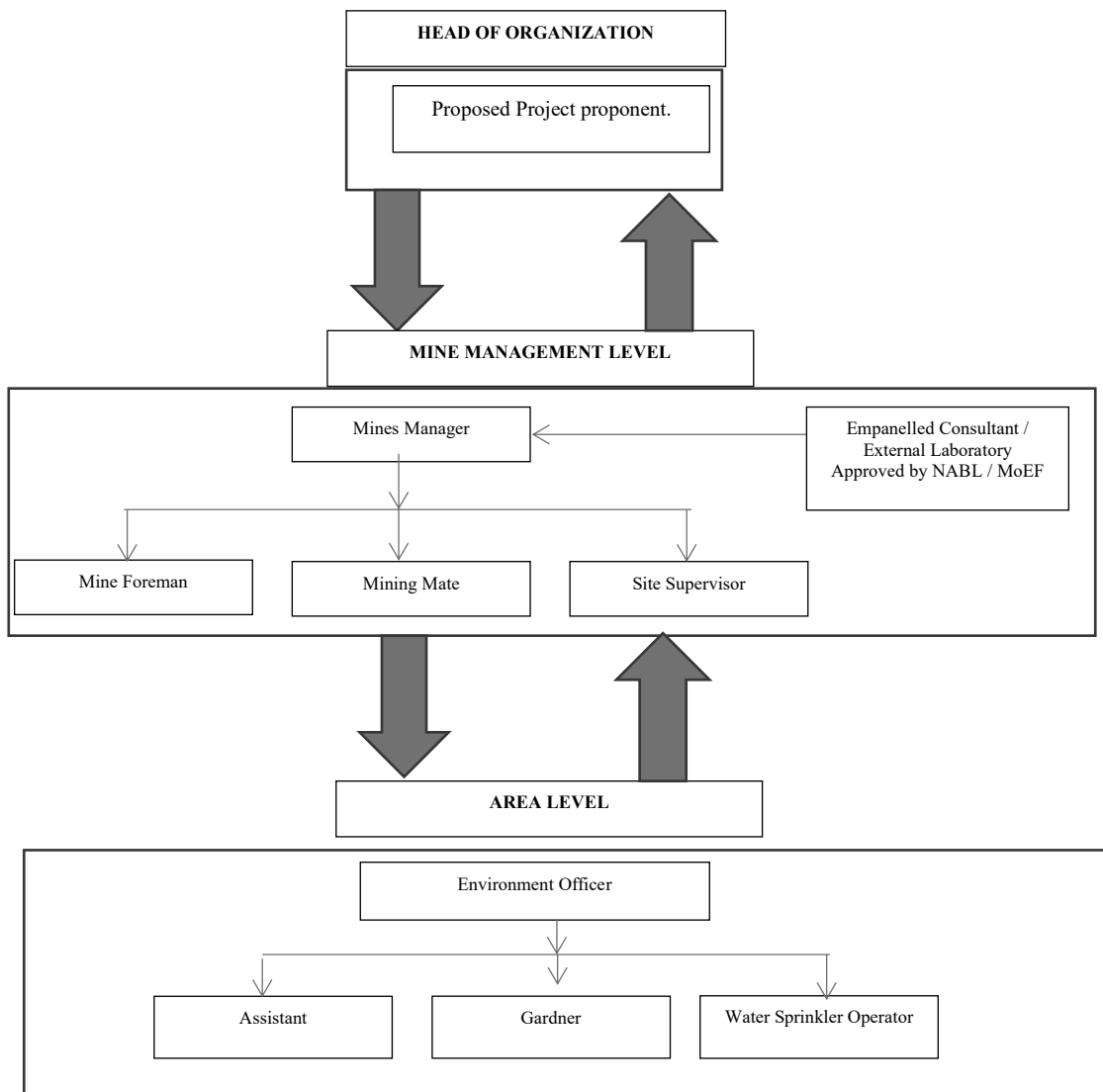
- ❖ Implementation of pollution control measures
- ❖ Monitoring programme implementation
- ❖ Post-plantation care
- ❖ To check the efficiency of pollution control measures taken
- ❖ Any other activity as may be related to environment

- ❖ 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 <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> and NO <sub>x</sub> .
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/-
<b>Total</b>		-	<b>Rs 2,95,000 /-</b>

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 31<sup>st</sup> 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	<ul style="list-style-type: none"> <li>✓ 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.</li> <li>✓ Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited.</li> <li>✓ Fire-fighting and first-aid provisions in the mine office complex and mining area.</li> <li>✓ 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.</li> <li>✓ Working of quarry, as per approved plans and regularly updating the mine plans.</li> <li>✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut.</li> <li>✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager.</li> <li>✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.</li> </ul>
2	Drilling	Improper and unsafe practices; Due to high pressure of compressed air, hoses may burst; Drill Rod may break;	<ul style="list-style-type: none"> <li>✓ Safe operating procedure established for drilling (SOP) will be strictly followed.</li> <li>✓ Only trained operators will be deployed.</li> <li>✓ 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,</li> <li>✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</li> </ul>

			<ul style="list-style-type: none"> <li>✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</li> <li>✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</li> <li>✓ Operator shall regularly use all the personal protective equipment.</li> </ul>
3	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal &amp; overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<ul style="list-style-type: none"> <li>✓ 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.</li> <li>✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</li> <li>✓ Concave mirrors should be kept at all corners</li> <li>✓ All vehicles should be fitted with reverse horn with one spotter at every tipping point</li> <li>✓ Loading according to the vehicle capacity</li> <li>✓ Periodical maintenance of vehicles as per operator manual</li> </ul>
4	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> <li>✓ Escape Routes will be provided to prevent inundation of storm water</li> <li>✓ Fire Extinguishers &amp; Sand buckets</li> </ul>
5	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> <li>✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.</li> </ul>

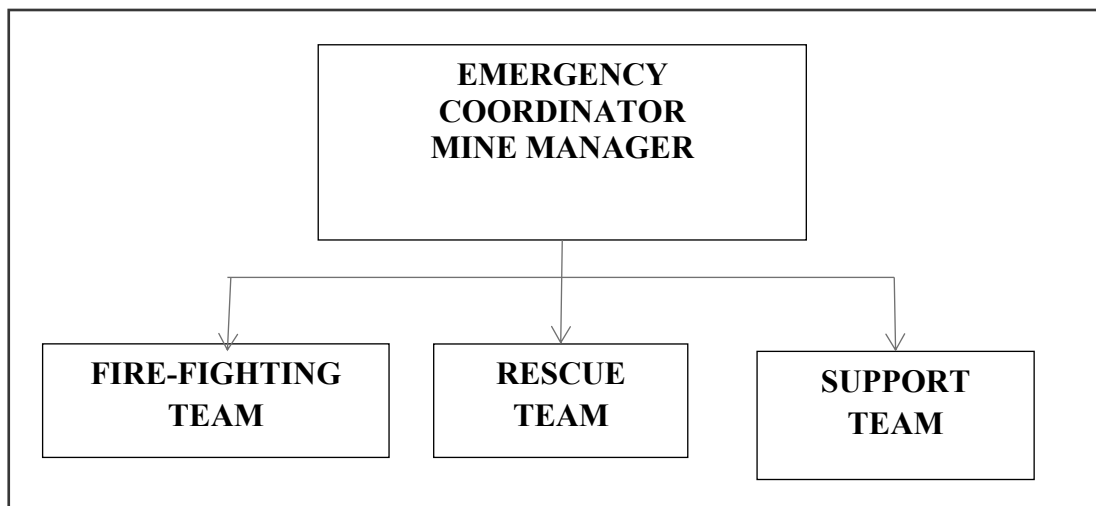
*Source: Analysed and Proposed by FAE & EC*

### 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 is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. For this cumulative study, 3 proposed projects, known as P1, P2, P3 are taken into consideration. The details of P1 have been given in Table 1.2 and the details of P2 and P3 are given in the Table 7.2 and 7.5.

**Table 7.2 Salient Features of the Proposed Project P2**

Name of the Quarry	S.R.SAMBANGI Rough Stone Quarry
Type of Land	Government Poramboke Land
Extent	2.23.0
S.F.No	1151,1155,1212 to 1219, 1222, 1225 and 1226/A(Part – IV)
Toposheet No	57 – H/14
Location of Project Site (Centre Point)	12°39'29.49"N to 12°39'33.28"N 77°57'51.63"E to 77°58'00.55"E

Ultimate Pit Dimensions	Length (m)	Width (m)	Depth (m)
	67	105	99
Depth of Mining	70 m BGL		
Geological Resources	Rough Stone in m <sup>3</sup>	Topsoil in m <sup>3</sup>	
	2129351	16699	
Mineable Reserves	Rough Stone in m <sup>3</sup>	Topsoil in m <sup>3</sup>	
	1708616	16205	
Proposed reserves for five years	Rough Stone in m <sup>3</sup>	Gravel in m <sup>3</sup> /1 year	
	542101	16205	
Method of Mining	Open-Cast Semi Mechanized mining		
Topography	Hilly Terrain		
Machinery proposed	Jack Hammer	6	
	Compressor	1	
	Tipper	3	
	Excavator	1	
Blasting Method	The quarrying operation is proposed to be carried out by open cost, using jack hammer drilling followed by manual breaking will be adopted to release the rough stone and nonel blasting is proposed in this lease area.		
Proposed Manpower Deployment	20 Nos		
Project Cost	Rs.30630000/-		
CER Cost	Rs. 5,00,000/-		
Proposed Water Requirement	2.5 KLD		

**Table 7.3 Salient Features of the Proposed Project P3**

Name of the Quarry	Thiru.K.Govindhappa Rough Stone Quarry
Type of Land	Government Poramboke Land
Extent	2.10.0
S.F.No	754 &760 (Part II)
Toposheet No	57 – H/14

Location of Project Site (Centre Point)	12°39'46.68"N to 12°39'52.25"N 77°57'43.69"E to 77°57'50.90"E		
Ultimate Pit Dimensions	Length (m)	Width (m)	Depth (m)
	67	104	106
Depth of Mining	106 m BGL		
Geological Resources	Rough Stone in m <sup>3</sup>		
	3457210		
Mineable Reserves	Rough Stone in m <sup>3</sup>		
	312215		
Proposed reserves for five years	Rough Stone in m <sup>3</sup>		
	312215		
Method of Mining	Open-Cast Semi Mechanized mining		
Topography	Hilly Terrain		
Machinery proposed	Jack Hammer		7
	Compressor		1
	Tipper		5
	Excavator		1
Blasting Method	The quarrying operation is proposed to carried out by open cost, using jack hammer drilling followed by manual breaking will be adopted to release the rough stone and nonel blasting is proposed in this lease area.		
Proposed Manpower Deployment	18 Nos		
Project Cost	Rs.1,41,30,000/-		
CER Cost	Rs. 5,00,000/-		
Proposed Water Requirement	2.5 KLD		

**Table 7.4 Salient Features of the Proposed Project P4**

Name of the Quarry	Thiru.P.Mallikarjun Rough Stone Quarry		
Type of Land	Government Poramboke Land		
Extent	3.50.0		
S.F.No	754 &760 (Part 4)		
Toposheet No	57 – H/14		
Location of Project Site (Centre Point)	12°39'36.15"N to 12°39'43.54"N 77°57'43.80"E to 77°57'51.81"E		
Ultimate Pit Dimensions	Length (m)	Width (m)	Depth (m)
	36	91	127
Depth of Mining	120 m BGL		
Geological Resources	Rough Stone in m <sup>3</sup>		
	4145337		
Mineable Reserves	Rough Stone in m <sup>3</sup>		
	6948771		
Proposed reserves for five years	Rough Stone in m <sup>3</sup>		
	3135433		
Method of Mining	Open-Cast Semi Mechanized mining		
Topography	Hilly Terrain		
Machinery proposed	Jack Hammer	6	
	Compressor	1	
	Tipper	4	
	Excavator	1	
Blasting Method	The quarrying operation is proposed to carried out by open cost, using jack hammer drilling followed by manual breaking will be adopted to release the rough stone and nonel blasting is proposed in this lease area.		
Proposed Manpower Deployment	18 Nos		



Project Cost	Rs. 32,930,000/-
CER Cost	Rs. 5,00,000/-
Proposed Water Requirement	2.5 KLD

**Table 7.5 Salient Features of the Proposed Project P5**

Name of the Quarry	M/s.Royal Blue Metals Rough Stone Quarry		
Type of Land	Government Poramboke Land		
Extent	2.70.0		
S.F.No	1151,1155,1212,1219,1222,1225,1226/A(P-1)		
Toposheet No	57 – H/14		
Location of Project Site (Centre Point)	12°39'38.46"N to 12°39'43.48"N 77°57'51.89"E to 77°58'01.63"E		
Ultimate Pit Dimensions	Length (m)	Width (m)	Depth (m)
	29	91	120
Depth of Mining	120 m BGL		
Geological Resources	Rough Stone in m <sup>3</sup>		
	4164384		
Mineable Reserves	Rough Stone in m <sup>3</sup>		
	4339722		
Proposed reserves for five years	Rough Stone in m <sup>3</sup>		
	2955260		
Method of Mining	Open-Cast Semi Mechanized mining		
Topography	Hilly Terrain		
Machinery proposed	Jack Hammer	5	
	Compressor	1	
	Tipper	6	
	Excavator	1	

Blasting Method	The quarrying operation is proposed to be carried out by open cost, using jack hammer drilling followed by manual breaking will be adopted to release the rough stone and nonel blasting is proposed in this lease area.
Proposed Manpower Deployment	18 Nos
Project Cost	Rs. 20,630,000/-
CER Cost	Rs. 5,00,000/-
Proposed Water Requirement	2.5 KLD

#### 7.4.1 Air Environment

As the production of rough stone and gravel plays a vital role in affecting the air environment. The data on the cumulative production resulting from the proposed project have been given in Tables 7.6 and 7.7.

**Table 7.6 Cumulative Production Load of Rough Stone**

<b>Proposed Production Details</b>				
<b>Quarry</b>	<b>5 Years in m<sup>3</sup></b>	<b>Per Year in m<sup>3</sup></b>	<b>Per Day in m<sup>3</sup></b>	<b>Number of Lorry Load Per Day</b>
P1	655613	131123	486	81
P2	542101	108420	402	67
P3	312215	62443	231	39
P4	3135433	627087	2322	387
P5	2955260	591052	2189	365
<b>Grand Total</b>	<b>7600622</b>	<b>1520125</b>	<b>5630</b>	<b>939</b>

The cumulative study shows that the overall production of rough stone from the quarry is 5630 m<sup>3</sup> per day with a capacity of 939 trips of rough stone per day.

##### 7.4.1.1 Cumulative Impact of Air Pollutants

The results on the cumulative impact of the one proposed project on air environment of the cluster have been provided in Table 7.7. The cumulative values resulting from the one project for each pollutant do not exceed the permissible limits set by CPCB.

**Table 7.7 Cumulative Impact of Air Pollutants from the five proposed project**

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	P2	P3	P4	P5	
PM <sub>2.5</sub>	15.3	9.20	7.61	4.38	8.80	8.29	53.58
PM <sub>10</sub>	38.2	14.0	11.58	6.67	13.39	12.62	96.46
SO <sub>2</sub>	3.4	5.30	4.38	2.52	5.07	4.78	25.45
NO <sub>x</sub>	10.5	7.55	6.24	3.60	7.22	6.81	41.92

#### 7.4.2 Noise Environment

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and 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.7.8 Cumulative Impact of Noise**

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	740	N	43.8	26.58	43.88	55
Habitation Near P2	1310	N	43.8	21.61	43.83	
Habitation Near P3	710	N	43.8	26.93	43.89	
Habitation Near P4	960	N	43.8	24.31	43.85	
Habitation Near P5	1060	N	43.8	23.45	43.84	
<b>Cumulative Noise (dB (A))</b>					<b>49.88</b>	

*Source: Lab Monitoring Data*

Cumulative analysis of noise due to five proposed project shows that habitation of Gulisandiram will receive about 49.88 dB (A) respectively. The cumulative results for all the villages in consideration do not exceed the limit set by CPCB for residential areas for day time.

## Ground Vibrations

Cumulative results of ground vibrations due to mining activities in the all the 5 mines have been shown in Table 7.9

**Table 7.9 Cumulative Effect of Ground**

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	740	46.7	0.28
P2	1310	38.6	0.06
P3	710	22.2	0.16
P4	960	223.5	0.64
P5	1060	210.6	0.52
<b>Total</b>			<b>1.66</b>

Results from the above tables 7.10 indicate that the cumulative PPV value of each habitation is well below the peak particle velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

### 7.4.3 Socio Economic Environment

Socio Economic benefits of the 6 proposed projects were calculated and the results have been shown in Table 7.10 the 1 project will contribute Rs.25,00,000 towards CER fund.

**Table 7.10 Socio Economic Benefits from 5 Mines**

Location ID	Project Cost	CER Cost
P1	17182000	500000
P2	30630000	500000
P3	14130000	500000
P4	32930000	500000
P5	20630000	500000
<b>Grand Total</b>	<b>11,55,02,000</b>	<b>25,00,000</b>

**Table 7.11 Employment Benefits from 5 Mines**

Location ID	Employment
P1	24
P2	20
P3	18
P4	18
P5	18
<b>Grand Total</b>	<b>116</b>

A total of 116 people will get direct employment due to 5 proposed mine in cluster

#### 7.4.4 Ecological Environment

**Table 7.12 Greenbelt Development Benefits From 6 Mines**

<b>Code</b>	<b>Number of Trees proposed</b>	<b>Area to be covered (m<sup>2</sup>)</b>	<b>No. of Trees expected to be grown @ 80% survival rate</b>	<b>Species recommended</b>
P1	2022	18202	1618	<i>Azadirachta indica,</i> <i>Albizia lebbeck,</i> <i>Delonix regia,</i> <i>Tectona grandis,</i> etc.,
P2	1115	10035	892	
P3	1050	9450	840	
P4	1750	15750	1400	
P5	1350	12150	1080	
<b>Total</b>	<b>7287</b>	<b>65587</b>	<b>5830</b>	

Cumulative studies show that the 5 proposed project will plant about 7287 native tree species like *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Tectona grandis*, etc inside and outside the lease area. It is expected that 80 % of trees, i.e.,5830 trees will survive in this green belt development program.

#### 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 7.13.

**Table 7.13 Action Plan to Manage Plastic Waste**

<b>S. No.</b>	<b>Activity</b>	<b>Responsibility</b>
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 Kamandoddi Village, aims to produce **655613 m<sup>3</sup>** of rough stone 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 24 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 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 Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, 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 Kamandoddi Village. CSR budget is allocated as 2.5% of the profit.

## 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  $\leq$  100 crores, the proposed project shall contribute 2% 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. 5,00,000 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.5,00,000
	<b>Total</b>	<b>Rs.5,00,000</b>

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

## 8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about Rs. **7,13,06,204** to the state government through various ways, as provided in Table 8.2.

**Table 8.2 Project Benefits to the State Government**

Particulars	Budget for Rough Stone (Rs.)
CER	5,00,000
Seigniorage @ Rs.90/m <sup>3</sup> of Rough stone	5,90,05,170
District Mineral Foundation Tax @ 10% of Seigniorage	59,00,517
Green Tax @ 10% of Seigniorage	59,00,517
<b>Total</b>	<b>7,13,06,204</b>

**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 **Thiru.R.Rajappa** 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 LAND ENVIRONMENT MANAGEMENT

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (unutilized areas, infrastructure, haul roads) will be utilized for greenbelt development. Aesthetic of the environment will not be affected. There is no major vegetation in the project area. During the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development program. A detailed land environment management plan has been provided in Table 10.1.

**Table 10.1 Proposed Controls for Land Environment**

Control	Responsibility
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location away from vehicle movement pathways & 100m away of any watercourse. Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation.	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area.	Mines Manager
No external dumping i.e., outside the project area.	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
The periphery of project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager

*Source: Proposed by FAEs & EIA Coordinator*

### 10.3 SOIL MANAGEMENT

There is no overburden or waste anticipated from proposed project.

**Table 10.2 Proposed Controls for Soil Management**

Control	Responsibility
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

*Source: Proposed by FAE's & EIA Coordinator*

### 10.4 WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash and domestic sewage from mines office is anticipated. The quarrying operation is proposed up to a depth of 61 m. The water table in the area is at 110 m below ground level. Hence, the proposed project will not intersect the ground water table during entire quarry period. A detailed water environment management plan has been provided in Table 10.3.

**Table 10.3 Proposed Controls for Water Environment**

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

*Source: Proposed by FAEs & EIA Coordinator*

## 10.5 AIR QUALITY MANAGEMENT

The proposed quarrying activity would result in the increase of particulate matter concentrations in the ambient air. Daily water sprinkling on the haul roads, approach roads in the vicinity will be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements. A detailed ambient air environment management plan is provided in Table 10.4.

**Table 10.4 Proposed Controls for Air Environment**

<b>Control</b>	<b>Responsibility</b>
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient air quality Monitoring carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of dust mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

*Source: Proposed by FAEs & EIA Coordinator*

## 10.6 NOISE POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time. A detailed noise environment management plan has been provided in Table 10.5.

**Table 10.5 Proposed Controls for Noise Environment**

<b>Control</b>	<b>Responsibility</b>
Development of thick greenbelt all along the buffer zone (7.5 meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman

Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff/ ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring is carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAEs & EIA Coordinator

## 10.7 GROUND VIBRATION AND FLY ROCK CONTROL

The rough stone quarry operation creates vibration due to the blasting and movement of heavy earth moving machineries, fly rocks due to the blasting. A detailed ground vibration management plan has been provided in Table 10.6.

**Table 10.6 Proposed Controls for Ground Vibrations & Fly Rock**

Control	Responsibility
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager

Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

*Source: Proposed by FAEs & EIA Coordinator*

## **10.8 BIOLOGICAL ENVIRONMENT MANAGEMENT**

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc. Following control measures are proposed for its management and will be the responsibility of the mines manager.

- ❖ Greenbelt development all along the safety barrier of the project area.
- ❖ It is also proposed to implement the greenbelt development program and post plantation status will be regularly checked for every season.
- ❖ The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- ❖ Year wise greenbelt development will be recorded and monitored based on the area of plantation, period of plantation, type of plantation, spacing between the plants, type of manuring and fertilizers and its periods, lopping period, interval of watering, survival rate and density of plantation.
- ❖ The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

### **10.8.1 Green Belt Development Plan**

The main objectives of the greenbelt development plan are to:

- ❖ Combat the dispersal of dust in the adjoining areas.
- ❖ Protect the erosion of the soil and conserve moisture of the soil.



- ❖ Increase the rate of recharge of ground water.
- ❖ Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community. The proposed green belt development plan is given in Table 10.7.

**Table 10.7 Proposed Greenbelt Development Plan**

	<b>No. of trees proposed for plantation</b>	<b>No. of trees expected to survive @ 80%</b>	<b>Area to be covered(m<sup>2</sup>)</b>
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	809	647	7281
	Number of plants outside the mine lease area		
	1214	971	10922
<b>Total</b>	<b>2023</b>	<b>1618</b>	<b>18203</b>

Source: Proposed by FAEs & EIA Coordinator

About 2023 saplings will be planted in and around the lease area with the survival rate of 80%. A well-planned green belt of trees with long canopy leaves shall be developed with dense plantations around the boundary and along the haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

### **10.9 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT**

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

#### **10.9.1 Medical Surveillance and Examinations**

- ❖ Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- ❖ Evaluating the effect of noise on workers.
- ❖ Enabling corrective actions to be taken when necessary.
- ❖ Providing health education.

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical

examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- ❖ General Physical Examination and Blood Pressure.
- ❖ X-ray Chest and ECG.
- ❖ Sputum Test, Sperm Count Test.
- ❖ Detailed Routine Blood and Urine Examination.

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests (Table 10.8) keep upgrading the database of medical history of the employees.

**Table 10.8 Medical Examination Schedule**

S. No.	Activities	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					
Medical Follow ups: Work force will be divided into three targeted groups age wise as follows:						
<b>Age Group</b>		<b>PME as per Mines Rules 1955</b>		<b>Special Examination</b>		
Less than 25 years		Once in a Three Years		In case of emergencies		
Between 25 to 40 Years		Once in a Three Years		In case of emergencies		
Above 40 Years		Once in a Three Years		In case of emergencies		
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.						

### 10.9.2 Proposed Occupational Health and Safety Measures

- ❖ The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- ❖ Lightweight and loose-fitting clothes having light color will be preferred to wear.

- ❖ Noise exposure measurements will be taken to determine the need for noise control strategies.
- ❖ The personal protective equipment will be provided for mine workers.
- ❖ Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- ❖ At noisy working activity, exposure time will be minimized.
- ❖ Dust generating sources will be identified and proper control measure will be adopted.
- ❖ Periodic medical examinations will be provided for all workers.
- ❖ Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- ❖ The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- ❖ In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centers. All personal protective equipment's will be provided to them.
- ❖ A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- ❖ Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.



**Figure 10.1 Personal Protective Equipment to the Mine Workers**

### 10.9.3 Health and Safety Training Program

The Proponents will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centers in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner, as shown in Table 10.9.

**Table 10.9 List of Periodical Trainings Proposed for Employees**

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	<ul style="list-style-type: none"> <li>✓ Employee rights,</li> <li>✓ Supervisor responsibilities</li> <li>✓ Self-rescue</li> <li>✓ Respiratory devices</li> <li>✓ Transportation controls</li> <li>✓ Communication systems</li> <li>✓ Escape and emergency evacuation</li> <li>✓ Ground control hazards</li> <li>✓ Occupational health hazards</li> <li>✓ Electrical hazards and First aid Explosives</li> </ul>
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability,	Employees assigned to new work tasks	Before new Assignments	Variable	<ul style="list-style-type: none"> <li>✓ Task-specific health &amp; safety procedures and SOP for various mining activity</li> <li>✓ Supervised practice in assigned work tasks.</li> </ul>

Dewatering, Haul Road maintenance.				
Refresher Training	All employees who received new-hire training	Yearly	One week	<ul style="list-style-type: none"> <li>✓ Required health and safety standards</li> <li>✓ Transportation controls</li> <li>✓ Communication systems</li> <li>✓ Escape ways, emergency evacuations</li> <li>✓ Fire warning</li> <li>✓ Ground control hazards</li> <li>✓ First aid on electrical hazards</li> <li>✓ Accident prevention</li> <li>✓ Explosives</li> <li>✓ Respirator devices</li> </ul>
Hazard Training	All employees exposed to mine hazards	Once	Variable	<ul style="list-style-type: none"> <li>✓ Hazard recognition and avoidance</li> <li>✓ Emergency evacuation procedures</li> <li>✓ Health standards</li> <li>✓ Safety rules</li> <li>✓ Respiratory devices</li> </ul>

*Source: Proposed by FAEs & EIA Coordinator as per DGMS Norms*

#### **10.9.4 Budgetary Provision for Environmental Management**

Adequate budgetary provision has been made by the company for execution of Environmental Management Plan. The Table 10.10 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

**Table 10.10 EMP Budget for Proposed Project**

Attribute	Mitigation measures	Provision for Implementation	Capital Cost	Recurring Cost/annum
			(Rs.)	(Rs.)
<b>Air Environment</b>	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	40450	40450
	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 per norms within ML area & ambient area	Yearly compliance as per CPCB norms	0	50000
	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	50000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes	0	12500
	Regular sweeping and maintenance of roads for at least about 200 m from quarry entrance	Provision for 2 labours @ Rs.10,000/labour (Contractual) / hectare	0	80900
	Installing wheel wash system near exit gate of quarry	Installation + Maintenance + Supervision	50000	20000
<b>Total Air Environment</b>			<b>1040450</b>	<b>283850</b>
<b>Noise Environment</b>	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	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0



	clearance of the area before blasting will be ensured.			
	Provision for Portable blaster shed	Installation of portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 tons of blasted material	0	1835716
<b>Total Noise Environment</b>			<b>50000</b>	<b>1837716</b>
<b>Water Environment</b>	Water Management	Provision for garland drain @ Rs. 10,000/- per hectare with maintenance of Rs. 5,000/- per annum (4.82.7 ha X 10000)	40450	20225
<b>Total Water Environment</b>			<b>40450</b>	<b>20225</b>
<b>Waste Management</b>	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
<b>Total Waste Management</b>			<b>30000</b>	<b>22000</b>
<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>	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
<b>Total Implementation of EC, Mining Plan</b>			<b>10000</b>	<b>1000</b>
<b>Occupational Health and Safety</b>	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)	96000	24000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	24000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	16180
	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 (4.82.7 hectare)	809000	40450
	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	202250	40450
	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 <sup>st</sup> Class / 2 <sup>nd</sup> Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
<b>Total Occupational Health and Safety</b>			<b>1147250</b>	<b>932080</b>
		Site clearance, preparation of land, digging of pits /trenches, soil	161800	24270

<b>Development of Green Belt</b>	Green belt development - 500 trees per hectare (200 Inside Lease Area & 300 Outside Lease Area)	amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"		
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	364050	36405
<b>Total Development of Green Belt</b>			<b>525850</b>	<b>60675</b>
<b>Mine Closure</b>	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)		0	137530
	G.O.(Ms)No.23, Dated: 28.09.2021	Section IVA of TNMMCR 1959 (@10% of Seigniorage Fee) (Seigniorage Fee for Roughstone = Rs.90 and for Gravel= Rs.56)	5900517	0
<b>Total Seigniorage Fee</b>			<b>5900517</b>	<b>0</b>
<b>TOTAL</b>			<b>8744517</b>	<b>3157546</b> <b>(Exclude. Mine Closure)</b>

**Table 10.11 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation**

<b>Ist Year</b>	<b>IInd Year</b>	<b>IIIrd Year</b>	<b>IVth Year</b>	<b>Vth Year (including Mine Closure Cost)</b>	<b>Total Recurring Cost</b>	<b>Total EMP Cost</b>
3157546	3315424	3481195	3655255	3975547	17584967	26329484

In order to implement the environmental protection measures, an amount of **Rs. 8744517** as capital cost and recurring cost as **Rs. 3157546** 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 overall EMP cost for 5 years will be **Rs. 26329484** as shown in Table 10.11.

#### **10.10 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

#### 1 1.1 INTRODUCTION

As the proposed rough stone mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 36.48.5 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. 1266 over the extent of 4.04.5 ha is situated in the cluster falling in Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. The quarries involved in the calculation of cluster extent are three proposed quarries, one existing quarries, and the one expired quarry.

#### 11.2 PROJECT DESCRIPTION

The proposed project area is located between latitudes from Latitudes from 12°39'42.80"N to 12°39'49.71"N and Longitudes from 77°57'34.73"E to 77°57'44.39"E in Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. According to the approved mining plan, about 655613 m<sup>3</sup> of rough stone will be mined up to the ultimate depth of 61 m BGL 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 DESCRIPTIONS 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 **Ekdant Enviro Services (P) Limited** 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 3.1

**Table 11.1 LULC Statistics of the Study Area**

S. No.	LU/LC Type	Extend (ha)	Percentage
1	Barren Rocky / stony waste	531.28	6.91
2	Crop land	1909.43	24.85
3	Dense Forest	24.36	0.32
4	Fallow land	2703.86	35.19

5	Land with or without scrub	1717.95	22.36
6	Mining/industrial wastelands	23.10	0.30
7	Plantations	733.58	9.55
8	Settlement	15.48	0.20
9	Water bodies	25.60	0.33
<b>Total</b>		<b>7684.64</b>	<b>100.0</b>

*Source: Sentinel II Satellite Imagery*

### 11.3.2 Soil Environment

The soil samples in the study area show loamy textures varying between silty clay loam, silty loam and sandy loam. pH of the soil varies from 6.8 to 7.6 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 175 to 298  $\mu\text{s}/\text{cm}$ . Organic Matter ranges between 1.2 to 1.62  $\text{g}/\text{cm}^3$ . Nitrogen ranges between 13.67 to 26.86 %. Phosphate ranges between 1.37 to 3.42 %. Potassium ranges between 39.91 to 52.3%.

### 11.3.3 Water Environment

Groundwater in the study area occurs in the Grey Hornblende biotite gneiss rocks of Archaean Paleoproterozoic age and Archaean Proterozoic. Dug wells and bore wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose. Four groundwater and two surface water samples were collected from bore wells and one open wells were analysed for physico-chemical conditions, heavy metals and bacteriological contents in order to assess baseline quality of ground water. The results of all the ground water samples fall within the permissible limits of IS10500:2012.

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. 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). According to the data, average depths to the static water table in open wells range from 21.50 to 24.7 m BGL in pre monsoon and 17.63 to 18.77 m BGL in post monsoon. The average depths to static potentiometric surface in bore wells vary from 78.47 to 79.37 m in pre monsoon and from 81.17 to 82.77 m in post monsoon.

### **11.3.4 Air Environment**

As per the monitoring data, PM<sub>2.5</sub> ranges from 14.4 µg/m<sup>3</sup> to 16.2 µg/m<sup>3</sup>, PM<sub>10</sub> from 35.9 µg/m<sup>3</sup> to 40.5µg/m<sup>3</sup>, SO<sub>2</sub> from 2.8 µg/m<sup>3</sup> to 4.4 µg/m<sup>3</sup>, NO<sub>x</sub> from 8.5µg/m<sup>3</sup> to 13.6g/m<sup>3</sup>. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

### **11.3.5 Noise Environment**

Noise levels recorded in core zone was 47.2 dB (A) Leq during day time and 35.4 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 39.8 to 52.4dB (A) Leq and during night time from 30.6 to 40.2dB (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**

- Permanent impact on mineral resources due to removal of 655613 m<sup>3</sup> of rough stone and 218 m<sup>3</sup> of topsoil in the five years.
- Substantial change to topographic features or significant change in surface relief
- Permanent or temporary change on land use and land cover.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season
- Siltation of water course due to wash off from the exposed working area



## **Mitigation Measures**

- After completion of the quarrying operation, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir.
- Topsoil will be utilized for greenbelt development in the safety barrier to prevent noise and sound propagation to the nearby lands.
- Garland drains will be constructed all around the quarry pit and check dams will be constructed at suitable locations in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water within the proposed area.
- Barbed wire fencing will be reconstructed at the conceptual stage
- Security will be posted round the clock, to prevent inherent entry of the public and cattle.

### **11.4.2 Water Environment**

#### **Anticipated Impact**

- As the water required for the mining operations is obtained from the approved water supplying agency, the project does not develop any abstraction structures in the lease area. Therefore, no impact responsible for the water table declination is anticipated.
- Surface and ground water resources may be contaminated due to mine pit water discharge, domestic sewage, waste water from vehicle washing, washouts from surface exposure or working areas, discharge of oil & grease, and suspended solids due to waste from washing of machineries. To address this impact, some of the important mitigation measures is provided as below.

#### **Mitigation Measures**

- Garland drainage system and settling tank will be constructed along the proposed mining lease area. 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
- Rainwater from the mining pits will be collected in sump and will be allowed to store and pumped out to surface settling tank of 15 m x 10 m x 3 m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The

proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.

- Benches will be provided with inner slopes and through a system of drains and channels, rain water will be allowed to descent into surrounding drains to minimize the effects of erosion and water logging arising out of uncontrolled descent of water.
- The water collected will be reused during storm for dust suppression and greenbelt development within the mines.
- Interceptor traps/oil separators will be installed to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse.
- Flocculating or coagulating agents will be used to assist in the settling of suspended solids during monsoon seasons.
- Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted.
- Domestic sewage from site office and urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring (once every 6 months) and analysing the quality of water in open well, bore wells and surface water.

### **11.4.3 AIR ENVIRONMENT**

#### **Anticipated Impact**

- During mining at various stages of activities such as excavation, drilling, blasting 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.

## **Mitigation Measures**

### ***Drilling***

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

### ***Haul Road and Transportation***

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- Water sprinkling on haul roads and loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral. Therefore, weekly maintenance of machines improves combustion process and reduces pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Overloading of tippers will be avoided to prevent spillage.
- 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.

### ***Green Belt***

- Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers.
- Green belt of adequate width will be developed around the project site.

### ***Occupational Health***

- Dust mask will be provided to the workers and their use will be strictly monitored.
- Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers.
- Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed.

#### **11.4.4 Noise Environment**

##### ***Anticipated Impact***

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
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process

##### ***Mitigation Measures***

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

#### **11.4.5 Biological Environment**

##### ***Anticipated Impact***

- The proposed mining activities include removal of some scattered bushes and other thorny species.
- The Number of plants in the mining lease area is given in chapter-III Table 3.21 which vegetation in the lease area may be removed during mining.
- 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 5505 kg per day, 1486373 kg per year and 7431864 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.
- Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone. Details of seedlings proposed to be planted in the safety margin of the lease area.
- 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 48491 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 4.14), about 2023 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 242457 kg of the total carbon,

### **11.4.6 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.
- From above details, the quarry operations will have highly beneficial positive impact in the area.

#### 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.

### 11.2 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 <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> and NO <sub>x</sub> .
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*

## 11.5 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.

#### 11.5.1 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.

### 11.5.2 Cumulative Impact Study

The results on the cumulative impact of the four proposed 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
- PPV resulting from five proposed project is well below the permissible limit of Peak Particle Velocity of 8 mm/s
- The proposed five projects will allocate Rs. **25,00,000/-** towards CER as recommended by SEAC
- The proposed three projects will directly provide jobs to 59 local people, in addition to indirect jobs
- The proposed five projects will plant 7287 about trees in and around the lease area
- The proposed five projects will add 2817 PCU per day to the nearby roads.

### 11.6 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 116 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. 5,00,000 will be allocated for CER

### 11.7 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs. 8744517** as capital cost and recurring cost as **Rs. 3157546** 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 overall EMP cost for 5 years will be **Rs. 26329484**.



## CHAPTER XII

### DISCLOSURES OF CONSULTANT

The Project Proponent, **Thiru.R. Rajappa** 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](mailto:info.gtmsdpi@gmail.com)  
Web: [www.gtmsind.com](http://www.gtmsind.com)  
Phone: 04342 232777.

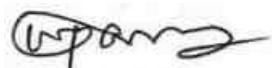
The accredited experts and associated members who were engaged in this EIA study are given below:

S.No.	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
<b>Approved Functional Area Experts &amp; EC</b>					
1	Dr. S. Karuppannan	EIA Coordinator (EC) In-house	1(a)(i)	Mining	B
2	Dr. M. Vijayprabhu	In-house FAE	1(a)(i)	HG, LU, GEO	B
3	Dr. J. Rajarajeswari	In-house, FAE	1(a)(i)	EB, SC	B
4	Dr. G. Prabakaran	In-house, FAE	1(a)(i)	SE	B
5	Dr. R. Arunbalaji	In-house, FAE	1(a)(i)	AP, AQ, NV	B
6	J.N. Manikandan	Empanelled FAE	1(a)(i)	RH, SHW, AP	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	P. Venkatesh	In-house, FAE	1(a)(i)	AP	B
10	Dr. D.Kalaimurugan	In-house, FAE	1(a)(i)	SC	B
11	A.Kottaimanmathan	Empanelled FAE	1(a)(i)	LU	B
<b>Approved Functional Area Associates</b>					
12	G. Prithiviraj	FAA	1(a)(i)	LU, HG	B
13	C. Kumaresan	FAA	1(a)(i)	NV	B
14	P. Vellaiyan	FAA	1(a)(i)	HG, GEO	B
15	S. Vasugi	FAA	1(a)(i)	AQ	B
16	P. Dhatchayini	FAA	1(a)(i)	AQ	B
17	V. Malavika	FAA	1(a)(i)	NV, SHW	B

<b>Abbreviations</b>			
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. Karuppannan**



Designation : EIA Coordinator

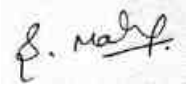





Name of the EIA Consultant Organization : Geo Technical Mining Solutions





Period of Involvement : Till date

We, the FAEs and FAAs hereby declare that information furnished in this EIA/EMP report for **Thiru.R. Rajappa** rough stone quarry project with the extent of 4.04.50 ha situated in the cluster with the extent of 36.48.5 ha in Kamandoddi Village, Shoolagiri 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	o Identification of different sources of air pollution due to the proposed mine activity	J.N. Manikandan	
		o Prediction of air pollution and propose mitigation measures / control measures	P.Venkatesh	

2	WP	<ul style="list-style-type: none"> <li>○ Suggesting water treatment systems, drainage facilities</li> <li>○ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.</li> </ul>	Dr.S. Malar	
3	HG	<ul style="list-style-type: none"> <li>○ Interpretation of ground water table and predict impact and propose mitigation measures.</li> <li>○ Analysis and description of aquifer Characteristics</li> </ul>	G. Uma Maheswaran	
4	GEO	<ul style="list-style-type: none"> <li>○ Field Survey for assessing the regional and local geology of the area.</li> <li>○ Preparation of mineral and geological maps.</li> <li>○ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.</li> </ul>	Dr.M. Vijay Prabhu	
5	SE	<ul style="list-style-type: none"> <li>○ Revision in secondary data as per Census of India, 2011.</li> <li>○ Impact Assessment &amp; Preventive Management Plan</li> <li>○ Corporate Environment Responsibility.</li> </ul>	Dr. G. Prabhakaran	
6	EB	<ul style="list-style-type: none"> <li>○ Collection of Baseline data of Flora and Fauna.</li> <li>○ Identification of species labelled as Rare, Endangered and threatened as per IUCN list.</li> <li>○ Impact of the project on flora and fauna.</li> <li>○ Suggesting species for greenbelt development.</li> </ul>	Dr.J. Rajarajeshwari	
7	RH	<ul style="list-style-type: none"> <li>○ Identification of hazards and hazardous substances</li> <li>○ Risks and consequences analysis</li> <li>○ Vulnerability assessment</li> </ul>	J.N. Manikandan	

		<ul style="list-style-type: none"> <li>○ Preparation of Emergency Preparedness Plan</li> <li>○ Management plan for safety.</li> </ul>		
8	LU	<ul style="list-style-type: none"> <li>○ Construction of Land use Map</li> <li>○ Impact of project on surrounding land use</li> <li>○ Suggesting post closure sustainable land use and mitigative measures.</li> </ul>	A.Kottaimanmathan	
9	NV	<ul style="list-style-type: none"> <li>○ Identify impacts due to noise and vibrations</li> <li>○ Suggesting appropriate mitigation measures for EMP.</li> </ul>	Dr.R. Arun Balaji	
10	AQ	<ul style="list-style-type: none"> <li>○ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD.</li> <li>○ Recommending mitigations measures for EMP</li> </ul>	Dr.R. Arun Balaji	
11	SC	<ul style="list-style-type: none"> <li>○ Assessing the impact on soil environment and proposed mitigation measures for soil conservation</li> </ul>	Dr. D.Kalaimurugan	
12	SHW	<ul style="list-style-type: none"> <li>○ Identify source of generation of non-hazardous solid waste and hazardous waste.</li> <li>○ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.</li> </ul>	J.N. Manikandan	

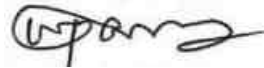
**List of Functional Area Associate Engaged in this Project**

S.No.	Name	Functional Area	Involvement	Signature
1	G. Prithiviraj	LU, HG	<ul style="list-style-type: none"> <li>○ Site visit with FAE</li> <li>○ Provide inputs &amp; Assisting FAE for LU and HG</li> </ul>	
2	C. Kumaresan	NV	<ul style="list-style-type: none"> <li>○ Assistance to FAE in both primary and secondary data collection</li> </ul>	

			○ Assistance in noise prediction modelling	
3	P. Vellaiyan	HG & GEO	○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection	
4	P. Dhatchayini	AQ	○ Site visit with FAE ○ Assistance to FAE in collection of both primary and secondary data	
5	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 **Thiru.R. Rajappa** rough stone quarry project with the extent of 4.04.50 ha situated in the cluster with the extent of 36.48.5 ha in Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District of Tamil Nadu is true and correct to the best of our knowledge.

Signature : 

Date :

Name : **Dr. S. Karuppannan**

Designation : Managing Partner

Name of the EIA Consultant Organization : Geo Technical Mining Solutions

NABET Certificate No & Issue Date : NABET/EIA/2124/SA 0184

Validity : Till 02/04/2024



THIRU.DEEPAK S.BILGI, I.F.S.  
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY-TAMILNADU  
3rd Floor, Panagal Maaligai,  
No.1, Jeenjis Road, Saidapet,  
Chennai - 600 015.  
Phone No. 044-24359973  
Fax No. 044-24359975

**TERMS OF REFERENCE (ToR) (Under Violation)**

**Lr No.SEIAA-TN/F.No.10412/2023/SEAC/1(a)ToR/Violation -1609/2023 Dated:07.11.2023**

To

Thiru. R.Rajappa,  
S/o.V.Ramappa,  
No.3/883, Pillayakothoor village,  
Koneripalli Post,  
Hosur Taluk,  
Krishnagiri District-635109

Sir/Madam,

**Sub:** SEIAA, Tamil Nadu – **Terms of Reference (ToR) under violation category issued with Public Hearing** for the Proposed Rough stone Quarry over an extent of 4.04.5Ha at SF.No. 1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu by Thiru.R.Rajappa – under project category - "B1" of Item 1(a) 'Mining of Minerals' of the Schedule to the EIA notification, 2006, as amended – Preparation of EIA report, EMP report, ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation – Regarding.

**Ref:** 1. MoEF&CC notification vide S.O. 804 (E) Dt. 14.3.2017.  
2. MoEF & CC Notification S.O.1030 (E) dated 08.03.2018.  
3. Online proposal No.SIA/TN/MIN/445091/2023, dated:20.09.2023.  
4. Your Application for Terms of Reference dated: 22.09.2023.  
5. Minutes of the 417<sup>th</sup> meeting of SEAC held on 18.10.2023.  
6. Minutes of the 671<sup>st</sup> meeting of SEIAA held on 07.11.2023.

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Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Environment Clearance.

The proponent, Thiru.R.Rajappa has submitted application in Form-I, Pre-Feasibility report for the Proposed Rough stone Quarry over an extent of 4.04.5Ha at SF.No. 1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu.

**Discussion by SEAC and the Remarks:-**

The proposal was placed in the 417<sup>th</sup> SEAC Meeting held on 18.10.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

**The SEAC noted the following:**

1. The Project Proponent, Thiru.R.Rajappa has applied for Terms of Reference for the Proposed Rough stone Quarry over an extent of 4.04.5Ha at SF.No.1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) " Mining of mineral of the Schedule to the EIA Notification, 2006.
3. The lease period is for 10 years. The mining plan is for the period of five years & the production should not exceed 6,55,613m<sup>3</sup> of rough stone & 218m<sup>3</sup> of Topsoil with an ultimate depth of mining is 61m (11m AGL + 50m BGL). The annual peak production is 1,51,393m<sup>3</sup> of rough stone & 218m<sup>3</sup> of Topsoil.

During the presentation the SEAC noted that the PP obtained earlier EC dated 31.05.17 for a depth of 16m whereas there is an existing pit of depth 25m.

Therefore, based on the presentation and documents furnished by the project proponent, SEAC decided to **grant of Terms of Reference (ToR) under Violation category, subject to the following ToRs**, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants. **The grant of Terms of Reference (ToR) under Violation category does not entail EC which is subject to the outcome of the final orders of the Hon'ble High Court of Madras in the matter of W.P.(MD) No. 11757 of 2021.**

1. The project proponent shall submit a Certified Compliance Report obtained from the IRO, MoEF & CC, Chennai as per the MoEF&CC O.M dated.08.06.2022 for the previous EC and appropriate mitigating measures for the non-compliance items, if any.
2. The PP shall furnish letter from the concerned AD (Mines) including the following details,
  - i. Original pit dimension of the existing quarry
  - ii. Quantity achieved Vs EC Approved Quantity
  - iii. Balance Quantity as per Mineable Reserve calculated.
  - iv. Month wise Production details
  - v. Mined out Depth as on date Vs EC Permitted depth
  - vi. Details of illegal/illicit mining carried out, if any
  - vii. Non-compliance/Violation in the quarry during the past working.
  - viii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.
  - ix. Existing condition of Safety zone/benches
  - x. Details of any penalties levied on the PP for any violation in the quarry operation by the Department of Geology and Mining.
3. The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC and also to furnish **mitigation measures/remedial action plan with the budget allocation** for the non-compliance stated in the CCR.
4. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
5. 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.
6. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
7. The PP shall submit the stability status of the existing quarry wall and slope stability action plan by carrying 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

  
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- 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.
8. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & 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.
  9. The PP shall furnish an Independent Chapter 13 as per the MoEF & CC Violation Notification - S.O. 804 (E), dated. 14.03.2017 prepared by the accredited consultants from the issue of this specific ToR, comprises of assessment of ecological damage for the project activities carried out during the violation period, and the remediation plan and natural & community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of Environmental Clearance.
  10. As a part of procedural formalities as per the MoEF & CC Violation Notification - S.O. 804 (E), dated. 14.03.2017, the action will be initiated by the competent authority under section 15 read with section 19 of the Environment (Protection) Act, 1986 against violation.
  11. Copy of valid mining lease approval obtained from the competent Authority.
  12. Letter stating that the quarry lease deed has not been cancelled or terminated and is subsisting as on date.
  13. Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
  14. Copy of 'No Objection Certificate' for the total penalty levied by the concerned AD/DD, Dept of Geology and Mining, and copy of remittance of total penalty by PP if any.
  15. Details of habitations and fireworks around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
  16. 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.
  17. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the

- proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
18. 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.
  19. 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.
  20. 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.
  21. 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.
  22. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.
    - i. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
    - ii. Quantity of minerals mined out.
    - iii. Highest production achieved in any one year
    - iv. Detail of approved depth of mining.
    - v. Actual depth of the mining achieved earlier.
    - vi. Name of the person already mined in that leases area.
    - vii. If EC and CTO already obtained, the copy of the same shall be submitted.
    - viii. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
  23. 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).
  24. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,

  
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25. 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.
26. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working
27. methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
28. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
29. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
30. 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.
31. 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.
32. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
33. 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.
34. 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.
  35. 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.
  36. 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.
  37. Impact on local transport infrastructure due to the Project should be indicated.
  38. 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.
  39. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
  40. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
  41. The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.
  42. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
  43. 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.

44. 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
45. 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.
46. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
47. 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.
48. 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.
49. 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.
50. 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.
51. 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.
52. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

53. 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.
54. 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/TNPCCB.
55. 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.
56. 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.

**Appendix -I**  
**List of Native Trees Suggested for Planting**

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விளவம்
2	<i>Adenanthera pavonina</i>	Marjadi	மர்ஜாடி
3	<i>Albiza lebbek</i>	Vaagai	வாகை
4	<i>Albiza amara</i>	Uai	உவகை
5	<i>Bauhinia purpurea</i>	Manthara	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆத்து
7	<i>Bauhinia tomentosa</i>	Iravathu	இரவத்து
8	<i>Buchanania axillaris</i>	Kattuma	கட்டுமம்
9	<i>Borassus flabellifera</i>	Parai	பரை
10	<i>Butea monosperma</i>	Murukkamarai	முருக்கமரம்
11	<i>Bobax catha</i>	Ilavu, Sevilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Purnai	புர்நை
13	<i>Cassia fistula</i>	Sarakondrai	சரகண்டரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கண்டரை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசாமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கொங்கு மர்ஜாடி
17	<i>Cordia dichotoma</i>	Narvuli	நர்வூலி
18	<i>Cretaria adansonii</i>	Mavalingum	மாவலிங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவகை
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீருஉவகை
21	<i>Diospyros ebenum</i>	Karungali	கரங்கலி
22	<i>Diospyros chloroxylon</i>	Vaganu	வாகனம்
23	<i>Ficus amplissima</i>	Kalltlu	கல்லை
24	<i>Hibiscus tiliaceus</i>	Aatrupoovarasu	ஆத்ரபூவரசு
25	<i>Hardwickia binata</i>	Acha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aavili	ஆவிலி
27	<i>Lamnea coromandelica</i>	Odhum	ஒடும்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மரூது
29	<i>Lepisanthus tetraphylla</i>	Neikottamaram	நைகொட்டமரம்
30	<i>Limonia acutissima</i>	Vila maram	வில்லாமரம்
31	<i>Litsea glutinosa</i>	Pizupattai	பிழப்பட்டை
32	<i>Madhuca longifolia</i>	Iluppa	இலுப்பா
33	<i>Manilkara hexandra</i>	UkkaiPaalai	உக்கைபாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழாமரம்
35	<i>Mitragyna parvifolia</i>	Kadamibu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெலை நுனா
38	<i>Phoenix sylvestris</i>	Eacha	ஏச்சா
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Munnai	முள்ளை
41	<i>Premna serratifolia</i>	Narumunrai	நடு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovanai	மலை பூவா
43	<i>Prosopis cineriza</i>	Varu marai	வரை மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்டாங்கை
46	<i>Pterospermum xylocarpum</i>	Polaru	பொரு
47	<i>Pithecolobium roxburghii</i>	Karpala	கர்பலா
48	<i>Salvadora persica</i>	Ugai Maram	உகை மரம்
49	<i>Sapindus emarginatus</i>	Marupangan, Soapukai	மாறுபாடு செய்யாண்டு
50	<i>Saraca asoca</i>	Asoca	அசோ
51	<i>Strobilus aspi</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yettu	யெட்டு
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேர்தங்க கோட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia bellierii</i>	Thandri	தாந்திரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண் மரத்து
57	<i>Toona ciliata</i>	Sundhara vembu	சுந்தரா வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	புவாசா
59	<i>Walsuratrifoliata</i>	Valura	வாலூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்கப்பூ

**Discussion by SEIAA and the Remarks:-**

The subject was placed in the 671<sup>st</sup> Authority meeting held on 07.11.2023. The Authority noted that the subject was appraised in the 417<sup>th</sup> SEAC meeting held on 18.10.2023. Based on the presentation and documents furnished by the project proponent, SEAC decided to grant of Terms of Reference (TOR) under Violation category, subject to the specific TORs stated therein, in addition to the standard terms of reference for EIA study for non-coal mining projects and the EIA/EMP report along with assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants. The grant of Terms of Reference (TOR) under Violation category does not entail EC which is subject to the outcome of the final orders of the Hon'ble High Court of Madras in the matter of W.P.(MD) No. 11757 of 2021.

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) under violation category for undertaking EIA study followed by the EMP report along with assessment of ecological damage, remediation plan and natural and

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community resource augmentation plan and it shall be prepared as an independent chapter by the accredited consultants subject to the conditions as recommended by SEAC & normal / Standard conditions in addition to the following conditions and conditions stated therein vide **Annexure 'B'**.

1. The PP shall furnish Copy of valid mining lease approval obtained from the competent Authority.
2. The PP shall furnish Copy of approved review of scheme of mining plan by the competent authority of the Dept of Geology and Mining.
3. The PP shall furnish EMP for the project life including progressive mine closure plan and final mine closure plan with detailed budget plan.
4. The PP shall study in detail about CO<sub>2</sub> release and temperature rise and add to micro climate alternations and the same shall be included in the final EIA report.
5. The PP shall study in detail about impact on the water bodies and natural flow of surface and ground water and the same shall be included in the final EIA report.
6. The PP shall study in detail about Soil health, Climate change leading to Droughts, Floods etc.
7. The PP shall study in detail about release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
8. The PP shall study in detail about Possibilities of water contamination and impact on aquatic ecosystem health.
9. The PP shall study in detail about impact on flora, fauna, biodiversity and water table and the same shall be included in the final EIA report.
10. The PP shall study the impact on Invasive Alien Species (IAP).

**Annexure 'B'**

**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,

  
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3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

**Impact study of mining**

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & soil biological, physical land chemical features .
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - f) Hydrothermal/Geothermal effect due to destruction in the Environment.

- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

#### **Agriculture & Agro-Biodiversity**

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- 16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

#### **Forests**

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

#### **Water Environment**

- 23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be

- shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
  25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
  26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
  27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
  28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
  29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
  30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

**Energy**

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

**Climate Change**

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

**Mine Closure Plan**

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

**EMP**

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

**Risk Assessment**

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

**Disaster Management Plan**

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

**Others**

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

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

SECTION A

As per the MoEF & CC Notification S.O. 1030 (E) dated: 08.03.2018.

1. "The cases of violations will be appraised by the Expert Appraisal Committee at the Central level or State or Union territory level Expert Appraisal Committee constituted under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 with a view to assess that the project has been constructed at a site which under prevailing laws is permissible and expansion has been done which can run sustainably under compliance of environmental norms with adequate environmental safeguards, and in case, where the findings of Expert Appraisal Committee for projects under category A or State or Union territory level Expert Appraisal Committee for projects under category B is negative, closure of the project will be recommended along with other actions under the law.
2. In case, where the findings of the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee on point at sub-paragraph (4) above are affirmative, the projects will be granted the appropriate Terms of Reference for undertaking Environment Impact Assessment and preparation of Environment Management Plan and the Expert Appraisal Committee or State or Union territory level Expert Appraisal Committee, will prescribe specific Terms of Reference for the project on assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter in the environment impact assessment report by the accredited consultants, and the collection and analysis of data for assessment of ecological damage, preparation of remediation plan and natural and community resource augmentation plan shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or a environmental laboratory accredited by the National Accreditation Board for Testing and Calibration Laboratories, or a laboratory of the Council of Scientific and Industrial Research institution working in the field of environment."

After the appraisal of the project, the SEAC decided that the Para No.2 stated above is applicable to the project. Hence, the proponent is directed to prepare appropriate reports as contained in the Para 2.

While complying with the specific aspects of the MoEF & CC directions as stated in the Para 2 above, the following steps should be followed:

Step 1: Enumerate the aspects of Violation:

- a) The proponent should enumerate the violations as applicable to the project.
- b) Furnish a description of each violation with quantitative and qualitative data.
- c) Violation categories are to be decided taking into consideration the stage at which the project execution stands.

Step 2: Ecological Damage Assessment:

- a) For each aspect of violation enumerated in step (1), identify the resultant environmental damage that may have been caused.
- b) Furnish a description of the environmental damages with quantitative and qualitative data.

Step 3: Remediation Plan:

- a) For the Environmental damage(s) identified in the step (2) above, prepare the remediation plan for the each or combination of damages.
- b) The remediation plan should essentially consists of problem statement, target to be achieved (quantity), standards, technology/ procedure for remediation, equipment and machinery to be used, time schedule and remediation cost(direct and indirect cost, capital as well as O&M costs).

### SECTION B

1. Natural resource Augmentation:

- a) The resources that should be considered for augmentation should essentially consist of land, biota, air, water and other resources as applicable.
- b) Proponent may choose one or more of the resource augmentation as applicable and provide a description of the augmentation proposal in detail for each resource.

  
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- c) The proponent should also furnish the cost for each augmentation scheme.
2. Community resource Augmentation:
- a) The proponent should prepare a plan of action for addressing the needs of the community in terms of resources in the sectors of education, health and sports primarily and other such resources as applicable to the community in the vicinity of the project.
- b) The community resource augmentation plan should consist of rehabilitation of houses and people, budget allocation and time schedule for completing the activity.

**SECTION C**

The proponent should prepare content for the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation separately in a chapter and include in the EIA / EMP report.

**SECTION D**

- a) After the appraisal of the EIA / EMP report submitted by the proponent, the SEAC will make a judgement of the quality of the content in the EIA / EMP report specifically with reference to the chapter covering the ecological damage assessment, remediation plan, natural resource augmentation and community resource augmentation.
- b) In the judgement of SEAC, if the quality of the content in the chapter is not satisfactory, the SEAC may direct the proponent to further revise the chapter and resubmit the EIA/EMP report.
- c) If SEAC concludes that the technical part is satisfactory and the costing aspect is not satisfactory then the SEAC may revert to legal provisions, MoEF & CC guidelines and similar expert committee recommendations for finalizing the cost aspects or the SEAC may use its own expertise and experience in finalizing the cost.

**SECTION E**

The proponent is directed to furnish data as per the questionnaire appended in Annexure 1. It will help the SEAC in arriving the ecological damage and the associated cost.

**SECTION F**

In compliance with the Supreme Court order stated in MoEF & CC letter F.No. 3-50/2017 IA.III-pt dated: 05<sup>th</sup> January 2018, the proponent is required to submit the No Objection Certificate obtained from the Department of Geology and Mining, Government of Tamil Nadu regarding payment of 100% cost of illegally mined mineral under section 21(5) of MMDR Act 1957 which would account for mining operations in violation of the following:

- a) Without Environmental Clearance (EC), or in excess of the quantity approved in EC
- b) Without Consent to Operate (CTO) or in excess of the quantity approved in CTO and
- c) Without mining plan/scheme of mining or in excess of the quantity approved in mining plan / scheme of mining
- d) Without Forest Clearance
- e) Any other violation

List out the details of reserve forest and wildlife sanctuary nearby the project site (the details should also include other districts which are nearby the project site) and also furnish the detail of distance between the project site and reserve forests/wildlife sanctuary.

Whether the project site attracts the HACA clearance? If so, also furnish the HACA clearance for the mining from the competent authority.

The proponent is instructed to fill in the form contained in **Annexure I** to work out the details of the ecological damage during the violation period.

**A. STANDARD TERMS OF REFERENCE**

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.



- 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) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors,

  
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- 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 w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared

and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per

CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the 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

  
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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.

  
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- 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:-
- Executive Summary of the EIA/EMP Report
  - All documents to be properly referenced with index and continuous page numbering.
  - Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
  - 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.
  - Where the documents provided are in a language other than English, an English translation should be provided.
  - The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
  - 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(1) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
  - 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.
  - As per the circular no. J-11011/618/2010-IA.II(1) 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) Products and capacities. If expansion proposal then existing products with capacities and reference to earlier EC.
- 3) Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
- 4) Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
- 5) Measures for mitigating the impact on the environment and mode of discharge or disposal.
- 6) Capital cost of the project, estimated time of completion.
- 7) Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of 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)
- 8) Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
- 9) Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
- 10) Likely impact of the project on air, water, land, flora-fauna and nearby population
- 11) Emergency preparedness plan in case of natural or in plant emergencies
- 12) Issues raised during public hearing (if applicable) and response given



- 13) CER plan with proposed expenditure.
- 14) Occupational Health Measures
- 15) Post project monitoring plan

**Besides the above, the below mentioned general points should also be followed:-**

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Copy of permission related to Port facility, Desalination plant, wind mill /solar power plant from competent Authority.
- d. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- e. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- f. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F, No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
  - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance

- The TORs prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29<sup>th</sup> August, 2017.

The receipt of this letter may be acknowledged.

  
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**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Dept, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. Monitoring Cell, I A Division, Ministry of Environment & Forests, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
5. The District Collector, Krishnagiri District.
6. Stock File.

Annexure 1Additional information for considering EC for mining projects

S.No.	Details to be provided	Page no.																				
1)	Name of the project lease & owner																					
2)	Lease Extent																					
3)	Lease Validity																					
4)	Approved Mining Plan/Scheme – Review a) Specify whether DSR is provided (applicable in case of minor minerals only)																					
5)	Specify - Nature and type of violation																					
	I. Without EC or in excess of quantity approved in EC																					
	II. Without CTO or in excess of quantity approved in CTO																					
	III. Without mining plan/Scheme of mining or in excess of quantity approved in Mining plan/Scheme of mining.																					
	IV. Without forest Clearance																					
	V. Any other violation																					
6)	Violation period																					
	I. Number of months																					
	II. Number of Years																					
7)	Exploitation/Excavation quantity- Reserves proved through exploration by drilling																					
8)	Give details of production from the date of execution of the lease deed / since 1994																					
	<table border="1"> <thead> <tr> <th rowspan="2">Year and quantity</th> <th colspan="2">2010-11*</th> <th colspan="2">2011-12*</th> <th colspan="2">2012-13*</th> </tr> <tr> <th>Planned</th> <th>Actual</th> <th>Planned</th> <th>Actual</th> <th>Planned</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>Ore/mineral/g granite blocks (tonnes)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Year and quantity	2010-11*		2011-12*		2012-13*		Planned	Actual	Planned	Actual	Planned	Actual	Ore/mineral/g granite blocks (tonnes)							
Year and quantity	2010-11*		2011-12*		2012-13*																	
	Planned	Actual	Planned	Actual	Planned	Actual																
Ore/mineral/g granite blocks (tonnes)																						

	Waste (tonnes/cu.m)						
	* year of mining operation						
9)	Quantity mined out during the violation period & if, yes indicate the violated quantity, in term of % of consented quantity.						
	Year and quantity mined out during the violation period	2010-11		2011-12		2012-13	
		Planned	Actual	Planned	Actual	Planned	Actual
	Ore/mineral/g granite blocks (tonnes)						
	Waste excavation (tonnes/cu.m)						
10)	State illegal mining/encroachments outside the lease boundary? Percentage of quantity mined out outside the lease boundary.						
11)	Method of working						
	I. Category type: (a) Mechanised (b) Semi – Mechanised (c) Manual						
	II. Construction and design of haul roads						
	a) Dimension as per the statutory requirements which were followed or otherwise						
	b) Number of vehicles plying on the main haul roads inside the mine and the approach road to the pit located outside the mine, if any.						

  
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	c) Are any measures taken to minimise fugitive dust generated from mine haul roads? Does it comply with the CPCB/PCB Guidelines?										
	d) Is there a possibility that air pollutants emitted from the project area that do not comply with air quality standards as per CPCB/PCB?										
12)	Mechanized / Semi – Mechanized Method of Mining										
	(i) Number of loading / excavating equipments as per approved mining plan and capacity.										
	(ii) Number of loading / excavating equipments actually being deployed and capacity.										
	(iii) Type and number of transporting equipments.										
	(iv) Type of transporting system used – (a) trucks (b) Any other mode										
	(v) Capacity and Number of trucks used as per approved mining plan										
	(vi) Capacity and Number of trucks used actually in the mine.										
	(vii) Number and capacity of loading equipments and trucks used not in line with approved mining plan.										
	<table border="1"> <thead> <tr> <th></th> <th>Capacity (m<sup>3</sup>)</th> <th>Numbers</th> </tr> </thead> <tbody> <tr> <td>Excavator</td> <td></td> <td></td> </tr> <tr> <td>Trucks</td> <td></td> <td></td> </tr> </tbody> </table>		Capacity (m <sup>3</sup> )	Numbers	Excavator			Trucks			
	Capacity (m <sup>3</sup> )	Numbers									
Excavator											
Trucks											
	(viii) Impact of excess deployment of loading equipments (excavators) and transporting equipments on environment. (a) Air pollutants (b) Water Quality (c) Land Quality (d) Noise level										

	(ix) Does the deployment of loading equipments (excavators) and trucks fulfil the statutory requirements as per MMR 1961, with respect to the site conditions?	
13)	Method of Rock Breaking/Material preparation for the excavation:	
	(i) Methodology adopted -	
	a) Drilling and blasting	
	b) Rock breakers	
	c) Rippers	
	d) Surface miners	
	e) Direct mucking by excavators	
	f) Manual means	
	g) Any other methods or combination of above	
	(ii) In case of drilling and blasting method:	
	(a) Type of blasting: short hole or deep hole	
	(b) Whether controlled blasting technique adopted? If yes, specify the technique with details of study, year of study	
	(c) Impacts due to blasting defined as per the studies, if any carried out previously as indicated	
	(d) Dust pollution	
	(e) Noise level (dB(A))	
	(f) Ground vibration studies and Fly rock projection	
	(iii) Impact of preparation of Ore and waste on environment-	
	a) Air Pollution	
	b) Noise Pollution	
	c) Water Pollution	
	d) Safety standards	
	e) Traffic density	
	f) Road Condition (vulnerability)	
14)	Construction and Design of Dumps.	
	a) Place/Location	

	b) Approach to Dump form the mine distance and safety standards.	
	c) Area of extent occupied	
	d) Dimension of Dump and No. of terrace with heights (benches)	
	e) Vegetation covered ; If yes, specify the details of plants	
15)	Construction and Design of Waste Dumps	
	(i) Numbers and Location of Dumps as per approved Mining Plan	
	(ii) Specify whether reject dumps are located within or outside mining lease	
	(iii) Area occupied in excess of the approval mining plan.	
	(iv) Dimension of Terracing, Light, shapes, etc.. Dump as per approved Mining Plan	
	(v) Fresh/Existing Dimension Height, shape, width. etc., of Dumps in the mine.	
	(vi) Volume/Quantity added to Waste/Dump during the violated period.	
	(vii) Approach to the Dump-Dimension, distance.	
	(viii) Number of and type of equipments deployed in Dump.	
	(ix) Provision of Garland drains around the Dumps.	
	(x) Any vegetation made on the slopes.	
	(xi) Provision of safety standards.	
	(xii) Impact of Waste/Dumps on environment.	
	a) Air pollution	
	b) Water pollution	
	c) Dust pollution	
	d) Noise pollution	
	(xiii) Terracing	
16)	Construction and Design of Ore and sub grade ore/mineral Stacks:-	
	(i) Number and Location of Ore stacks.	
	(ii) Dimension of Ore/sub grade Stacks as per the Approved Mining Plan	
	(iii) Volume/Quantity added during the violation period.	

	(iv) Any Screening plant or any other loading equipment engaged during the violated period.	
	(v) Approach to Ore / sub grade stack –Distance, hazards.	
	(vi) Safety standards adopted while operation.	
	(vii) Impact of ore/sub grade on environment	
	a. Air pollution	
	b. Water pollution	
	c. Dust pollution	
	d. Noise pollution	
17)	Mine Pit Water	
	(i) Intersection of Ground water table, specify the measures taken.	
	(ii) Ground water table as per hydro geological Studies (Pumping test).	
	(iii) Provision of Garland drains around pit and dumps	
	(iv) Water pollution	
	(v) Management of mine water.	
	(vi) Ultimate pit limit, w.r.t Ground water intersection and management of drainage of ground water.	
18)	Diversion of General Drainage/River/Nallah course for mining	
19)	Clearing of vegetation before the commencement of mining operation- Number of trees (species wise)	
20)	Man Power	
	(a) Statutory management	
	(b) Regular (Non –statutory) Manpower	
21)	Occupational Health and Safety.	
	(a) Periodical monitoring of health standards of persons employed as per Mine Act, 1952.	
	(b) Failure to inform statutory bodies periodically, if any	
22)	Population (Nearby Habitation)	
	(i) Population/Significant Population/Dense Population within the buffer zone of 10 Kms.	

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	(ii) People displacement due to mining activities	
	(iii) Location/ Existence of habitation near the river or any other historical/sensitive/ forest distance.	
	(iv) Impact of mining on Surrounding and habitation-Air, Water, Noise, Pollution.	
	(v) Socio Economic aspects of mining.	
23)	CSR	
	(a) Field ground Activities or studies. Actual amount spent towards CSR and the future proposal.	
24)	NOC from DMG for quantity clarification in respect of settlement of all the amount payable against identified violation.	
25)	For the Clearance of EC, Public Hearing is mandated as per MoEF & CC Notification.	
26)	Conceptual post mining land use/restoration	
27)	Litigation/court cases, if any pending	
28)	Disaster management plan for the mine	

  
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From

Dr.S.Vediappan, M.Sc.,Ph.D.,  
Deputy Director,  
Dept. of Geology and Mining,  
Krishnagiri.

To

Thiru.R. Rajappa,  
3/883, Pillaiyakothur village,  
Koneripalli post, Hosur taluk,  
Krishnagiri District - 635109.

**Roc.No. 896/2019/Mines Dated: 12.09.2023.**

**Sir,**

**Sub:** Mines and Minerals - Minor Mineral - Rough stone -  
Krishnagiri District - Shoolagiri Taluk - Kamandoddi Village -  
Government poramboke S.F.No.1266 - over an extent of  
4.04.50 Hects - Quarry lease granted for quarrying rough stone  
in favor of Thiru.R. Rajappa - Scheme of mining submitted -  
approved - Other quarry situated in 500 mtrs radial  
distance - Details furnished - reg.- Reg.

- Ref:**
1. The District Collector, Krishnagiri Proc.Roc.No.102/2016/  
Mines-1 dated: 06.10.2017.
  2. Scheme of Mining plan for the period 2022 - 2023 to 2026 -  
2027 submitted by the lessee on 20.12.2021 and  
10.07.2023.
  3. Scheme of Mining plan approved by the Deputy Director of  
Geology and Mining, Krishnagiri in Rc.No.896/2019/Mines  
dated: 31.08.2023.
  4. Thiru.R. Rajappa Letter dated: 12.09.2023.

-----  
Kind attention is invited to the references cited.

2) Quarry lease had been granted in favor of Thiru.R. Rajappa to quarry  
rough stone over an extent of 4.04.50 Hect. of Government poramboke land in S.F.  
No. 1266 of Kamandoddi village, Shoolgiri Taluk, Krishnagiri District vide District

Collector's Proceedings Rc. No. 102/2016/Mines dated:06.10.2017 under TNMMCR Rules, 1959 for a period of 10 years under tender cum auction. The lease deed was executed on 13.10.2017 and the lease period is valid up to 12.10.2027.

3) The Scheme of Mining plan for the subject rough stone quarry was approved by the Deputy Director of Geology and Mining, vide letter Rc.No.896/2019/Mines Dated: 31.08.2023.

4) In this connection, the lessee Thiru.R. Rajappa, has requested vide letter dated: 12.09.2023 to issue the details of other quarries situated within 500 mts radial distance from the subject quarry is furnished as follows.

#### I. Details of Existing quarries.

Sl No	Name of the lessee	Roc.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1	Thiru.Rajappa, No.3/883, Pilayakothur village, Koneripalli Post, Hosur Taluk	Roc. No. 102/2016/Mines, dated: 13.10.2017	Kamandoddi village, Shoolagiri Taluk	1266	4.04.5	13.10.2017 to 12.10.2027 This Proposal
2	Thiru. R. Narayanappa, S/o. Chinnaraghuvappa, No. 3/884, Pillaiyaa Kothur Village, Konerapalli post, Shoolagiri Taluk, Krishnagiri District.	Roc. No. 197/2018/Mines dated: 27.03.2023	Kamandoddi village, Shoolagiri Taluk	754, 760 (Part -1)	1.80.0	27.03.2023 to 26.03.2033
3	Thiru. K. Ashoka, S/o. Gunappa, Neru Nagar, Hosur Taluk, Krishnagiri.	Roc. No. 199/2018/Mines dated: 17.02.2022	Kamandoddi village, Shoolagiri Taluk	754& 760(P-3)	2.75.0	17.02.2022 to 16.02.2032
4	Thiru. V. Karunanithi, S/o. Nallappan, No. 3/38, Nagamangalam, Denkanikottai, Krishnagiri.	Roc. No. 201/2018/Mines dated: 24.06.2022	Kamandoddi village, Shoolagiri Taluk	754, 760 (Part -5)	4.30.0	24.06.2022 to 23.06.2032

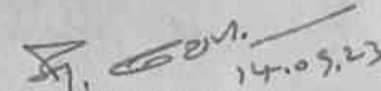
5	M/s. Royal Blue Metazis, No.207, Chinnammal Building, 102-A, Peramanur Main road, Four Road, Salem.	Roc. No. 203/2018/Mines dated: 24.06.2022	Kamandoddi village, Shoolagiri Taluk	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-2)	2.87.0	24.06.2022 to 23.06.2032
6	Thiru.K.Murugesh	Roc. No. 204/2018/Mines dated: 30.03.2023	Kamandoddi village, Shoolagiri Taluk	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A(P-3)	2.82.0	30.03.2023 to 29.06.2032
7	Thiru.S.Madhu	Roc. No. 206/2018/Mines dated: 06.12.2019	Kamandoddi village, Shoolagiri Taluk	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-5)	1.27.0	06.12.2019 to 05.12.2019
8	Thiru.C.Surendiran	Roc. No. 103/2016/Mines dated: 13.10.2017	Kamandoddi village, Shoolagiri Taluk	1269/2A	1.66.5	13.10.2017 to 12.10.2027

## II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period
1.	Tmt. V. Renuka, W/o. Venkatarreddy, Kukkalapalli Village, Kamandoddi Post, Shoolagiri Taluk, Krishnagiri District.	Roc.No. 736/2015/Mines dated: 11.07.2017	Kamandoddi village, Shoolagiri Taluk	1269/2B	2.05.0	13.07.2017 to 12.07.2022
2.	Thiru. P. Venkatarreddy, S/o. Late G. Pilla Reddy, Kukkalapalli Village, Kamandoddi Post, Shoolagiri Taluk, Krishnagiri District.	Roc.No. 721/2015/Mines dated: 10.11.2017	Kamandoddi village, Shoolagiri Taluk	1267/2, 1268/2 & 1268/3	2.38.5	10.11.2017 to 09.11.2022

### III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	GO.N o. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	Thiru.R.Sambangi	-	Kamandoddi village, Shoolagiri Taluk	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-4)	2.23.0	-
2	Thiru.Govindappa	-	Kamandoddi village, Shoolagiri Taluk	754 & 760 (Part-2)	2.10.0	-
3	Thiru.P.Mallikarjun	-	Kamandoddi village, Shoolagiri Taluk	754 & 760 (Part-4)	3.50.0	-
4	M/s. Royal Blue Metazls, No.207, Chinnammal Building, 102-A, Peramanur Main road, Four Road, Salem.	-	Kamandoddi village, Shoolagiri Taluk	1151, 1155, 1212, 1219, 1222, 1225 & 1226/A (P-1)	2.70.0	-

  
 Deputy Director,  
 Dept of Geology and Mining,  
 Krishnagiri.

**Copy to :-**

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

# SCHEME OF MINING

FOR KAMANDODDI VILLAGE ROUGH STONE MINING LEASE INCLUDING  
PROGRESSIVE QUARRY CLOSURE PLAN

Govt Poramboke land / Opencast, Semi-Mechanized Mining / Non-forest / Non-captive use  
'B2' Category

(Lease Period: 13.10.2017 – 12.10.2027)

**Scheme of Mining: - 2022-2023 to 2026-2027**

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

## LOCATION OF THE LEASE AREA

STATE : TAMILNADU  
DISTRICT : KRISHNAGIRI  
TALUK : SHOOLAGIRI  
VILLAGE : KAMANDODDI  
S.F.NO : 1266  
EXTENT : 4.04.5HECTARES

## ADDRESS OF THE APPLICANTS

**Mr.R.Rajappa**  
S/o.V.Ramappa,  
No.3/883, Pillayakothoor Village,  
Koneripalli Post,  
Shoolagiri Taluk,  
Krishnagiri District – 635109.

## PREPARED BY

**Dr.S.KARUPPANNAN.M.Sc., Ph.D.,**  
RQP/MAS/263/2014/A

## **GEO TECHNICAL MINING SOLUTIONS**

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](mailto:info.gtmsdpi@gmail.com) ,

Website: [www.gtmsind.com](http://www.gtmsind.com)



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ANNEXURES

Sl. No.	Description	Annexure No.
1.	Copy of precise letter	I
2.	Copy of Tender Gazette	II
3.	Copy of previous lease particulars a. Environmental Clearance Certificate b. Proceeding letter c. Lease execution deed	III
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5.	Copy of Director of mines safety letter	V
6.	Copy of FMB (Field Measurement book)	VI
7.	Copy of Village Map	VII
8.	Copy of "A" registered	VIII
9.	Photocopy of the applied lease area	IX
10.	Copy of agreement from explosive license holder, explosive license & Blaster certificate	X
11.	Copy of ID Proof of the authorized signature	XI
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**LIST OF PLATES**

Sl. No.	Description	Plate No.	Scale
1	Key Map	I	Not to scale
2	Location Plan	I-A	Not to scale
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5	Environmental Plan	I-D	1: 5,000
6	Mine Lease Plan	II	1:1000
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8	Geological Sections	IIIA	Section: Hor 1:1000 Ver 1:500
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		VIB	

**Mr.R.Rajappa**  
S/o.V.Ramappa,  
No.3/883, Pillayakothoor Village,  
Koneripalli Post,  
Shoolagiri Taluk,  
Krishnagiri District – 635109.



**CONSENT LETTER FROM THE APPLICANT**

The Scheme of Mining in respect of rough stone quarry lease over an extent of 4.04.5Hectare in S.F.No: 1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

**Dr. S. KARUPPANNAN., M.Sc., Ph.D. Regn. No. RQP/MAS/263/2014/A**

I request the Deputy Director, Department of Geology and Mining, Krishnagiri District to make further correspondence regarding modifications of the Scheme of Mining with the said Recognized Qualified Person on this following address

**Dr. S.KARUPPANNAN.M.Sc., Ph.D.,**  
RQP/MAS/263/2014/A  
**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](http://www.gtmsind.com)

I hereby undertake that all modifications so made in the Scheme of Mining by the Recognized 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:

*R. Rajappa*  
Signature of the Applicant  
(R.Rajappa)

**Mr.R.Rajappa**  
S/o.V.Ramappa,  
No.3/883, Pillayakothoor Village,  
Koneripalli Post,  
Shoolagiri Taluk,  
Krishnagiri District – 635109.



**DECLARATION**

The Scheme of Mining in respect of rough stone quarry lease over an extent of 4.04.5Hectare in S.F.No: 1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State have been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place: Krishnagiri, TN

Date:

*R. Rajappa*  
Signature of the applicant  
(R.Rajappa)

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

RQP/MAS/263/2014/A

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Ph: +91 9443937841., 7010076633.

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

Website: www.gtmsind.com



**CERTIFICATE**

This is to certify that, the provisions of 8(1) Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the Scheme of Mining for the grant of rough stone quarry lease, over an extent of 4.04.5hectare, Govt Poramboke land in S.F. No:1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State applied to

**Mr. R.Rajappa**

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:

Signature of the Recognized Qualified Person.

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

RQP/MAS/263/2014/A

**GEO TECHNICAL MINING SOLUTIONS**

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Collectorate Post Office, Oddapatti,

Dharmapuri-636705, TamilNadu, India

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

RQP/MAS/263/2014/A

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Ph: +91 9443937841., 7010076633.

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

Website: www.gtmsind.com



**CERTIFICATE**

Certified that, in preparation of Scheme of Mining for rough stone quarry lease, over an extent of 4.04.5Hectare of Government Poramboke land in S.F.No: 1266 of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State prepared to **Mr.R.Rajappa**, Krishnagiri, Covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Place: Dharmapuri, TN

Date:

Signature of the Recognized Qualified Person.

**Dr.S.KARUPPANNAN,M.Sc,Ph.D.,**  
RQP/MAS/263/2014/A  
**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

# SCHEME OF MINING

## FOR KAMANDODDI VILLAGE ROUGH STONE MINING LEASE INCLUDING PROGRESSIVE QUARRY CLOSURE PLAN

Govt Poramboke land/Open Cast-Semi Mechanized Mining/Non-forest/  
Non-Captive use – 'B2' Category

(Lease Period: 13.10.2017 – 12.10.2027)

**Scheme of Mining: - 2022-2023 to 2026-2027**

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

### **INTRODUCTORY NOTES:**

- a) **Introduction:** The Scheme of mining with progressive mine closure plan had prepared for Mr. R.Rajappa S/o.V.Ramappa, residing at No.3/883, Pillayakothoor Village, Koneripalli Post, Shoolagiri Taluk, Krishnagiri District, Tamilnadu State and the District Collector, Krishnagiri, has granted a quarry lease for a period of 5 years vide proceeding letter vide **Rc.No. 102/2016/Mines dated 06.10.2017** and lease was executed from 13.10.2017 to 12.10.2027 in favour of **Mr.R.Rajappa** to quarrying rough stone in Government land at S.F.No:1266, over an extent of 4.04.5hectares of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State.
- b) **Previous mining plan approved & EC:** Accordingly, the Mining plan was prepared and got approved vide Roc.No.102/2016/Mines-1 Dated 05.10.2016 and Environmental Clearance was obtained from the State level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr.No. SEIAA-TN/ F.No.5827 /1(a)/EC. No:3856/2016 Dated 31.05.2017. (Ref. Annexure- Iib). The mining lease deed was executed on 13.10.2017 and the lease will be expiry on 12.10.2027 (Ten years plan period).
- c). **Preparation and Submission of Scheme of Mining:** The scheme of mining with progressive mine closure plan had prepared without change in the lease area and in the mining activity, for existing quarrying of rough stone in Government land at S.F.No: 1266, over an extent of 4.04.5hectares of Kamandoddi Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State.
- The Directorate General of Mines safety vide their letter No.SZ/BGR/111(3)/P-117/2018-19/1963 dated 12.10.2018 had given permission under regulation 111(3) of the Metalliferous Mines Regulations, 1961 to extend open cast workings upto the common boundary between this rough stone quarry and the adjoining

Surendiran Rough stone quarry in S.F.No.1269/2A with certain Conditions. Please refer Annexure-V

- d) **Previous lease particulars:** During this previous mining period the rough stone was excavated and there is existing pit was noticed with an average pit dimension as given under the table and the existing pit marked in the mining plan (Ref Plate No: III).

Existing pit details		
Pit no's	Area (Sq.m)	Depth(m)
1	6194	7
2	4767	11
3	4534	23
4	9242	12
5	3617	25

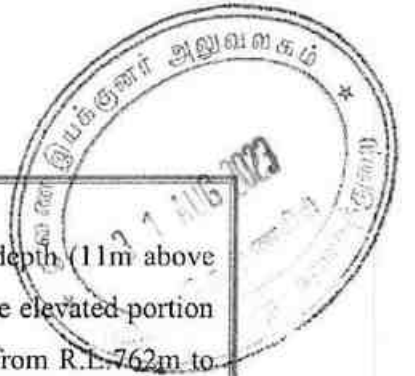
Existing Dump Details		
Dump	Area (Sq.m)	Height (m)
I	1840	3
II	17135	5

From the pit measurements it is ascertained that the lessee has quarried in an area 28354 Sq.m to a maximum depth of 25m on the southeastern side and a minimum of 7m and 11m on the west and northern side. As of, a total quantum of 316344m<sup>3</sup> of Topsoil and Rough stone had been quarried out.

Accordingly, the lessee Mr.R.Rajappa has quarried and transported 9494m<sup>3</sup> of rough stone without valid permit. The applicant agree to pay the penalty for without valid permit taken.

- e) **Previous Approved Quantity and Archived Quantity:** As per the approved Mining plan quantity was about 359910m<sup>3</sup> of rough stone up to a depth of 16m (11m above ground level + 5m below ground level). The details of approved and achieved production in the below,

S.No	Year	Approved Quantity in m <sup>3</sup>		Achieved Quantity in m <sup>3</sup>	
		Rough stone	Topsoil	Rough stone up to August-2022	Topsoil
1	2017-2018	76970	---	117000	---
2	2018-2019	77340	---	105000	---
3	2019-2020	76100	---	60000	---
4	2020-2021	75500	---	-	---
5	2021-2022	54000	---	-	---
	<b>Total</b>	<b>359910</b>	<b>---</b>	<b>282000</b>	<b>---</b>



**f) Updated Geological resources and Mineable reserves:**

Now, he continued lease on the same area to do quarry of 61m depth (11m above ground level + 50m below the ground level). In this connection, the elevated portion remains in the lease area. Therefore, we computed the resources from R.L.762m to R.L.701m is 61m depth (11m above ground level + 50m below the ground level). Geological resource of estimated as **1733009m<sup>3</sup>** including the resources of safety zone, and Topsoil, etc. of which, rough stone resources of about **1732019m<sup>3</sup>**, Topsoil is **990m<sup>3</sup>**. (Refer Plate No. III, IIIA & IIIB). The total mineable reserve is estimated to be **655831m<sup>3</sup>** by deducting the reserve safety zone, block in benches from the total Geological resources. of which, rough stone is about **655613m<sup>3</sup>**, and Topsoil is **218m<sup>3</sup>** up to a depth of 61m depth (11m above ground level + 50m below the ground level) (R.L.762m-701m) (Refer Plate No. VI, VIA & VIB). after leaving necessary safety distance from the lease boundary.

**g) Proposed Production Schedule:** Total Proposed production of rough stone is **655613m<sup>3</sup>** and top soil is **218m<sup>3</sup>** up to depth of 61m depth (11m above ground level + 50m below the ground level) (R.L.762-701m) (Refer Plate No. IV, IVA & IVB) for the remaining five years plan period. Average production shall be **131122m<sup>3</sup>** of rough stone per year. (Refer Plate No. IV).

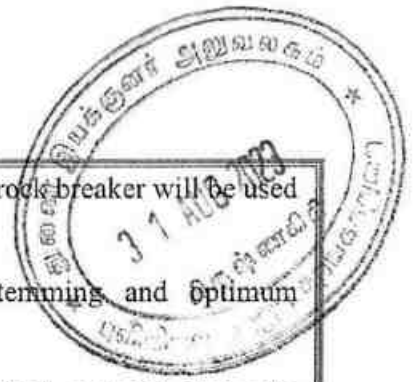
**g) Environmental Sensitivity of the Proposed Lease Area: -**

1. **Interstate Boundary:** No interstate boundary around 10Km radius periphery of proposed lease area.
2. **Wildlife Protection Act, 1972:** There is no wild life animal sanctuary within radius of 10Kms from the project site area under the Wildlife (Protection) Act, 1972.
3. **Indian Reserve Forest Act, 1980:** There is no reserve forest within in the 1Km radius. The nearest reserved forest is Settipalli R.F – 2.26Km – North Side
4. **CRZ Notification, 1991:** There is no Sea coastal zone found around 10kms radius and this project site doesn't attract CRZ Notification, 1991.

**h). Environmental measures to be adopted shall be during the ongoing activity period,**

- a) A safety distance of 7.5 meter should be provided to the adjacent patta lands and a safety of 10m should be provided to the adjacent government lands.
- b) Usage of sharp drill bits while drilling which will help in reducing noise.





- c) Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders.
- d) Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained.
- e) Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise.
- f) Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation.
- g) The quarrying operation shall be restricted between 7am and 5pm.

**1.0 GENERAL:**

a.	Name of the Applicant	:	<b>Mr.R.Rajappa</b>
	Applicant address	:	<b>Mr.R.Rajappa</b> S/o.V.Ramappa, No.3/883, Pillayakothoor Village, Koneripalli Post, Shoolagiri Taluk,
	District	:	Krishnagiri
	State	:	Tamil Nadu
	Pin code	:	635109
	Phone	:	
	Fax	:	Nil
	Gram	:	Nil
	Telex	:	Nil
	E-mail	:	--
b.	Status of the Applicant		
	Private individual	:	Private individual
	Cooperative Association	:	---
	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	:	Rough Stone quarry lease
d.	Period for which the mining lease granted /renewed/ proposed to be applied	:	The proceeding letter issued by district collector, Krishnagiri has been communicated to the applicant for rough



		stone quarry lease period of 10 years.
e.	Name of the RQP preparing the Mining Plan	: Dr. S.Karuppannan, M.Sc., Ph.D.
	Address	: <b>Geo Technical Mining Solutions</b> (A NABET Accredited & ISO Certified Company) No: 1/213-B, Ground Floor, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	: +91 9443937841.
	Fax	: Nil
	e-mail	: info.gtmsdpi@gmail.com
	Telex	: Nil
	Registration Number	: RQP/MAS/263/2014/A
	Date of grant/renewal	: 16.12.2014
	Valid upto	: 15.12.2024
	Phone	: 044-22501874
f.	Reference No. and date of consent letter from the state government	: The proceeding letter issued by District collector, Krishnagiri vide <b>Rc.No. 102/2016/Mines dated 06.10.2017.</b>

**2.0 LOCATION AND ACCESSIBILITY:**

a.	Details of the Area:	: Refer plate no: IA & IB										
	District & State	: Krishnagiri, Tamil Nadu										
	Taluk	: Krishnagiri										
	Village	: Kamandoddi										
	Khasra No./ Plot No./ Block Range / Felling Series etc.:											
	<table border="1"> <thead> <tr> <th>Survey No.</th> <th>Sub division</th> <th>Total Extent in Hect</th> <th>Patta No.</th> <th>Ownership / Occupancy</th> </tr> </thead> <tbody> <tr> <td>1266</td> <td>-</td> <td>4.04.5</td> <td>---</td> <td>Govt Poramboke land</td> </tr> </tbody> </table>	Survey No.	Sub division	Total Extent in Hect	Patta No.	Ownership / Occupancy	1266	-	4.04.5	---	Govt Poramboke land	
Survey No.	Sub division	Total Extent in Hect	Patta No.	Ownership / Occupancy								
1266	-	4.04.5	---	Govt Poramboke land								
	Lease area (hectares)	: 4.04.5 hectares										
	Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)	: Government Poramboke land.										
	Ownership / Occupancy	: Government of Tamil Nadu										
	Existence of Public Road / Railway line if any nearby and approximate distance	: ✓ Exploited materials shall be transported to through the cart track and village road is situated on the Southern side.										

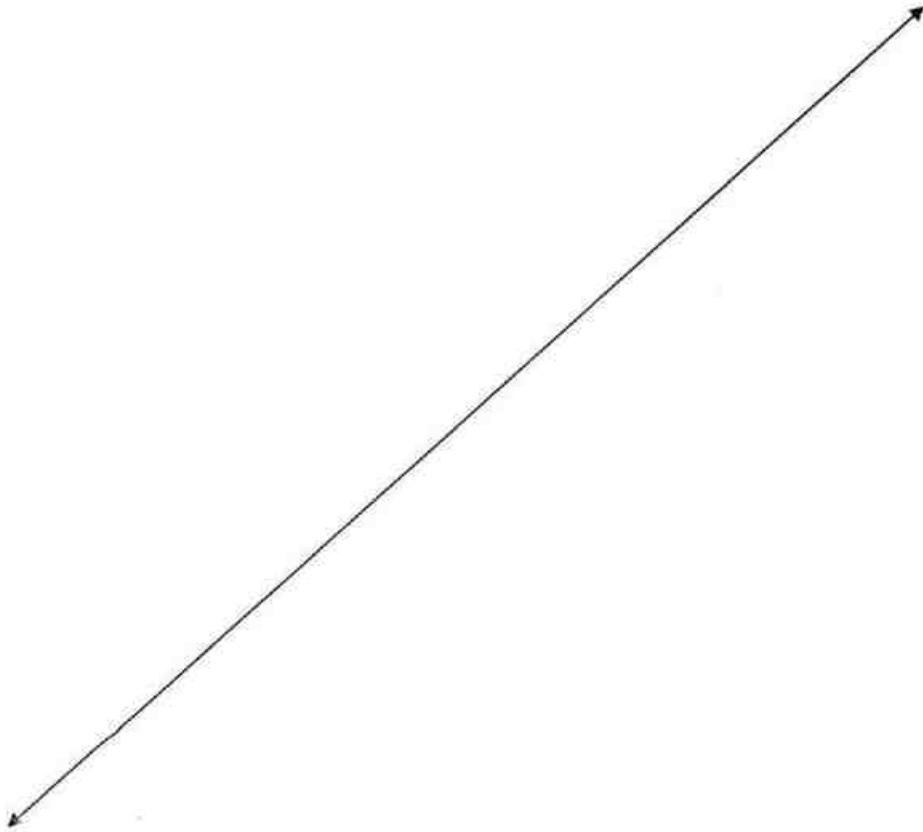


	<ul style="list-style-type: none"> <li>✓ The NH-44 road is situated about 1.4km away on the western side which is connecting Krishnagiri-Hosur.</li> <li>✓ There is no SH road within the radius of 5km periphery of the proposed lease area.</li> <li>✓ There is no railway line situated around 5km radius from the lease area.</li> </ul>																											
Toposheet No. with latitude and longitude	Toposheet No. <b>57-H/14</b> Latitude : From 12°39'42.80"N to 12°39'49.71"N longitude: From 77°57'34.73"E to 77°57'44.39"E																											
Geo-Coordinates of the lease boundary:																												
<table border="1"> <thead> <tr> <th>Pillar No</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr><td>1</td><td>12°39'49.11"N</td><td>77°57'44.39"E</td></tr> <tr><td>2</td><td>12°39'45.49"N</td><td>77°57'42.90"E</td></tr> <tr><td>3</td><td>12°39'42.80"N</td><td>77°57'41.64"E</td></tr> <tr><td>4</td><td>12°39'43.14"N</td><td>77°57'38.69"E</td></tr> <tr><td>5</td><td>12°39'44.51"N</td><td>77°57'34.73"E</td></tr> <tr><td>6</td><td>12°39'48.89"N</td><td>77°57'37.70"E</td></tr> <tr><td>7</td><td>12°39'49.49"N</td><td>77°57'38.07"E</td></tr> <tr><td>8</td><td>12°39'49.71"N</td><td>77°57'38.74"E</td></tr> </tbody> </table>		Pillar No	Latitude	Longitude	1	12°39'49.11"N	77°57'44.39"E	2	12°39'45.49"N	77°57'42.90"E	3	12°39'42.80"N	77°57'41.64"E	4	12°39'43.14"N	77°57'38.69"E	5	12°39'44.51"N	77°57'34.73"E	6	12°39'48.89"N	77°57'37.70"E	7	12°39'49.49"N	77°57'38.07"E	8	12°39'49.71"N	77°57'38.74"E
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Land use pattern (Forest, Agricultural, Grazing, Barren etc.)	It is a barren and existing 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	Sappadi	1.39Km	East
b.	Nearest police station	Shoolagiri	5.37km	East
c.	Nearest fire station	Hosur	19.93km	Northwest
d.	Nearest medical facility	Shoolagiri	5.35km	East
e.	Nearest school	Addakurukki	2.7Km	Northwest
f.	Nearest railway station	Kelamangalam	11.3km	Southeast
g.	Nearest port facility	Chennai	254.0km	Northeast
h.	Nearest airport	Bangalore	58.6km	Northwest
i.	Nearest DSP office	Hosur	16.3km	East
j.	Nearest villages	Koneripalli	1.4km	North
		Chappadi	1.35km	East
		Tirumalaigovunikottai	1.1km	South
		Kukkalapalli	1.66km	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 an elevated topography which is elevation difference of 11m. The highest elevation observed in northeast of the lease area is 762m AMSL, whereas the lowest elevation in southwest is 751m AMSL. The slope is towards southwest side and falls in Toposheet no. 57-H/14. The lease area previously excavated with reached average depth level is 25m BGL.
(ii)	General Geology	: <b>Geology :</b> The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 375 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district. <b>Soils:</b> Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.



		<p><b>Lineaments:</b></p> <p>A lineament may be a fault, fracture, master joint, a long and linear geological formation, vegetation served may be the result of faulting and fracturing and hence it is inferred that they are the areas and zones of increased porosity and permeability in hard rock areas. The data have been checked by field studies and Survey of India topographical maps at the 1: 1,00,000 scale.</p> <table border="1"><thead><tr><th>Age</th><th>Group</th><th>Rock Formation</th></tr></thead><tbody><tr><td>Recent to Sub recent</td><td>----</td><td>Red soil</td></tr><tr><td>Archaean</td><td>Charnockite Group</td><td>Quartzite, Charnockite.</td></tr></tbody></table>	Age	Group	Rock Formation	Recent to Sub recent	----	Red soil	Archaean	Charnockite Group	Quartzite, Charnockite.
Age	Group	Rock Formation									
Recent to Sub recent	----	Red soil									
Archaean	Charnockite Group	Quartzite, Charnockite.									
(iii)	Local / Mine : Geology of The Mineral Deposit	<p><b>a) Topography of the proposed lease area:</b></p> <p>The lease area exhibits an elevated topography which is elevation difference of 11m. The highest elevation observed in Northeast of the lease area is 762m AMSL, whereas the lowest elevation in southwest is 751m AMSL. The lease area previously excavated with reached average depth level is 25m BGL. Charnockites rocks are well exposed in the existing pit and contour lines surveyed and Geological mapped the proposed lease area.</p> <p><b>b) Mode of origin:</b></p> <p>The Charnockite series originally was assumed to have developed by the fractional crystallization of silicate magma. Subsequent studies have shown, however, that many, if not all, of the rocks are metamorphic, formed by recrystallization at high pressures and moderately high temperatures.</p> <p><b>c) Physiography of the rocks:</b></p> <p>Dark colour and clouding of the feldspars are typical features of these rocks as bluish in quartz.</p> <p><b>d) Chemical composition of rocks:</b></p>									



		<p>Charnockite, any member of a series of metamorphic rocks with variable chemical composition, the term is often limited to the characteristic ortho pyroxene granite of the series. The alkali feldspar may be intermediate between microcline and orthoclase, the fine micropertthitic texture being common; the plagioclase feldspar is usually antiperthitic.</p> <p><b>Order of superposition of the proposed lease area,</b></p> <table border="1"> <thead> <tr> <th>Age</th> <th>Group</th> <th>Rock Formation</th> </tr> </thead> <tbody> <tr> <td>Recent to Sub recent</td> <td>----</td> <td>Red soil (1-0m thick)</td> </tr> <tr> <td>Archaean</td> <td>Charnockite Group</td> <td>Charnockite.</td> </tr> </tbody> </table>	Age	Group	Rock Formation	Recent to Sub recent	----	Red soil (1-0m thick)	Archaean	Charnockite Group	Charnockite.
Age	Group	Rock Formation									
Recent to Sub recent	----	Red soil (1-0m thick)									
Archaean	Charnockite Group	Charnockite.									
(iv)	Drainage Pattern	: There are no major water bodies like rivers, pond, etc., located within a radius of 50m. The drainage is sub-dendritic in nature.									

(b)	<p><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></p>																						
	a. Present status:	<p>: The lease area in S.F. No: 1266 was presently operated quarrying of rough stone, over an extent of 4.04.5hectares in favor of Mr.R.Rajappa, S/o.V.Ramappa by District Collector, Krishnagiri Proceedings vide Rc.No. 102/2016/Mines dated 06.10.2017 the lease was executed on 13.10.2017 to 12.10.2027 for a period of 10 years.</p> <table border="1"> <thead> <tr> <th colspan="3">Existing pit details</th> </tr> <tr> <th>Pit no's</th> <th>Area (Sq.m)</th> <th>Depth(m)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6194</td> <td>7</td> </tr> <tr> <td>2</td> <td>4767</td> <td>11</td> </tr> <tr> <td>3</td> <td>4534</td> <td>23</td> </tr> <tr> <td>4</td> <td>9242</td> <td>12</td> </tr> <tr> <td>5</td> <td>3617</td> <td>25</td> </tr> </tbody> </table> <p>Hence, RQP personally examined during mining</p>	Existing pit details			Pit no's	Area (Sq.m)	Depth(m)	1	6194	7	2	4767	11	3	4534	23	4	9242	12	5	3617	25
Existing pit details																							
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3	4534	23																					
4	9242	12																					
5	3617	25																					



		survey																														
b. Surface Plan	:	Surface plan is prepared as 1: 1000 Scales with ground level at various places in grid pattern with various lithological factors like length, width and depth.																														
(c) Geological sections	:	Geological plan is prepared as 1: 1000 Scales (Plate No.III, IIIA & IIIB) with ground level at various places, lithological factors in grid pattern like length, width and depth and sections are prepared boundary to boundary perpendicular to the strike of the rock with proper scale of 1:1000 is horizontal axis, 1:500 as vertical axis.																														
(d)	<p><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></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <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>VI</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>VII</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>VIII</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>IX</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>X</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> </tbody> </table> <p>No future programmed proposed in this area. Its massive Charnockites homogeneous parent rock. Hence exploration proposal is not required to this mining project.</p>		Year	No.of boreholes	Total meterage	No.of Pits and Dimensions	No.of Trenches and Dimensions	VI	N.A	---	---	N.A	VII	N.A	---	---	N.A	VIII	N.A	---	---	N.A	IX	N.A	---	---	N.A	X	N.A	---	---	N.A
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IX	N.A	---	---	N.A																												
X	N.A	---	---	N.A																												
(e)	<p><i>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.</i></p> <p>The Geological resources were computed in cross section method on suitably chosen three-line axis. The one longitudinal (XY) axis and two horizontal (AB &amp; CD) axis of deposit have been drawn. total reserve is estimated to be 1733009m<sup>3</sup> including the resources of safety zone, and topsoil. Of which, rough stone is about 1732019m<sup>3</sup> and topsoil resource of about 990m<sup>3</sup>.</p>																															





The topsoil is obtained about 1m (R.L.762-761m) from the surface and a rough stone starts from 1 to 61m (R.L.761-701m) below ground level. (Refer plate no.IIIA & IIIB).

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Rough Stone in M <sup>3</sup>	Top Soil in M <sup>3</sup>
XY-AB	I	40	19	1	760	.....	760
	II	40	6	5	1200	1200	.....
	III	40	18	5	3600	3600	.....
	IV	41	41	5	8405	8405	.....
	V	101	148	5	74740	74740	.....
	VI	101	151	2	30502	30502	.....
	VII	101	194	3	58782	58782	.....
	VIII	101	194	5	97970	97970	.....
	IX	101	194	5	97970	97970	.....
	X	101	194	5	97970	97970	.....
	XI	101	194	5	97970	97970	.....
	XII	101	194	5	97970	97970	.....
	XIII	101	194	5	97970	97970	.....
<b>TOTAL</b>					<b>863779</b>	<b>863019</b>	<b>760</b>
XY-CD	I	10	23	1	230	.....	230
	II	10	15	5	750	750	.....
	III	10	76	5	3800	3800	.....
	IV	102	133	5	67830	67830	.....
	V	102	134	5	68340	68340	.....
	VI	102	204	5	104040	104040	.....
	VII	102	204	5	104040	104040	.....
	VIII	102	204	5	104040	104040	.....
	IX	102	204	5	104040	104040	.....
	X	102	204	5	104040	104040	.....
	XI	102	204	5	104040	104040	.....
	XII	102	204	5	104040	104040	.....
<b>TOTAL</b>					<b>869230</b>	<b>869000</b>	<b>230</b>
<b>GRAND TOTAL</b>					<b>1733009</b>	<b>1732019</b>	<b>990</b>

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

The total mineable reserve is estimated to be 655831m<sup>3</sup> by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth of 61m (11m above ground level + 50m below ground level) (R.L.762-701m). Of which, rough stone is about 655613m<sup>3</sup> and topsoil is about 218m<sup>3</sup>. The commercially viable rough stone has been prepared on 1: 1000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:1000 as vertical axis (Refer plate no. VIA).



MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Rough Stone in M <sup>3</sup>	Top Soil in M <sup>3</sup>
XY-AB	I	34	2	1	68	.....	68
	II	32	2	5	320	320	.....
	III	27	2	5	270	270	.....
	IV	23	21	5	2415	2415	.....
	V	77	121	5	46585	46585	.....
	VI	72	117	2	16848	16848	.....
	VI	72	140	3	30240	30240	.....
	VII	67	130	5	43550	43550	.....
	VIII	62	120	5	37200	37200	.....
	IX	57	110	5	31350	31350	.....
	X	52	100	5	26000	26000	.....
	XI	47	90	5	21150	21150	.....
	XII	42	80	5	16800	16800	.....
XIII	37	70	5	12950	12950	.....	
<b>TOTAL</b>					<b>285746</b>	<b>285678</b>	<b>68</b>
XY-CD	I	10	15	1	150	.....	150
	II	10	15	5	750	750	.....
	III	10	62	5	3100	3100	.....
	IV	81	115	5	46575	46575	.....
	V	76	111	5	42180	42180	.....
	VI	71	175	5	62125	62125	.....
	VII	66	170	5	56100	56100	.....
	VIII	61	165	5	50325	50325	.....
	IX	56	160	5	44800	44800	.....
	X	51	102	5	26010	26010	.....
	XI	46	92	5	21160	21160	.....
	XII	41	82	5	16810	16810	.....
<b>TOTAL</b>					<b>370085</b>	<b>369935</b>	<b>150</b>
<b>GRAND TOTAL</b>					<b>655831</b>	<b>655613</b>	<b>218</b>

**4.0 MINING:**

<p>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)</p>	<p>: 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 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.</p>
---	---



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

Total proposed production  $655831\text{m}^3$ . Of which, rough stone is  $655613\text{m}^3$  and topsoil is  $218\text{m}^3$  up to a depth of 61m (11m above ground level + 50m below ground level) (R.L.762m-701m) for next five years plan period. Average production is  $131122\text{m}^3$  of rough stone per year (Refer Plate No. IV).

Year	Pit No.(s)	Topsoil/Overburden ( $\text{m}^3$ )	ROM ( $\text{m}^3$ )	Saleable rough stone ( $\text{m}^3$ ) @ 100%	Rough stone rejects( $\text{m}^3$ )	Sub-grade/Weathered rock in ( $\text{m}^3$ )	Saleable Gravel( $\text{m}^3$ )	Rough stone to Overburden ratio
VI	I	218	100233	100015	---	---	---	1:0.02
VII	I	---	151393	151393	---	---	---	---
VIII	I	---	136850	136850	---	---	---	---
IX	I	---	126475	126475	---	---	---	---
X	I	---	140880	140880	---	---	---	---
<b>Total</b>	---	<b>218</b>	<b>655831</b>	<b>655613</b>	---	---	---	---

c. Composite plans and Year wise sections : Not applicable  
(In case of 'A' class mines):

Composite plans and Year wise sections (In case of 'B' class mines):

YEARWISE PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In $\text{M}^3$	Rough Stone in $\text{M}^3$	Top Soil in $\text{M}^3$
VI	XY-AB	I	34	2	1	68	.....	68
		II	32	2	5	320	320	.....
		III	27	2	5	270	270	.....
		IV	23	21	5	2415	2415	.....
		V	77	121	5	46585	46585	.....
	XY-CD	I	10	15	1	150	.....	150
		II	10	15	5	750	750	.....
		III	10	62	5	3100	3100	.....
		IV	81	115	5	46575	46575	.....
	<b>TOTAL</b>						<b>100233</b>	<b>100015</b>
VII	XY-AB	VI	72	117	2	16848	16848	.....
		VI	72	140	3	30240	30240	.....
	XY-CD	V	76	111	5	42180	42180	.....
		VI	71	175	5	62125	62125	.....
	<b>TOTAL</b>						<b>151393</b>	<b>151393</b>
VIII	XY-AB	VII	67	130	5	43550	43550	.....
		VIII	62	120	5	37200	37200	.....
	XY-CD	VII	66	170	5	56100	56100	.....
	<b>TOTAL</b>						<b>136850</b>	<b>136850</b>



IX	XY-AB	IX	57	110	5	31350	31350	.....	
	XY-CD	VIII	61	165	5	50325	50325	.....	
		IX	56	160	5	44800	44800	.....	
<b>TOTAL</b>						<b>126475</b>	<b>126475</b>	<b>460</b>	
X	XY-AB	X	52	100	5	26000	26000	.....	
		XI	47	90	5	21150	21150	.....	
		XII	42	80	5	16800	16800	.....	
		XIII	37	70	5	12950	12950	.....	
	XY-CD	X	51	102	5	26010	26010	.....	
		XI	46	92	5	21160	21160	.....	
		XII	41	82	5	16810	16810	.....	
	<b>TOTAL</b>						<b>140880</b>	<b>140880</b>	<b>0</b>
	<b>GRAND TOTAL</b>						<b>655831</b>	<b>655613</b>	<b>218</b>

d. Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc. : The proposed area is an existing quarry lease. (Refer Plate No: III)

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: -

**Rough stone:**

Mineable reserves of rough stone = 655613m<sup>3</sup>

Per years production = 131122m<sup>3</sup>

Monthly production of rough stone = 10926m<sup>3</sup>

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.

f. *Attach a note furnishing a conceptual Scheme Mining 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:

: Considering the indefinite depth persistence of the rough stone deposit is proved beyond the workable limits about depth of 61m (11m above ground level + 50m below ground level) (R.L.762m-701m) from the petrogenetic character of the Charnockite rock as well as from the actual mining practice in the area and with the current trend of rough stone production.



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 end of five years plan periods as given below

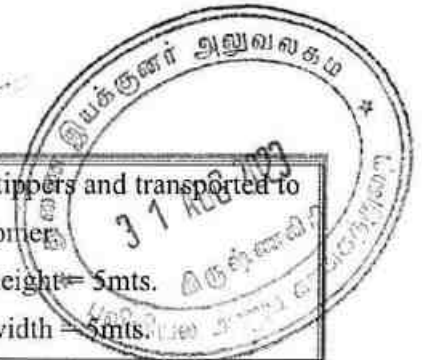
ULTIMATE PIT LIMIT-(XY-AB)					
Bench	Bench R.L	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.762-761m	Topsoil	34	2	1
II	R.L.761-756m	Rough stone	32	2	5
III	R.L.756-751m	Rough stone	27	2	5
IV	R.L.751-746m	Rough stone	23	21	5
V	R.L.746-741m	Rough stone	77	121	5
VI	R.L.741-739m	Rough stone	72	117	2
VI	R.L.739-736m	Rough stone	72	140	3
VII	R.L.736-731m	Rough stone	67	130	5
VIII	R.L.731-726m	Rough stone	62	120	5
IX	R.L.726-721m	Rough stone	57	110	5
X	R.L.721-716m	Rough stone	52	100	5
XI	R.L.716-711m	Rough stone	47	90	5
XII	R.L.711-706m	Rough stone	42	80	5
XIII	R.L.706-701m	Rough stone	37	70	5
<b>Total</b>					<b>61</b>
ULTIMATE PIT LIMIT-(XY-CD)					
Bench	Bench R.L	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.762-761m	Topsoil	10	15	1
II	R.L.761-756m	Rough stone	10	15	5
III	R.L.756-751m	Rough stone	10	62	5
IV	R.L.751-746m	Rough stone	81	115	5
V	R.L.746-741m	Rough stone	76	111	5
VI	R.L.741-736m	Rough stone	71	175	5
VII	R.L.736-731m	Rough stone	66	170	5
VIII	R.L.731-726m	Rough stone	61	165	5
IX	R.L.726-721m	Rough stone	56	160	5
X	R.L.721-716m	Rough stone	51	102	5
XI	R.L.716-711m	Rough stone	46	92	5
XII	R.L.711-706m	Rough stone	41	82	5
<b>Total</b>					<b>56</b>

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 recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.



<p>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:-</p>	<p>: As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.</p>
<p>v) Whether post mining land use envisaged:-</p>	<p>: 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.</p>
<p>g. <b>Open cast Mines:</b></p>	
<p>i). Describe briefly giving salient features of the mode of working (Mechanized, Semi-Mechanized, manual)</p>	<p>: 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 5m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal. Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Hydraulic Excavators and tipper combination are adapted.</p>
<p>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</p>	<p>: The rough stone is proposed to quarry at 5m bench height &amp; width conventional opencast semi-mechanized method. It is a semi mechanized quarrying operation using shot hole drilling with the help of tractor mounted compressor attached with jack hammers, smooth blasting and waste and are removal using Hydraulic excavator and loaded</p>



		directly to the tippers and transported to the needy customer. Bench height = 5mts. Bench width = 5mts.																					
a. Details of Topsoil/ Overburden	:	The topsoil is 218m <sup>3</sup> shall be removed and stacked for earth bund lease hold area and to prevent inherent entry of cattle's and human as per rules 119 (1), Metalliferous Mines Regulations, 1961.																					
b. Rough Stone waste and side burden waste: -	:	There is no waste or side burden shall be proposed.																					
h. <i>Underground Mines:</i>	:	Not applicable																					
i. <i>Extent of mechanization:</i>		Describe briefly including the calculation for adequacy and type of machinery and equipment proposed to be used in different mining operations.																					
		<b>(1) Drilling Machines:</b> Drilling of shot holes will be carried out using tractor mounted compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface. Details of drilling equipment's are given below.																					
		<table border="1"> <thead> <tr> <th>Type</th> <th>Nos</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>Diesel</td> <td>60</td> </tr> <tr> <td>Compressor</td> <td>2</td> <td>---</td> <td>Air</td> <td>---</td> <td>Diesel</td> <td>42</td> </tr> </tbody> </table>	Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.	Jack Hammer	4	32 mm	Hand held	---	Diesel	60	Compressor	2	---	Air	---	Diesel	42
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		<b>(2) Loading Equipment:</b> Hydraulic excavator (0.90m <sup>3</sup> capacities) and attached with rock breaker shall utilized for internal transport sizeable rough stone lumps and deliver to the consumer area.																					
		<b>(3) Haulage and Transport Equipment</b> (a) Haulage within the mining leasehold:																					
		<table border="1"> <thead> <tr> <th>Type</th> <th>Nos</th> <th>Size / Capacity</th> <th>Make</th> <th>Motive power</th> <th>H.P.</th> </tr> </thead> <tbody> <tr> <td>Tipper</td> <td>10</td> <td>15 M.T</td> <td>---</td> <td>Diesel</td> <td>110</td> </tr> </tbody> </table>	Type	Nos	Size / Capacity	Make	Motive power	H.P.	Tipper	10	15 M.T	---	Diesel	110									
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		<i>Whether the dumpers are fitted with exhaust conditioner should be indicated:</i> The dump is not used in this quarry area, hence it's a small B2 category mine.																					



(b) Transport from mine head to the destination	:	Transport from the mine head to customers crusher area.
c. Describe briefly the transport system (please specify)	:	Hydraulic excavator and tippers utilized for internal transport sizeable rough stone lumps and deliver to the customer's area.
d. Ore transported by: own trucks / hired trucks	:	Hired tippers and hydraulic excavator for initially production purposes.
e. Main destination to which ore is transported (giving to and from distance)	:	The excavated stone materials road metal will be supplied to the consumers like road laying, earth filling, building construction, etc.

f. Details of hauling / transport equipment:

Type	No	Size / Capacity	Make	Motive power	H.P.
---	---	---	---	---	---

**(4) Miscellaneous:**

Describe briefly any allied operations and machineries related to the mining of the deposit not covered earlier.

(A) Operations	:	The mining operation is open-cast, semi-mechanized methods are adopted and on single shift basis only.
(B) Machineries deployed	:	Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Hydraulic Excavators and tipper combination are adapted. (refer Part-A- 4 (i))

5. **BLASTING :**  
 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.*

Blasting pattern:

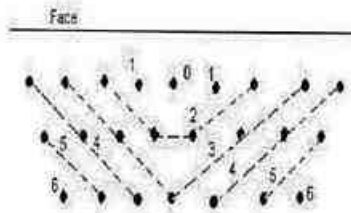
The quarrying operation is proposed to carried by open cost, Semi Mechanized mining in conjunction with conventional method of mining using jack hammer drilling and blasting for shattering effect and loosen the rough stone.

1	Diameter of the hole	32 mm
2	Spacing between hole	1.2m
3	Burden for hole	1.0m





4	Depth of each hole	1.5m
5	Output per hole = Spacing × Burden × depth $1.2 \times 1.0 \times 1.5 = 1.8$	1.8m <sup>3</sup>
6	Output per hole = 1.8 × 2.8 = 5 T	5 T
7	Production per annum $131122\text{m}^3 \times 2.8 = 367141\text{MT}$	367141MT
8	Total handling per day (280 working day)	1311MT
9	Nos. of holes per day ( $1311/5.04 = 260$ )	260 holes.
10	Meterage required per day ( $260 \times 5.5 = 1430$ )	1430meters
11	Charge per hole	0.5kg
12	Powder factor ( $260 \text{ holes} \times 0.375 \text{ kg} = 97$ )	97 kg
13	Sequence of blasting = Cord relay with electric detonators / Nonel	--



Staged method of mining

**b) type of explosives used / to be used:**

Following explosives are recommended for efficient blasting with safe practice.

Small dia. 25mm slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of rough stone. No deep hole drilling or primary blasting is proposed.

**c) Measures proposed to minimize ground vibration due to blasting:**

The control blasting measures is being adopted for minimizing ground vibration and fly rock.

Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

Delay detonators:

Delay blasting permits to divide the shot to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- ❖ Reduction of ground vibration
- ❖ Reduction in air blast
- ❖ Reduction in over break
- ❖ Improved fragmentation



<p>❖ Better control of fly rock Blasting program for the production per day</p> <table border="1"> <tr> <td>No of holes</td> <td>: 260holes</td> </tr> <tr> <td>Yield</td> <td>: 1311 tons</td> </tr> <tr> <td>Total explosive required</td> <td>: 97kg-Slurry explosives</td> </tr> <tr> <td>Charge per hole</td> <td>: 0.375kg</td> </tr> <tr> <td>Blasting at day time only</td> <td>: 12.0p.m-1.0p.m</td> </tr> </table>		No of holes	: 260holes	Yield	: 1311 tons	Total explosive required	: 97kg-Slurry explosives	Charge per hole	: 0.375kg	Blasting at day time only	: 12.0p.m-1.0p.m
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Blasting at day time only	: 12.0p.m-1.0p.m										
c) Powder factor in ore and overburden / waste / development heading / stope	: Powder factor is proposed as 0.375kg per hole of explosives										
d) Whether secondary blasting is needed, if so describe it briefly	: Irrespective of the method of primary blasting employed, it may be necessary to re-blast a proportion of the rock on the quarry floor so as to reduce it to a size suitable for handling by the excavators and crushers.										
e) Storage of explosives (like capacity and type of explosive magazine)	: <ul style="list-style-type: none"> <li>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.</li> <li>2. First Aid Box will be keeping ready at all the time.</li> <li>3. Necessary precautionary announcement will be carried out before the blasting operation.</li> </ul>										
<b>6. MINE DRAINAGE</b>											
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 _____	: Proposed mining depth is 61m (11m above ground level + 50m below ground level). Now, the present Mining lease shall be proposed above the water table 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 will be less than 300 Lpm and it will be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and doesn't contaminate with any hazardous things

**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:

Year	Topsoil/ Overburden (m <sup>3</sup> )	Weathered rock/ Side burden (m <sup>3</sup> )	Mineral rejects/Waste
First	218	---	---
Second	---	---	---
Third	---	---	---
Fourth	---	---	---
Fifth	---	---	---
<b>Total</b>	<b>218</b>	---	---

b) Land chosen for disposal of waste with proposed justification :

The topsoil is **218m<sup>3</sup>** shall be removed and stacked for earth bund lease hold area and to prevent inherent entry of cattle's and human as per rules 106, Metalliferous Mines Regulations, 1961.

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. :

There is no waste or any other mineral dumps are proposed. If rough stone 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 excavated rough stone materials are one of the most valuable natural building materials, it is important to realize that because of their different compositions and characteristics, different stone types can be used only for specific purposes.



		For instance, aggregates are mostly used for building roads and footpaths, etc																						
b) Indicate physical and chemical specifications stipulated by buyers	:	Basically, the materials produced at this quarry are rough stone and the same are used for building stone, sized stone materials only, so there are no chemical specifications are specified. Only physical specifications are involved																						
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.	:	Not blending process is involved, after blasting the rough stone will be directly loaded to the needy customer.																						
<b>9. OTHERS</b>																								
<b>Describe briefly the following</b> a) Site services	:	Infrastructure required for such mines like office, stores, canteen, first aid station, shelter latrine and booth rooms have been provided as per the Metalliferous Mines Regulations, 1961 as a welfare amenity for our quarry laborers.																						
<p>b) Employment potential:</p> <p>As per Mines safety under the provisions of Metalliferous Mines Rules, 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.</p> <p>The following man power is proposed for quarrying rough stone during the five years period the same manpower will be utilize for this plan period to achieve the proposed production and to comply the provisions of the DGMS norms.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="3" style="text-align: center;">1.</td> <td rowspan="3" style="text-align: center;">Highly Skilled</td> <td>IInd class Mines Manager</td> <td style="text-align: center;">1No.</td> </tr> <tr> <td>Mine Geologist</td> <td style="text-align: center;">1No.</td> </tr> <tr> <td>Blaster</td> <td style="text-align: center;">1No.</td> </tr> <tr> <td rowspan="2" style="text-align: center;">2.</td> <td rowspan="2" style="text-align: center;">Semi-skilled</td> <td>Driver</td> <td style="text-align: center;">10No's</td> </tr> <tr> <td>Hitachi Operator</td> <td style="text-align: center;">4No.</td> </tr> <tr> <td style="text-align: center;">3.</td> <td style="text-align: center;">Unskilled</td> <td>Musdoor / Labours</td> <td style="text-align: center;">7 No's</td> </tr> <tr> <td colspan="3" style="text-align: right;"><b>Total =</b></td> <td style="text-align: center;"><b>24 No's</b></td> </tr> </table>			1.	Highly Skilled	IInd class Mines Manager	1No.	Mine Geologist	1No.	Blaster	1No.	2.	Semi-skilled	Driver	10No's	Hitachi Operator	4No.	3.	Unskilled	Musdoor / Labours	7 No's	<b>Total =</b>			<b>24 No's</b>
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<b>10 MINERAL PROCESSING/BENEFICIATIONS:</b>																								
a) If processing / beneficiations of the ore or minerals mined is planned	:	Excavated rough stone minerals directly will be used by the applicant in his own crusher																						



<p>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.</p>	<p>for required size ½, ¾ and 1½ inches Jelly which are mainly used in road and building construction purpose.</p> <p>The recovery of rough stone in this quarry is 100%.</p>
<p>b) Explain the disposal method for tailings or waste from the processing plant (quantity and quality of tailings 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).</p>	<p>: No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources. 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 in to natural system.</p>
<p>c) A flow sheet or schematic diagram of the processing procedure should be attached.</p>	<p>: Not applicable</p>
<p>d) Specify quantity and type of chemicals to be used in the processing plant.</p>	<p>: Not applicable</p>
<p>e) Specify quantity and type of chemicals to be stored on site / plant.</p>	<p>: Not applicable</p>
<p>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.</p>	<p>: Drinking is 1.0KLD, utilized water is 1.5KLD, Dust suppression is 1.5KLD and Green Belt is 1.0KLD. Minimum quantity of water 5.0KLD per day. It is proposed to make an own bore well for providing uninterrupted supply of RO drinking water, dust suppression and green belt development. The sewage water to a tune of 0.8KLD generated from the mine office toilet and mine labour toilet will be diverted to the septic tank followed by soak pit.</p>

**PART - B**

**11.0 ENVIRONMENTAL MANAGEMENT PLAN:**

a) Attach a note on the status 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 and proposed land use pattern is given as below.	<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Land Use</th> <th>Present area (Hect.)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Area under mining</td> <td>2.83.54</td> </tr> <tr> <td>2</td> <td>Infrastructure</td> <td>Nil</td> </tr> <tr> <td>3</td> <td>Road</td> <td>0.03.0</td> </tr> <tr> <td>4</td> <td>Green belt &amp; Dump</td> <td>0.95.21</td> </tr> <tr> <td>5</td> <td>Drainage &amp; Settling Tank</td> <td>Nil</td> </tr> <tr> <td>6</td> <td>Un-utilized area</td> <td>0.22.75</td> </tr> <tr> <td colspan="2"><b>Grand total</b></td> <td><b>4.04.5</b></td> </tr> </tbody> </table>	Sl. No.	Land Use	Present area (Hect.)	1.	Area under mining	2.83.54	2	Infrastructure	Nil	3	Road	0.03.0	4	Green belt & Dump	0.95.21	5	Drainage & Settling Tank	Nil	6	Un-utilized area	0.22.75	<b>Grand total</b>		<b>4.04.5</b>
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11.2	Water Regime	: Water table in this area is noticed at a depth of 65m in summer and 55m in rainy season from the general ground level and presently the quarrying of rough stone is proposed up to a depth of 61m (11m above ground level + 50m below ground level). 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.  Quarrying of Rough Stone 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.																									
11.5	Climatic conditions	: The temperature ranges from a maximum of 37 °C to a minimum of 25°C. Like the rest of the state, April to June is the hottest months and December to January are the coldest.  Rainfall of this area is southwest monsoon, with an onset in June and lasting up to September, brings rainfall of 517.1 mm, with September being the rainiest month.																									
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	: The proposed area not fall under notified area under Water (Prevention & Control of Pollution), Act, 1974																									

& Control of Pollution),  
Act, 1974



b) 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:

Due to quarrying and exploitation of the rough stone, there will impact in the form i.e. change in the ground profile, pits, and dumps. The details of the land use pattern, during the ensuing plan period and till lease period is shown in the tabular form:

Sl. No.	Land Use	Area in use during the quarrying period (Hect)
1.	Area under mining	2.88.4
2	Infrastructure	0.02.0
3	Road	0.07.0
4	Green belt & Dump	0.42.5
5	Drainage & Settling Tank	Nil
6	Un-utilized area	0.64.6
<b>Grand total</b>		<b>4.04.5</b>

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 rough stone 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)	No deep hole blasting envisaged. Small dia shot holes are used for breaking boulders. The maximum peak particles velocity shall be





		recorded using mini seismograph devices as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.
vi).	Water regime	No major river or any odai track are found around 50m radius.
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 218m <sup>3</sup> shall be removed and stacked for earth bund lease hold area and to prevent inherent entry of cattle's and human as per rules 119 (1), Metalliferous Mines Regulations, 1961
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	:	The mining is proposed to an average up to depth 61m (11m above ground level + 50m below the ground level) (R.L.762m – 701m) 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 rough stone persist still at deeper level.



	holding capacity and proposal for utilization of such water be given.																																		
iii).	<p><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></p> <p>10.0m safety barrier, school and Nearest Panchayat 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</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Place</th> <th>Area in Sq.m</th> <th>No.of Plants</th> <th>Rate of survival</th> <th>Rate</th> <th>Amount in Rs</th> </tr> </thead> <tbody> <tr> <td>First</td> <td>Lease Boundary</td> <td>4250</td> <td>470</td> <td>80%</td> <td rowspan="3">@100 Rs Per sapling</td> <td>47000/-</td> </tr> <tr> <td>Second</td> <td>Approach road and Nearby Village Road</td> <td>--</td> <td>300</td> <td>80%</td> <td>30000/-</td> </tr> <tr> <td>Third</td> <td>Schools</td> <td>--</td> <td>200</td> <td>80%</td> <td>20000/-</td> </tr> <tr> <td colspan="6" style="text-align: right;"><b>Total</b></td> <td><b>97000/-</b></td> </tr> </tbody> </table>	Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs	First	Lease Boundary	4250	470	80%	@100 Rs Per sapling	47000/-	Second	Approach road and Nearby Village Road	--	300	80%	30000/-	Third	Schools	--	200	80%	20000/-	<b>Total</b>						<b>97000/-</b>	
Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs																													
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Third	Schools	--	200	80%		20000/-																													
<b>Total</b>						<b>97000/-</b>																													
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).	: No waste or rejects shall be proposed. The topsoil is 218m <sup>3</sup> shall be removed and stacked for earth bund lease hold area and to prevent inherent entry of cattle's and human as per rules 119 Metalliferous Mines Regulations, 1961																																	
v).	Measures to control erosion / sedimentation of water courses.	: Not applicable. There are no major dumps are stabilized in this quarry area.																																	
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 B2 category open cast, 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)**

Not applicable. It is B2 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 an up to depth 61m (11m above ground level + 50m below the ground level) (R.L.762m -701m). 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. Green belt development at the rate of 470 trees will be proposed in the outside area. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.3	Mitigation measures to be undertaken for safety and	:	The quarry lease is an existing and renewed mining lease



	restoration/ reclamation of the already mined out area	
12.4	Mine closure activity	: The mined-out area will be fenced on top of open cast working with SI fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the Rough Stone 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 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 semi mechanized 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	: 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. 24 labors will be improved.

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

<b>A</b>	<b>Fixed Asset Cost:</b>	
	1. Land Cost (Tender Cost)	: Rs. 1,20,00,000/-
	2. Labour Shed	Rs. 1,00,000/-
	3. Sanitary Facility	: Rs. 75,000/-
	4. Fencing	: Rs. 2,85,000/-
	5. Other expenses (Security guard, dust bin, etc)	: Rs. 5,00,000/-
	<b>Total</b>	<b>: Rs. 1,29,60,000/-</b>
<b>B</b>	<b>B. Machinery cost</b>	<b>: Rs. 30,00,000/- (Hire Basis)</b>
<b>C</b>	<b>Total Expenditure of EMP cost (for five years)</b>	
	1. Drinking Water Facility	: Rs. 1,50,000/-
	2. Sanitary facility & Maintenance	: Rs. 1,50,000/-
	3. Permanent water sprinkler	: Rs. 1,00,000/-



4. Afforestation and its maintenance	:	Rs. 97,000/-
5. Safety Kits	:	Rs. 1,50,000/-
6. Provision of tyre washing facility	:	Rs. 75,000/-
7. Surface runoff management structures like garland drain, settling pond & Bund	:	Rs. Nil
8. Environment monitoring	:	Rs. 5,00,000/-
<b>Total</b>	:	<b>Rs. 12,22,000/-</b>
<b>D</b>	<b>Total Project Cost (A+B+C)</b>	<b>: Rs. 1,71,82,000/-</b>

**13.0 FINANCIAL ASSURANCE:**

Not applicable, it is a small B2 rough stone 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 rough stone economically without any wastage and to improve the environment and ecology.
- iii) The Scheme of Mining is prepared by the district collector, Krishnagiri vide proceedings letter Re.No. 102/2016/Mines dated 06.10.2017.
- (i) Total proposed production of 655831m<sup>3</sup>. Of which, rough stone is about 655613m<sup>3</sup> and topsoil is about 218m<sup>3</sup> up to a depth of 61m (11m above ground level + 50m below ground level) for last five years plan period. Average production is 131122m<sup>3</sup> of rough stone per year.



**17.0 CSR Expenditure:**

CSR (Corporate Social responsibility) shall provide by the lessee @ 3.0% of average net profit of the company for the last three financial years to the neighboring villages on the provisions under section 135(1) of the companies Act, 2013 and Rule 3(2) companies CSR Rules, 2014 as circular no.05/01/2014.

Place: Dharmapuri, TN

Date:

Signature of the Recognized Qualified Person.

**Dr.S.KARUPPANNAN,M.Sc,Ph.D.,**  
RQP/MAS/263/2014/A  
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

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars specified in the letter Roc. No. 896/2019 Dated 18.08.2023 of the Deputy Director of Geology and Mining, Krishnagiri and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959 and Minor Mineral Conservation and Development Rule 2010.

31.08.23  
**DEPUTY DIRECTOR**  
Geology and Mining,  
Collectorate, Krishnagiri.

31/8/23

This Mining Plan is approved subject to the conditions / Stipulation indicated in the Mining Plan Approval  
Letter Roc. No. 896/2019 Dated 18.08.2023

ந.க.எண். 102/2016/கனிமம்

மாவட்ட ஆட்சியர் அலுவலகம்,  
(புவியியல் மற்றும் சுரங்கத்துறை,  
கிருஷ்ணகிரி மாவட்டம்,  
கிருஷ்ணகிரி.  
நாள் 29.02.2016



## குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் கிருஷ்ணகிரி மாவட்டம் - ஓசூர் வட்டம் - காமன் தொட்டி கிராமம் புல எண் 1266ல் 4.04.5 ஹெக்டேர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த ஏல முறையில் குத்தகை வழங்க டெண்டர்/பொது ஏலம் நடத்தப்பட்டது - டெண்டரில் அதிக தொகை குறிப்பிட்ட திரு. ஆர். ராஜப்பா த/பெ. வி. ராமப்பா, 3/883, பிள்ளையாகொத்தூர் கிராமம், கோணேரிப்பள்ளி அஞ்சல், ஓசூர் வட்டம், கிருஷ்ணகிரி மாவட்டம் என்பவருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மைச் சான்று மற்றும் தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

பார்வை:

1. கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.02 நாள்: 29.01.2016.
2. 11.02.2016 அன்று தினமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
3. திரு. ஆர். ராஜப்பா த/பெ. வி. ராமப்பா, 3/883, பிள்ளையாகொத்தூர் கிராமம், கோணேரிப்பள்ளி அஞ்சல், ஓசூர் வட்டம், கிருஷ்ணகிரி மாவட்டம் என்பவரது டெண்டர் விண்ணப்பம் நாள்: இல்லை 16.02.2016 அன்று பெறப்பட்டது)

கிருஷ்ணகிரி மாவட்டம், ஓசூர் வட்டம், காமன்தொட்டி கிராமம் புல எண் 1266ல் 4.04.5 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு பத்து ஆண்டுகளுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக 18.02.2016 அன்று நடைபெற்ற பொது ஏலத்தில் திரு. ஆர். ராஜப்பா த/பெ. வி. ராமப்பா, 3/883, பிள்ளையாகொத்தூர் கிராமம், கோணேரிப்பள்ளி அஞ்சல், ஓசூர் வட்டம், கிருஷ்ணகிரி மாவட்டம் என்பவர் அரசு நிர்ணயம் செய்த குறைந்தபட்ச குத்தகை தொகையை விட அதிக தொகையான ரூ.1,20,00,000/- (ரூபாய் ஒரு கோடி இருபது இலட்சம் மட்டும்)ஐ பொது ஏலத்தில் கோரியதால் அவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் வதி [8(6)(b)-ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ளது.

(i) குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும், அரசு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்யவேண்டும்.



(ii) அருகிலுள்ள ஃராம சாலைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், இதர நெடுஞ்சாலைகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்யவேண்டும்.

2. எனவே, கிருஷ்ணகிரி மாவட்டம், ஓசூர் வட்டம், காமன்தொட்டி கிராமம் புல எண் 1266 ல் 4.04.5. தெற்கேடர் பரப்பளவில் புல வரைபடத்தில் குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாளிலிருந்து பத்து ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 41 மற்றும் 42 ஆகியவற்றில் கண்டுள்ள காலவரையறைக்குள் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு மாசுகட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை சமர்ப்பிக்கவேண்டும் என திரு. ரஜப்பா என்பவருக்கு தெரிவிக்கப்படுகிறது.

3. உரிய காலத்தில் மேற்கண்ட ஆவணங்களை சமர்ப்பிக்க தவறினால் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும், தெரிவிக்கப்படுகிறது.

4. மேற்கூறிய ஆவணங்களை சமர்ப்பித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப்பணிகளை தொடங்கவேண்டும். தவறினால் தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் 1959ன் விதி 36 (அ)ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இணைப்பு : புல வரைபடம்.

மாவட்ட ஆட்சியர், கிருஷ்ணகிரி

பெறுதல் :

திரு. ஆர். ராஜப்பா த/பெ. வி. ராமப்பா,  
3/883, பிள்ளையாகொத்தூர் கிராமம்,  
கோணேரிப்பள்ளி அஞ்சல், ஓசூர் வட்டம்,  
கிருஷ்ணகிரி மாவட்டம்

அ.வி.க.

பதிவஞ்சலில் ஒப்புக்கை  
அட்டையுடன்

நகல் : 1) தலைவர், தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம், பனகல் மாளிகை; சைதாப்பேட்டை, சென்னை.  
2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, திரு.வி.க. தொழிற்பேட்டை, கிண்டி, சென்னை - 32.



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தமிழ்நாடு அரசு  
2016



# கிருஷ்ணகிரி மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது

கிருஷ்ணகிரி, ஜனவரி 29, 2016  
[மன்மத, தை 15 - திருவள்ளூர் ஆண்டு 2047]

[எண் 2

## மாவட்ட ஆட்சியர் அறிவிக்கை

[நா. 250/2015 கனிமம், நாள் 29-01-2016.]

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள் : 16/02/2016

பொது ஏலம் நடத்துதல் மற்றும் டெண்டர் விண்ணப்பங்களை பிரித்து பரிசீலிக்கும் நாள் :

கிருஷ்ணகிரி வருவாய் கோட்டத்தில் அமைந்துள்ள சாதாரண கற் குவாரிகள் : 17/02/2016

ஒரு வருவாய் கோட்டத்தில் அமைந்துள்ள சாதாரண கற்குவாரிகள் : 18/02/2016

1. கிருஷ்ணகிரி மாவட்டத்தில் அரசு ஸ்தலங்களுக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரண பொது உபயோக சிறுகனிமங்களான சாதாரணகற்களை வெட்டியெடுத்துச் செல்வதற்கு தனிநபர் மற்றும் தனியார் நிறுவனங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் வரவேற்கும் மற்றும் ஏல அறிவிப்பு.

2. 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8-ன்படி கிருஷ்ணகிரி மாவட்டத்தில் இத்துடன் இணைக்கப்பட்ட அட்டவணையில் குறிப்பிடப்பட்டுள்ள அரசு ஸ்தலங்களுக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட டெண்டர் விண்ணப்பங்கள் 3 பிரதிகளில் கிருஷ்ணகிரி மாவட்ட ஆட்சியரால் வரவேற்கப்படுகின்றன.

3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் பின்இணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள படிவத்தில் இருக்க வேண்டும் மாதிரி விண்ணப்பப்படிவம் இந்த மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள படிவம் VI-ன்படி பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்படமாட்டாது.



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4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய இணைப்புகளின் விவரங்கள் மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலகம், கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகம், கிருஷ்ணகிரி-மாவட்டத்திலுள்ள அனைத்து சார் ஆட்சியர்/ வருவாய் கோட்டாட்சியர், வட்டாட்சியர் மற்றும் ஊராட்சி ஒன்றிய ஆணையர் அலுவலகங்களின் தகவல் பலகையில் விளம்பரம் செய்யப்பட்டுள்ளது.

5. அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவற்ற சாதாரண கற்குவாரிகளுக்கு 5 ஆண்டுகளும் புதியதாக சேர்க்கப்பட்டுள்ள சாதாரண கற்குவாரிகளுக்கு 10 ஆண்டுகளும் ஆகும்.

6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்குமான ஒரே தவணையில் செலுத்தக்கூக குத்தகை தொகையை உரிய இடத்தில் எண்ணிலும் எழுத்திலும் தெளிவாக குறிப்பிட வேண்டும்.

7. மாவட்ட ஆட்சியர், சார் ஆட்சியர் / வருவாய் கோட்டாட்சியர், வருவாய் வட்டாட்சியர், ஊராட்சி ஒன்றிய ஆணையர், துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அலுவலக தகவல் பலகைகளில் அறிவிப்பு செய்யப்பட்டுள்ள அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படி பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து இணைப்புகளுடன் கவரில் வைத்து மூடி முத்திரை இட்டு மாவட்ட ஆட்சித்தலைவர் கிருஷ்ணகிரி என்று விலாசமிட்டு நேரிலோ அல்லது ஒப்புகை பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக வளாக தரைதளத்தில் அறை எண். 30ல் உள்ள புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் 2016ம் ஆண்டு பிப்ரவரி திங்கள் 16ம் நாள் மாலை 5.00 மணிக்குள் கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விவரம் மற்றும் அட்டவணையில் குறிப்பிட்டுள்ள குவாரியின் வரிசை எண் போன்றவற்றை தவறாமல் குறிப்பிட வேண்டும்.

8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் மாவட்ட ஆட்சியரால் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலக வளாகத்தில் கிருஷ்ணகிரி வருவாய் கோட்டத்தில் அமைந்துள்ள குவாரிகளுக்கு 2016ம் ஆண்டு பிப்ரவரி திங்கள் 17 ஆம் நாளன்றும் ஓசூர் வருவாய் கோட்டத்தில் அமைந்துள்ள குவாரிகளுக்கு 2016ம் ஆண்டு பிப்ரவரி திங்கள் 18ஆம் நாளன்றும் முற்பகல் 11.00 மணிக்கு ஆஜராகியிருக்கும் சம்பந்தப்பட்ட குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் பொது ஏலத்தில் கலந்து கொள்பவர்கள் முன்னிலையில் அட்டவணைகளில் உள்ள குவாரிகளின் வரிசை கிரமமாக முதலில் பொது ஏலமும் பின்னர் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதும் மேற்கொள்ளப்படும்.

9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதற்கு முன்னர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே பொது ஏலம் விடப்படும். ஏல நடவடிக்கை முடிவு பெற்ற பின்பு சம்மந்தப்பட்ட குவாரிக்கு வரப்பெற்ற டெண்டர் விண்ணப்பங்கள் பிரித்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் மூலம் கோரப்பட்டுள்ள உயர்ந்தபட்ச டெண்டர் தொகை அல்லது ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச குத்தகை தொகை இதில் எது அதிகமோ அத்தொகையே சம்பந்தப்பட்ட குவாரிக்கான உயர்ந்தபட்ச குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமம் வழங்குதல் சம்பந்தமாக நடவடிக்கைகள் மேற்கொள்ளப்படும்.

10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1959ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள், சுரங்கங்கள் மற்றும் கனிமங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த ஏல அறிவிப்பில் குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு அவற்றின்மீது மாவட்ட ஆட்சியரால் தக்க ஆணைகள் பிறப்பிக்கப்படும்.

11. இந்த மாவட்ட அரசிதழ் அறிவிக்கை பிரசுரிக்கப்பட்ட பின்னரோ, குத்தகை உறுதி ஆணை பிறப்பிப்பதற்கு முன்னரோ, நிபந்தனைகளை மாற்றவோ அல்லது ரத்து செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எல்லா குவாரிகளின் குத்தகை உரிமம் கோரும் ஒப்பந்தப்புள்ளி மனுக்களை எக்காரணமும் சபாநமல் ரத்து செய்யவோ அல்லது மேற்படி மனுக்களை மூடி முத்திரையிடப்பட்ட உறைகளை திறக்கும் நாள் நேரம் மற்றும் ஏலம் நடத்தும் நாள் மற்றும் நேரம் ஆகியவைகளை தள்ளிவைக்கவோ நிறுத்திவைக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது காரணத்தினால் ஒத்திவைக்க நேர்ந்தால் அதற்கு மனுதாரர்கள் யாருக்கும் நட்ட ஈடு கேட்க உரிமை இல்லை.

12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி விண்ணப்பத்தை உரிய இணைப்புகளோடு அனுப்ப வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் பல குவாரிகளை குறிப்பிட்டு அனுப்பும் விண்ணப்பம் பிராகரிக்கப்படும்.

13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன்/ ஏலத்தில் கலந்து கொள்வதற்கு முன் இம்மாவட்ட அரசிதழ் அறிவிக்கையுடன் இணைக்கப்பட்டுள்ள பட்டியலில் கண்ட சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் தனது



சொந்த செலவிலேயே நேரில் பார்வையிட்டு பாதை வசதி கனிமத்தின் தரம் மற்றும் கனிமத்தின் இருப்பு ஆகியவற்றை ஆராய்ந்து பின்னர் குத்தகை உரிமம் கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளவேண்டும். ஆணை வழங்கப்பட்ட பின் குவாரி அமைந்துள்ள புல எண், பரப்பு, குவாரிகளின் நான்கு எல்லைகள், பாதை வசதி, கனிமத்தின் தரம் கனிமத்தின் இருப்புக்குறித்து எவ்வித தவறும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.

14. 1959ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கண்டுள்ள அனைத்து சாராம்சங்களையும் மாவட்ட அரசிதழில் உள்ள அனைத்து நிபந்தனைகளையும் நன்கு தெரிந்து கொண்டபின் ஒப்பந்தப்புள்ளி விண்ணப்பங்களை உரிய இணைப்புகளோடு அனுப்பவேண்டும். விண்ணப்பம் அனுப்பிய பிறகு விதிகள் மற்றும் குத்தகை நிபந்தனைகள் பற்றி சரியாக தெரியாது என மனுதாரர் வாதிட்டால் அது ஏற்றுக்கொள்ளப்பட மாட்டாது.

15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏல நிபந்தனைகள் :

1) ஒவ்வொரு குவாரிக்கும் இந்த அரசிதழின் பிற்சேர்க்கையில் பிரசுரிக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் மாதிரி விண்ணப்ப படிவத்தின்படி தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.

2) நடப்பில் ஒரு நபருக்கு இரண்டு குவாரிகளுக்கு மட்டும் தான் குத்தகை உரிமம் வழங்கப்படும்.

3) இந்த அரசிதழின் அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவற்ற சாதாரண கற்குவாரிகளுக்கு 5 ஆண்டுகளும் புதியதாக சேர்க்கப்பட்டுள்ள சாதாரண கற்குவாரிகளுக்கு 10 ஆண்டுகளும் ஆகும். குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிப்பிடப்படும் இறுதி நாளில் குத்தகை காலம் முடிவடையும், குத்தகை காலம் எக்காரணத்தைக்கொண்டும் நீடிக்கப்பட மாட்டாது.

4) ஒப்பந்தப்புள்ளி(டெண்டர்) விண்ணப்பத்துடன் கீழ்க்கண்டவற்றை இணைத்து அனுப்ப வேண்டும்.

(அ) திரும்ப வழங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ.1500/-க்கான கேட்பு வரைவோலையை (டிமாண்ட் டிராப்ட்) ஏதேனும் ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும்.

(ஆ) பிணை வைப்புத்தொகை (Earnest money deposit) ரூ. 25000/- (ரூபாய் இருபத்தைந்தாயிரம் மட்டும்)க்கான கேட்பு வரைவோலை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும். குத்தகை உரிமம் வழங்கப்படுபவர் செலுத்த வேண்டிய டெண்டர்/ஏலத் தொகையில் இந்த தொகை பின்னர் சரி செய்து கொள்ளப்படும்.

(இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறித்துள்ள மொத்த குத்தகை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (டிமாண்ட் டிராப்ட்டை) மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.

5) ஏலத்தில் நேரடியாக கலந்து கொள்பவர்கள் திருப்பித்தரப்படாத விண்ணப்பக்கட்டணம் ரூ.1500/- மற்றும் பிணை வைப்புத்தொகை ரூ.25000/- ஆகியவற்றிற்கான கேட்பு வரைவோலைகள் (டிமாண்ட் டிராப்ட்) மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று ஏலத்தில் நேரடியாக கலந்து கொள்வதற்கு முன்னர் ஏலம் நடத்தும் அலுவலரிடம் சமர்ப்பிக்க வேண்டும். மேலும் ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச தொகை டெண்டர் மூலம் கோரப்பட்ட உயர்ந்த பட்ச தொகையைவிட அதிகமாக இருந்தால் ஏலத்தொகையில் 10 சதவீதத்தொகையை உடன் ஏலம் நடத்தும் அலுவலரிடம் தேசிய மயமாக்கப்பட்ட ஏதேனும் ஒரு வங்கியில் பெறப்பட்ட கேட்பு வரைவோலையாகவோ அல்லது ரொக்க தொகையாகவோ செலுத்தி தக்க இரசீதுகள் பெற்றுக்கொள்ள வேண்டும்.

6) மாவட்ட வாரியாக கனிம வாரியாக விண்ணப்பதாரர் / ஏலதாரர் நேரடியாகவோ அல்லது பங்குதாரராகவோ தொடர்புள்ள குவாரிகள் பற்றிய கீழ்க்கண்ட விவரங்களை ஆணை உறுதி வாக்குமூலம் (அபிடவிட்) மூலம் தெரிவிக்க வேண்டும்.

i. அனுபவத்திலிருக்கும் குவாரி குத்தகை அனுமதி பற்றி விவரம்

ii. ஏற்கனவே விண்ணப்பித்து இதுவரை அனுமதி வழங்கப்படாத குவாரி குத்தகை அனுமதி பற்றி விவரம்.

iii. தற்போது உடனிகழ்வாக விண்ணப்பிக்கும் குவாரி குத்தகை அனுமதி விவரம்.

iv. விண்ணப்பதாரருக்கு கனிம குத்தகையுள்ள மாவட்ட ஆட்சியரால் வழங்கப்பட்ட செல்லத்தக்க சுரங்கவரி நிலுவை இல்லா சான்றிதழ் அல்லது சுரங்கவரி நிலுவை இல்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.



v. வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி பாக்கியில்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.

7) ஒப்பந்தப்புள்ளி(டெண்டர்) விண்ணப்பங்கள் மேற்கூறிய இணைப்புகளுடன் நேரிலோ அல்லது ஒப்புக்கை பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக கட்டிடத்தில், தரைதளத்தில் அறை எண். 30ல் இயங்கும் கிருஷ்ணகிரி புவிபியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் 2016ஆம் ஆண்டு பிப்ரவரி திங்கள் 16 ஆம் நாள் மாலை 5.00 மணிக்குள் கிடைக்கும்படி செய்ய வேண்டும். நேரில் விண்ணப்பங்கள் அளித்தால் அதைப்பெற்றுக்கொண்டதற்கான ஒப்புதல் கடிதம் அன்றைய தினமே வழங்கப்படும். தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்புதல் கடிதம் மூன்று தினங்களுக்குள் தபாலில் அனுப்பிவைக்கப்படும் டெண்டர் விண்ணப்பங்கள் மூடி முத்திரையிடப்பட்ட கவர்களில் மட்டுமே அனுப்பிவைக்கப்பட வேண்டும். கவரின் மேல்புறத்தில் விண்ணப்பதாரரின் பெயர் மற்றும் விவாசம் தெளிவாக குறிப்பிடப்படவேண்டும். கவரின் இடது மூலையில் கனிமத்தின் பெயர் குவாரி அமைந்துள்ள கிராமம், புல எண், பரப்பு அரசிதழின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ள குவாரிகளின் பட்டியலில் உள்ள வரிசை எண் ஆகியவற்றை தவறாமல் குறிப்பிடவேண்டும்.

8) மாவட்ட ஆட்சியரால்/அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்ட அலுவலரிடம் உள்ள வருகை பதிவேட்டில் விண்ணப்பதாரர்கள் / ஏலதாரர்கள் கையொப்பமிட்டபின்னரே ஏல அறைக்குள் அனுமதிக்கப்படுவார்கள்.

9) குறிப்பிட்ட காலகெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்டுள்ள அலுவலரால் மாவட்ட ஆட்சியர் அலுவலகத்தில் கிருஷ்ணகிரி வருவாய் கோட்டத்தில் அமைந்துள்ள குவாரிகளுக்கு 2016ம் ஆண்டு பிப்ரவரி திங்கள் 17ஆம்நாளன்றும் ஒரு வருவாய் கோட்டத்தில் அமைந்துள்ள குவாரிகளுக்கு 2016ம் ஆண்டு பிப்ரவரி திங்கள் 18ஆம் நாளன்றும் முற்பகல் 11.00 மணிக்கு வருகை தந்திருக்கும் தொடர்புள்ள குவாரிக்கு விண்ணப்பித்தள்ள விண்ணப்பதாரர்கள் மற்றும் ஏலம் கோர வந்திருக்கும் நபர்களின் முன்னிலையில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறக்கப்படுவதற்கு முன்னர் ஏலம் நடத்தப்படும். ஏலத்தில் கலந்து கொள்ள விரும்புவோர் பிணை வைப்பத்தொகை ரூ.25000/-க்கான கேட்பு வரைவோலை மற்றும் விண்ணப்பக்கட்டணம் ரூ.1500/-க்கான கேட்பு வரைவோலை, சுரங்க நிலுவையில்லாச் சான்று அல்லது உறுதிமொழி ஆவணம், ஏலதாரர் நேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம், வருமானவரி நிலுவையில்லாசான்றிதழ் அல்லது உறுதிமொழி ஆவணம், முதலிய ஆவணங்களை ரூ.20/- மதிப்புள்ள முத்திரைத்தாளில் சான்று உறுதி அலுவலரிடம் (Notary Public) கையொப்பம் பெற்று விண்ணப்பத்துடன் ஏலம் நடைபெறுவதற்கு முன் ஆஜர்படுத்தவேண்டும். ஏலம் மற்றும் ஒப்பந்தப்புள்ளி (டெண்டர்) கலந்துகொள்பவர் செலுத்தும் விண்ணப்பக் கட்டணத்தொகை ரூ.1500/- திருப்பித்தரப்படமாட்டாது. ஏலத்தில் நேரிடையாக பங்குபெறுபவர்கள் கொடுக்கும் விண்ணப்பத்தில் குத்தகை தொகையை குறிப்பிட தேவையில்லை. ஏற்கனவே டெண்டர்/விண்ணப்பம் கொடுத்தவர்கள் ஏலத்தில் கலந்துகொள்ள முடியாவிடில் அவருக்குப்பதிலாக அவரால் நியமிக்கப்பட்ட வேறு ஒரு நபர் மட்டுமே நோட்டரிப்பளிக் முன்பு விண்ணப்பதாரர் மற்றும் நியமிக்கப்பட்ட நபர் கையெழுத்துக்கள் சான்றுபெறப்பட்ட உறுதிமொழி ஆவணம் (அபிடவிட்) தாக்கல் செய்வதின் பேரில் ஏலத்தில் கலந்து கொள்ள அனுமதிக்கப்படுவார்கள்.

10) ஒப்பந்தப்புள்ளி விண்ணப்படிவத்தில் மனு செய்யும் நபர்கள் தாங்கள் மனு செய்யும் குவாரிக்கு குத்தகை தொகையாக செலுத்த விரும்பும் தொகையை விண்ணப்பத்தில் குறிப்பிடாமல் இருந்தாலோ அல்லது விண்ணப்ப கட்டணம் பிணைவைப்புத் தொகை, அதிகப்பட்சமாக குறிப்பிடும் குத்தகை தொகையின் 10% தொகை ஆகியவற்றிற்கான காசோலைகளை விண்ணப்பத்துடன் இணைக்காமல் இருந்தாலோ, விண்ணப்பத்தாளில் விண்ணப்பதாரர் தன் கையொப்பம் செய்யாமல் இருந்தாலோ 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கூறப்பட்ட சுரங்கவரி பாக்கியின்மை சான்றிதழ், வருமானவரி பாக்கியின்மை சான்றிதழ் அல்லது இவைகளுக்காக வழங்கப்படும் ஆணை உறுதி ஆவணம் மற்றும் ஏற்கனவே மனுதாரர் நேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம் ஆகியவற்றை இணைக்கப்படாமல் இருந்தாலோ மேற்படி ஒப்பந்தப்புள்ளி விண்ணப்பம் மாவட்ட ஆட்சியரால் அல்லது அவரால் அங்கீகரிக்கப்பட்ட அலுவலரால் நிராகரிக்கப்படும். மேற்குறிப்பிட்டவாறு விண்ணப்பம் நிராகரிக்கப்பட்ட ஒப்பந்தப்புள்ளி விண்ணப்பதாரர்களுக்கு ஒப்பந்த புள்ளிகள் திறக்கும் சமயத்தில் விண்ணப்பதாரர் ஆஜரில் இருந்தால் மட்டும் மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் விண்ணப்பதாரரிடம் தக்க ஒப்புதல் பெற்று வங்கிவரைவோலை திருப்பி வழங்கப்படும். ஒப்பந்தப்புள்ளி திறக்கும் சமயத்தில் ஆஜரில் இல்லாத நபருக்கு பதிவஞ்சல் மூலம் வங்கி வரைவோலைகள் தனியே அனுப்பி வைக்கப்படும்.

11) ஒவ்வொரு குவாரிக்கும் பொது ஏலம் நடத்தி முடித்துப்பின்னர் சம்மந்தப்பட்ட குவாரிக்கான டெண்டர் விண்ணப்பங்கள் வருகை தந்திருக்கும் சம்மந்தப்பட்ட டெண்டர் விண்ணப்பதாரர்கள் மற்றும் ஏலதாரர்கள் அல்லது அவர்களது அதிகாரம் பெற்ற நபர்கள் முன்னிலையில் சம்மந்தப்பட்ட அதிகாரிகளால் திறக்கப்படும். ஒப்பந்தப்புள்ளி (டெண்டர்) திறக்கும் நேரத்தில் விண்ணப்பதாரர் அல்லது ஏலதாரர் அல்லது அங்கீகாரம் பெற்ற நபர் ஆஜரில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. மேலும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் திறப்பதோ ஏலம் நடத்துவதோ நிறுத்தி வைக்கப்படமாட்டாது.

12) மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலர் மேற்கண்ட குவாரிக்கு வரப்பெற்ற மொத்த செல்லத்தக்க விண்ணப்பங்கள், விண்ணப்பதாரர்களின் பெயர்கள் **260** மாவட்ட வருமானவரி இணைப்பதாரராலும் குறிப்பிடப்பட்ட அதிகப்பட்ச



டெண்டர் தொகை ஆகியவற்றையும் அதிகப்பட்ச தொகைக்கு ஏலம் கேட்ட நபர் யா யாரும் அதிகப்பட்ச ஏலத்தொகை ஆகியவற்றையும் ஏலம் முடிவடைந்தவுடன் அறிவிப்பார். ஏலத்தொகை, ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிடப்பட்டுள்ள குத்தகை (டெண்டர்) தொகையை விடகுறைவாக இருந்து ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் மூலமாக கோரப்படும் குத்தகை தொகைகள் ஒன்றுக்கும் மேற்பட்ட விண்ணப்பதாரர்களால் ஒரே மாதிரியாக குறிப்பிடப்பட்டிருந்தால் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் அளிக்கப்பெற்ற அலுவலர் சம்பந்தப்பட்ட விண்ணப்பதாரர்களை மட்டும் அழைத்து சம்பந்தப்பட்ட குவாரிக்கு மட்டும் மறுகேட்புமூலம்

உயர் குத்தகை தொகை பெற நடவடிக்கை எடுக்கப்படும். அதிகப்பட்ச குத்தகைத்தொகை கோரும் நபர் அதிகப்பட்ச ஏலத்தொகை கோரிய நபராக அறிவிக்கப்படுவார். ஒவ்வொரு குவாரிக்கும் பெறப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களில் குறிப்பிடப்பட்டுள்ள அதிகப்பட்ச குத்தகைத்தொகை அல்லது பொது ஏலத்தின் மூலம் கேட்கப்படும் அதிகப்பட்ச குத்தகைத் தொகையை இவற்றில் எது அதிகமோ அந்த தொகை மேற்கண்ட குவாரிக்கு கோரப்பட்ட அதிகப்பட்ச குத்தகை தொகை என அறிவிக்கப்பட்டு அதிகப்பட்ச குத்தகைத் தொகை குறிப்பிட்டவராக அறிவிக்கப்படுவார். அதிகப்பட்சத்தொகைக்கு டெண்டர்/ ஏலம் மூலம் கேட்ட நபர் என மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் பெற்ற நபர் மூலம் உறுதிசெய்யப்பட்டவுடன், டெண்டர்/ஏலம்கேட்ட நபர் அவரால் அதிகப்பட்சமாக கோரப்பட்ட தொகையில் பத்து சதவிகித தொகையினை கேட்பு வரைவோலையாகவோ / பணமாகவோ உடனடியாக செலுத்தி வேண்டும். அவ்வாறு செலுத்தத் தவறும் பட்சத்தில் அவரது ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவருக்கு அடுத்தபடியாக அதிகப்பட்சத்தொகை கேட்ட நபருக்கு வாய்ப்பளிக்கப்படும். அவரும் பத்து சதவிகிதத்தொகையினை செலுத்த தவறும் பட்சத்தில் இதே நடைமுறையை தொடர்ந்து நடத்துவது அல்லது மறு ஏலம் விட ஆணையிடுவது போன்றவை மாவட்ட ஆட்சியரின் இறுதி முடிவு மற்றும் அதிகார வரம்பிற்கு உட்பட்டதாகும். அதிகப்பட்ச ஏலம் / டெண்டர் கேட்ட நபரை தவிர மற்றவர்களுக்கு அவர் தாம் செலுத்திய பிணைவைப்பத்தொகை திரும்ப தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட நபர் மீதமுள்ள 90 சதவிகித தொகையினை ஏழு தினங்களுக்குள் செலுத்திவிட வேண்டும், தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்துசெய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் பறிமுதல் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

13) (அ) சிறப்பு நிபந்தனைகள்:

(i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அட்டையை பெற்றிருக்கவேண்டும்.

(ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 2.00 சதவிகித வருமான வரியை கிருஷ்ணகிரி மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHEd 05905E-ன் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டின் மூலம் செலுத்தவேண்டும்.

(iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி கீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 2.00 சதவிகித வருமான வரி தொகை செலுத்தவேண்டும்.

14. ஒரு குவாரிக்கு ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரப்பெற்று ஏலம் கேட்க யாரும் முன்வரவில்லை எனில் அந்த ஒரு விண்ணப்பதாரர் குறிப்பிட்ட தொகை நியாயமானது என்றும் கனிம அபிவிருத்திக்கு உகந்தது என்றும் மாவட்ட ஆட்சியரால் கருதப்பட்டால் அவருக்கு மாவட்ட ஆட்சியரால் குத்தகை உரிமம் வழங்கப்படும். அந்த ஒரு விண்ணப்பதாரரால் குறிப்பிடப்பட்ட தொகை நியாயமானது அல்ல என்றும் அவருக்கு உரிமம் வழங்குவது கனிம அபிவிருத்திக்கு உகந்ததல்ல என்றும் மாவட்ட ஆட்சியர் கருதினால், அவருடைய விண்ணப்பம் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். ஒரு குவாரிக்கு ஒன்றுக்கு மேற்பட்ட விண்ணப்பங்கள் வரப்பெறின் அதிகப்பட்ச ஏலத்தொகை / டெண்டர் தொகை நியாயமானது எனக் கருதப்படும் பட்சத்தில் குவாரி குத்தகை வழங்க நடவடிக்கை எடுக்கப்படும். ஒரு குவாரிக்கு பெறப்பட்ட அதிகப்பட்ச ஏல தொகை / டெண்டர் தொகை நியாயமானது அல்ல மற்றும் கனிம அபிவிருத்திக்கு உகந்ததல்ல என மாவட்ட ஆட்சியர் கருதும் பட்சத்தில் அதனை ஏற்காமல் நிராகரித்து ஏலத்தொகை / டெண்டர் தொகையில் 10 % தொகையை பெற மறுத்து மறு ஏலம் மற்றும் டெண்டருக்கு கொண்டு வர நடவடிக்கை மேற்கொள்ளப்படும்.

15) மாண்புமிகு இந்திய உச்சநீதிமன்றம் வழக்கு எண் ஐ.ஏ 12-13/2012 எஸ்.எல்.பி (சி) எண்.19628 - 19629/2009 ஆகியவற்றின் மீது 27.02.2012 அன்று வழங்கியுள்ள ஆணைகளின்படியும், இந்திய அரசு சுற்றுச் சூழல் மற்றும் வனத்துறை குறிப்பாணை எண். எல்.11011/47/2011 - IA. II(M) நாள் 18.05.2012ன்படியும், அரசாணை எண். (எம்எஸ்)எண். 79, தொழில் (எம்எம்சி1)துறை நாள் 06.04.2015ன்படி 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் திருத்தம் செய்யப்பட்டு சேர்க்கப்பட்ட விதிகள் எண். 41 மற்றும் 42-ன் படியும் அனைத்து சிறுகனிம குவாரிகளுக்கும் குவாரி குத்தகை வழங்குமுன்பு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுசூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மை சான்று பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை வழங்க முடியும்.



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16). அதிகப்பட்சத்தொகை கேட்ட நபருக்கு குவாரி குத்தகை உரிமம் உறுதிசெய்யப்படுமாயின் அவருக்கு குவாரி குத்தகை உரிமம் வழங்கப்படவுள்ள குவாரியின் புல எண், பரப்பளவு, ஆகிய விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட சரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம் / மத்திய அரசின் சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மைச்சான்று மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய இசைவு ஆணை ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கப்படும்.

i. மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் சரங்கத்திட்டத்தை அங்கீகாரம் பெற்ற தகுதி வாய்ந்த நபர் (RQP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் கிருஷ்ணகிரி புவியியல் மற்றும் சரங்கத்துறை துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.

ii. மேற்கண்ட மனுதாரர் கிருஷ்ணகிரி புவியியல் மற்றும் சரங்கத்துறை துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சரங்கத்திட்டத்தை தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / மத்திய அரசின் சுற்றுச்சூழல் மற்றும் வனத்துறையின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்று மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று சமர்ப்பிக்க வேண்டும்.

iii. இரு மாநில எல்லையிலிருந்து ஐந்து கிலோமீட்டர் தொலைவிற்குள்ளும் வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள்ளும் அமைந்துள்ள குவாரிகளுக்கு மத்திய அரசு சுற்றுச்சூழல் ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்க வேண்டும்.

iv. வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள் அமைந்துள்ள குவாரிகளுக்கு வனவிலங்கு தேசிய வாரிய நிலைக்குழுவிடமிருந்து (Standing Committee of National Board of Wildlife) தடையின்மை சான்று பெற்று சமர்ப்பிக்க வேண்டும்.

v. அங்கீகரிக்கப்பட்ட சரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.

vi. மேற்கண்ட ஆவணங்களை சமர்ப்பித்தபின்பு மனுதாரருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும். அங்கீகரிக்கப்பட்ட சரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியர் அவர்களால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆஜராக வாய்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட தத்தரவு ரத்து செய்யப்படும்.

17) மேற்கூறிய உத்தரவு மாவட்ட ஆட்சியரிடமிருந்து கிடைக்கப்பெற்றவுடன் விண்ணப்பதாரர் மாவட்ட ஆட்சியரின் ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றுவது தொடர்பாக மாவட்ட ஆட்சியருக்கு சமர்ப்பிக்க வேண்டும்.

- (அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்பந்தப்பத்திரம் மற்றும் வரைபடம்.
- (ஆ) அசல் குத்தகை ஒப்பந்தப்பத்திரம் தயார் செய்வதற்கு தேவையான நீதித்துறை சாரா முத்திரைத்தாள்
- (இ) காப்புத்தொகைக்காக ஏலம் / டெண்டர் தொகையில் பத்து சதவீதம் அல்லது ரூ.5000/-ம் இதில் எது அதிகமோ அதை செலுத்தியதற்கான அசல் செலுத்துச்சீட்டு (சலான்).
- (ஈ) மாவட்ட ஆட்சியர் ஆணையில் குறிப்பிட்டுள்ள மொத்த குத்தகை பரப்பிற்கான பரப்புலரி செலுத்தியதற்கான அசல் வான்.

18) அவ்வாறு குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை மாவட்ட ஆட்சியரிடம் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியரால் வழங்கப்பட்ட குத்தகை உரிமம் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

19) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்கவேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றும்பின் குவாரிப்பணி செய்வது கண்டறியப்பட்டால் அது அனுமதியின்றி கனிமம் வெட்டியெடுத்ததாக கருதப்பட்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36-அ-ன் படி உரிய நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.



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16) அதிகப்பட்சத்தொகை கேட்ட நபருக்கு குவாரி குத்தகை உரிமம் உறுதிசெய்யப்படுமாயின் அவருக்கு குவாரி குத்தகை உரிமம் வழங்கப்படவுள்ள குவாரியின் புல எண், பரப்பளவு, ஆகிய விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம் / மத்திய அரசின் சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மைச்சான்று மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய இசைவு ஆணை ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கப்படும்.

i. மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் சுரங்கத்திட்டத்தை அங்கீகாரம் பெற்ற தகுதி வாய்ந்த நபர் (RQP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.

ii. மேற்கண்ட மனுதாரர் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சுரங்கத்திட்டத்தை தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / மத்திய அரசின் சுற்றுச்சூழல் மற்றும் வனத்துறையின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்று மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று சமர்ப்பிக்க வேண்டும்.

iii. இரு மாநில எல்லையிலிருந்து ஐந்து கிலோமீட்டர் தொலைவிற்குள்ளும் வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள்ளும் அமைந்துள்ள குவாரிகளுக்கு மத்திய அரசு சுற்றுச்சூழல் ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்க வேண்டும்.

iv. வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள் அமைந்துள்ள குவாரிகளுக்கு வனவிலங்கு தேசிய வாரிய நிலைக்குழுவிடமிருந்து (Standing Committee of National Board of Wildlife) தடையின்மை சான்று பெற்று சமர்ப்பிக்க வேண்டும்.

v. அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.

vi. மேற்கண்ட ஆவணங்களை சமர்ப்பித்தபின்பு மனுதாரருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும். அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியர் அவர்களால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆஜராக வாய்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட உத்தரவு ரத்து செய்யப்படும்.

17) மேற்கூறிய உத்தரவு மாவட்ட ஆட்சியரிடமிருந்து கிடைக்கப்பெற்றவுடன் விண்ணப்பதாரர் மாவட்ட ஆட்சியரின் ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றுவது தொடர்பாக மாவட்ட ஆட்சியருக்கு சமர்ப்பிக்க வேண்டும்.

(அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்பந்தப்பத்திரம் மற்றும் வரைபடம்.

(ஆ) அசல் குத்தகை ஒப்பந்தப்பத்திரம் தயார் செய்வதற்கு தேவையான நீதித்துறை சாரா முத்திரைத்தாள்

(இ) காப்புத்தொகைக்காக ஏலம் / டெண்டர் தொகையில் பத்து சதவீதம் அல்லது ரூ.5000/-ம் இதில் எது அதிகமோ அதை செலுத்தியதற்கான அசல் செலுத்துச்சீட்டு (சலான்).

(ஈ) மாவட்ட ஆட்சியர் ஆணையில் குறிப்பிட்டுள்ள மொத்த குத்தகை பரப்பிற்கான பரப்புவரி செலுத்தியதற்கான அசல் சலான்.

18) அவ்வாறு குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை மாவட்ட ஆட்சியரிடம் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியரால் வழங்கப்பட்ட குத்தகை உரிமம் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

19) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்கவேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றுமுன் குவாரிப்பணி செய்வது கண்டறியப்பட்டால் அது அனுமதியின்றி கனிமம் வெட்டியெடுத்ததாக கருதப்பட்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36-அ-ன் படி உரிய நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.





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20) குவாரி குத்தகைக்காக கோரப்பட்ட மொத்த குத்தகை காலத்திற்குமான ஒரே தடவையில் மொத்தமாக செலுத்தப்படும் குத்தகைத்தொகை நீங்கலாக குத்தகைதாரர் மேற்படி குவாரியில் இருந்து எடுத்துச்செல்ல உத்தேசிக்கும் சிறுகனிமத்திற்கு 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் அட்டவணை 2ல் குறிப்பிடப்பட்டுள்ள விகிதாச்சாரப்படி சீனியரேஜ் கட்டணத்தை செலுத்தி மொத்த இசைவாணைச்சீட்டு மற்றும் அனுப்புகைச் சீட்டு பெற்றுதான் சிறுகனிமத்தினை எடுத்துச்செல்லவேண்டும். மேலும் அரசால் அவ்வப்போது திருத்தி நிர்ணயிக்கப்படும் சீனியரேஜ் தொகையை செலுத்தி அனுமதிச்சீட்டுப்பெற வேண்டும்.

21) குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரிப்பணி செய்த தொழிலாளர்கள், குவாரி செய்த கனிமத்தின் அளவிற்குரிய கணக்குகளை பிரதி மாதம் ஐந்தாம் நாளுக்குள் துணை இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களுக்கு துணிக்கைக்கு ஆஜர் செய்ய வேண்டும்.

22) குவாரிகளுக்கு அருகில் உள்ள போக்குவரத்து சாலைகள், கிராம சாலைகள் குடியிருப்பு பகுதிகள் வீடுகள், வண்டிப்பாதைகள், மின் மற்றும் தொலைபேசி கம்பிகள், டிரான்ஸ்பார்மர்கள், ரயில்பாதைகள் பொதுப்பணித்துறை, வாய்க்கால், மதசம்பந்தமான வழிபாட்டுத்தலங்கள் மற்றும் இதர நிலையான அமைப்புகள் இவற்றிலிருந்து 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் படி பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்கள் குடியிருப்புக்கள் பட்டா நிலங்கள் அல்லது பொதுச்சொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் ஏற்படாமல் குவாரிப்பணி செய்யவேண்டும். குவாரி பணியால் சேதம் ஏதும் ஏற்பட்டால் அதற்கு குத்தகைதாரரே முழு பொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடு செய்து தரவேண்டும்.

23) குத்தகைதாரரை மேற்குறிப்பிட்ட நிபந்தனைகள் அல்லாமல் 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள், கனிமங்கள் மற்றும் சுரங்கங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த அரசிதழில் குறிப்பிடப்பட்டுள்ள சிறப்பு நிபந்தனைகள் மற்றும் அரசால் அவ்வப்போது கொண்டுவரப்படும் ஆணைகளும் விதிகளும் கட்டுப்படுத்தும்.

24) இவ்விதிகளின்கீழ் வழங்கப்படும் குவாரிகளின் குத்தகை காலம் எக்காரணத்தைக் கொண்டும் குத்தகை வழங்கப்பட்ட காலத்திற்கு மேல் நீட்டிக்கப்படவோ அல்லது குத்தகை காலம் புதுப்பிக்கப்படவோ மாட்டாது. குத்தகை காலம் முடிந்தபின் குத்தகைதாரர்கள் குத்தகைக்கு விடப்பட்ட பகுதிகளில் எவ்விதமான உரிமையும் கொண்டாடக்கூடாது.

25) 14 வயதுக்குட்பட்ட குழந்தை தொழிலாளர்களை குவாரிப்பணியில் ஈடுபடுத்தக்கூடாது.

26) இந்த அரசிதழில் குவாரி குத்தகை உரிமத்திற்காக அறிவிக்கப்பட்டிருக்கும் பட்டியலில் உள்ள குத்தகை விடப்படும் குவாரிகளை டெண்டர் / ஏலம் நடைபெறுவதற்கு முன்பாக நிறுத்தி வைக்கவோ, நீக்கவோ, புதியதாக சேர்க்கவோ குவாரி பரப்பளவை மாற்றவோ, மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

27) நிர்வாக சூழல் காரணமாக டெண்டர் மற்றும் ஏலத்தை ரத்து செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

28) செய்தித்தாள் மூலமாகவோ, மாவட்ட அரசிதழ் மூலமாகவோ, அறிவிப்பு செய்யப்படாத குவாரிகளுக்கு ஏதாவது ஒப்பந்தப்புள்ளி விண்ணப்பங்கள் கிடைக்கப்பெற்றால் அவையாவும் முதிர்ச்சி அடையாத விண்ணப்பமாக கருதப்பட்டு மாவட்ட ஆட்சியரால் உடனடியாக நிராகரிக்கப்படும். குறித்த காலக்கெடுவிற்குள் வந்து சேராத விண்ணப்பங்கள் காலவரையறை கடந்த விண்ணப்பமாக கருதப்பட்டு அவையாவும் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும் நிராகரிக்கப்பட்ட விண்ணப்பங்களின் வங்கி வரைவோலைகள் மட்டும் விண்ணப்பதாரருக்கு திரும்ப அனுப்பி வைக்கப்படும்.

29) 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் அட்டவணைப்படிவம் 1ல் கண்ட ஒப்பந்தப்பத்திரத்தில் தேவையான அளவிற்கு நிபந்தனைகளை புதியதாக சேர்க்கவோ, நீக்கவோ மாற்றி அமைக்கவோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு, குத்தகை பத்திரம் ஏற்படுத்தியபின்பு புல எண் மற்றும் குவாரி செய்ய ஒதுக்கப்பட்ட பரப்புக்குறித்து எவ்வித தாவாவுமும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.

30) குத்தகை ஒப்பந்தப்பத்திரத்தை புலவரைபடத்துடன் சொத்து மாற்றுகைச்சட்டம் 1882ன் பிரிவு 107ன் கீழ் குத்தகைதாரர் தனது சொந்த செலவில் பதிவுசெய்து பதிவுசெய்த ஒப்பந்தப்பத்திரத்தினை கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் உடன் ஒப்படைக்கவேண்டும்.

31) தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36(1)ல் வரையறுக்கப்பட்டுள்ளவாறு அருகிலுள்ள குடியிருப்புகளுக்கு பாதுகாப்பு இடைவெளியாக 300 மீட்டரும் கிராம சாலைகளுக்கு 25 மீட்டரும் இதர சாலைகள் கட்டிடங்கள், வழிபாட்டு தலங்கள்,



மின்கம்பி பாதைகள், தொலைபேசி பாதைகள், புகைவண்டிப்பாதைகள், டிரான்ஸ்பார்மர்கள், ஆறு, ஏரி, குளம், குட்டை மற்றும் இதர பொது சொத்துக்கள் ஆகியவற்றிற்கு பாதுகாப்பு இடைவெளியாக 50 மீட்டரும் விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யப்படவேண்டும். புராதன சின்னங்களுக்கு தொல்லியல் துறையால் வரையறுக்கப்பட்டுள்ள பாதுகாப்பு இடைவெளி விட்டும் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்களான குடியிருப்புக்கள் பட்டா நிலங்கள் மற்றும் இதர பொதுசொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் நேரிட்டால் அதற்கு குத்தகைதாரரே முழுபொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடுசெய்து தரவேண்டும்.

32) நிர்வாக காரணம் மற்றும் பொதுநலனை கருத்தில் கொண்டு குத்தகைக்கு விடப்பட்ட பரப்பினை பின்னர் குறைத்து நிர்ணயிக்கவும், குவாரி குத்தகையை ரத்து செய்யவும் மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

33) குத்தகைதாரர் 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளின்படியும் மாவட்ட அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படியும் ஒப்பந்தப்பத்திர நிபந்தனைகளின்படியும் நடந்துகொள்ள கடமைப்பட்டவராவார். குத்தகைகாலத்தில் சட்டதிட்டங்கள் மற்றும் குவாரி குத்தகை நிபந்தனைகளுக்கு ஒப்பந்த விதிகளுக்கு முரண்பட்டு குத்தகைதாரர் நடந்துகொண்டால் குத்தகை ரத்துச்செய்யப்படுவதுடன் காப்புத்தொகை மற்றும் அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு பறிமுதல் செய்யப்படும். அக்குவாரிக்கு மீண்டும் குவாரி குத்தகை வழங்க நடவடிக்கை மேற்கொள்ளப்படும்.

34) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் சாதாரண கற்களை குவாரி செய்வதில் ஏற்படக்கூடிய நஷ்டங்களுக்கு அரசால் எவ்வித நஷ்ட ஈடும் வழங்கப்பட மாட்டாது.

35) வழங்கப்பட்ட குத்தகை உரிமத்திற்கு பொதுமக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொதுநன்மையை கருதி மாவட்ட ஆட்சியர் குத்தகையை ரத்துச்செய்ய நேரிட்டால் அதனால் ஏற்படும் இழப்பிற்கு ஈடுகொடுக்க குத்தகைதாரருக்கு உரிமை இல்லை.

36) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் மாற்றவோ உள் குத்தகைக்கு விடவோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரியவந்தால் மேற்படி குத்தகை ரத்துச்செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.

37) குத்தகைதாரர், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் அரசு குறிப்பிட்ட படிவத்தில் அனுப்புகைச் சீட்டுக்களை அச்சிட்டு சமர்ப்பிக்க வேண்டும். குத்தகைதாரர் சிறுகனிமம் எடுத்து செல்லும் வாகனத்துடன் அனுப்புகைச் சீட்டு கொடுத்து அனுப்ப வேண்டும். இந்நடைச்சீட்டை இரு பிரதிகள் அச்சிட்டு வரிசை எண்ணிட்டு தாங்கள் உத்தேசமாக எடுக்க இருக்கும் லோடுகளுக்கு லோடு ஒன்றுக்கு ஒரு சீட்டு வீதம் கணக்கிட்டு அதற்குரிய சீரியரேஜ் தொகையினை செலுத்திய பின்னர், கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரிடம் அனுப்புகைச்சீட்டு மற்றும் மொத்த இசைவாணைச் சீட்டு ஆகியவற்றில் உரிய முத்திரையும் கையொப்பமும் பெற்றபின்பே பயன்படுத்த வேண்டும்.

38) ஒப்புதல் பெறப்படாத அனுப்புகைச்சீட்டுடன் கனிமம் கொண்டு செல்லும் வாகனங்கள் அதிலுள்ள சிறுகனிமத்தை முறையற்ற வகையில் எடுத்துச்செல்வதாக கருதப்பட்டு உரிய சட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு அபராதம் விதிக்கப்படும்.

39) புவியியல் மற்றும் சுரங்கத்துறை அலுவலர்கள் அல்லது வருவாய்த்துறை அலுவலர்கள் முதலானோர் தணிக்கை செய்யும்போது உரிய கணக்குகள் மற்றும் அனுப்புகைச் சீட்டு முதலானவைகளை குவாரி குத்தகை உரிமம் பெற்ற குத்தகைதாரர் காண்பிக்கவேண்டும்.

40) அரசு அலுவலர்கள் தணிக்கை செய்யும் போது சிறுகனிமங்கள் கொண்டு செல்லும் வாகனங்களை தணிக்கைக்கு உட்படுத்த வாகன ஓட்டுனர்களை குத்தகைதாரர்கள் அறிவுறுத்த வேண்டும்.

41) அனுப்புகைச்சீட்டில் உள்ள கலங்கள் பூர்த்தி செய்யப்படாமலோ அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலோ சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் விதித்து வசூல் செய்யப்படும் மற்றும் குவாரி குத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.

42) குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் எவ்வளவு சிறுகனிமங்கள் வெட்டி எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் லாரி, வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விவரத்தையும் காட்டும் பதிவேடு பராமரிக்க வேண்டும். குவாரி குத்தகை சம்பந்தமான இதர பதிவேடுகளை பராமரிக்கப்படும்.



43) அரசு மற்றும் மாவட்ட ஆட்சியரால் குவாரி குத்தகை உரிமம் சம்பந்தமாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும், நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும். குத்தகை காலத்திலோ அல்லது அதற்குபின்னரோ கிராமம் தவறி குத்தகையை பயன்படுத்தியதினால் ஏற்படும் சகல நடவடிக்கைகளுக்கும் குத்தகைதாரர்கள் பொறுப்பேற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதத்தையும் செலுத்தவேண்டும்.

44) குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யவோ செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு ஊண்டினை விதிக்கவோ கிரிமினல் வழக்குதொடரவோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் காப்புத்தொகை உள்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். மாவட்ட ஆட்சியர் எக்காரணத்திற்காவது குவாரி குத்தகையை ரத்துச்செய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்விட நடவடிக்கைகளுக்கும் அரசு பொறுப்பல்ல. குத்தகை எடுத்தவர் எந்த காரணத்தை முன்னிட்டு தனக்கு இழப்பு ஏற்பட்டால் நஷ்டஈடு கேட்கக்கூடாது.

45) குத்தகை எடுத்தவர் குத்தகையை அனுபவிக்காமல் விட்டாலும், செலுத்தப்பட்ட குத்தகை தொகை எக்காரணத்தை முன்னிட்டு திரும்ப வழங்கப்படமாட்டாது.

46) குவாரிகளின் எல்லைகள் பற்றி பிரச்சினைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்ப்பே இறுதியானது.

47) கற்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்கற்குவாரியின் ஏதாவது ஒரு பகுதியில் வரலாற்று முக்கியத்துவம் வாய்ந்த புராதனக்கால கல்வெட்டுக்கள், சிற்ப வடிவமைப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும், அப்பகுதியில் கற்கள் உடைப்பது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.

48) டெண்டரில் கோரப்படும் புல எண்களின் பேரில் எவையேனும் நீதிமன்றத்தின் ஆணை / தடையாணை முதலானவை நீதிமன்றத்தில் பெறப்பட்டதாக தெரியவந்தால் அவைகள் மீது குத்தகை உரிமம் வழங்குவதில் மாவட்ட ஆட்சியரின் முடிவே இறுதியானது.

49) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண் பரப்பு குத்தகைதாரர் பெயர் குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண் குத்தகை தொகை, குத்தகை காலம் போன்ற விவரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தளது சொந்த செலவில் வைத்து குத்தகை காலம் முழுதும் பராமரிக்கவேண்டும்.

50) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியுமாடி வண்ணமிட்ட எல்லைக்கற்கள் ஊன்றி அடையாளமிட்ட பின்பே குவாரி செய்ய வேண்டும். எல்லைக்கற்களை குத்தகை காலம் முழுவதும் தளது சொந்த செலவில் நன்கு பராமரிக்கவேண்டும்.

51) குத்தகைக்கு வழங்கப்பட்ட கற்குவாரிகளில் சாதாரண கற்கள், கட்டுக்கல், சக்கை கற்கள், ஐல்லிகற்கள் ஆகியவைகளை மட்டுமே குவாரி செய்ய வேண்டும். அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும் மெருகு ஏற்றுவதற்கும் பயன்படும் வடிவமைக்கப்பட்ட கற்களை உற்பத்தி செய்யக்கூடாது.

52) குவாரியில் வெடி வைத்து கற்களை உடைக்க அங்கீகாரம் பெற்ற வெடிபொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer) வெடிபொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரைக் (Licenced shot Firer) கொண்டு அனைத்து பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.

53) குவாரியில் சாதாரண ஏர் கம்பர்சர்களை கொண்டு துளையிட்டு வெடிவைக்க வேண்டும். ஆழ்துளை கிணறு உபகரணங்களை (Rig Bore) கொண்டு துளையிட்டு வெடிவைக்கக்கூடாது. அருகிலுள்ள விவசாய நிலங்கள், பொதுச்சொத்துக்கள் மற்றும் பொதுமக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் வெடி வைக்க வேண்டும்.

54) அரசு ஆணையர் புவியியல் மற்றும் சுரங்கத்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்டதிட்டங்களுக்கும் நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும்.

55) 1961ம் ஆண்டின் மெட்டாலிபெரஸ் மைன்ஸ் ரெகுலேஷன்ஸ், 1936 ஆம் ஆண்டின் சம்பளம் வழங்குதல் சட்டம், 1884 ஆம் ஆண்டின் இந்திய வெடிபொருட்கள் சட்டம், 1864 ஆம் ஆண்டு குறைந்தபட்ச ஊதியச்சட்டம் ஆகியவற்றிற்கு உட்பட்டு குத்தகைதாரர் கனிமங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.

## அட்டவணை -1

சாதாரண கற்குவாரி பட்டியல்.

(i) கிருஷ்ணகிரி வருவாய் கோட்டம்.

## கிருஷ்ணகிரி வட்டம்



வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை வருடம்
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			(ஹெக்டேர்)	(ஹெக்டேர்)		
1	ஜெகதேவிபாளையம்	256/1 (பகுதி-1)	4.53.5	1.50.0	தீ.ஏ.த பாறை	5
2	ஜெகதேவிபாளையம்	256/1 (பகுதி-2)	4.53.5	2.20.0	தீ.ஏ.த பாறை	5
3	கொத்தபேட்டா	56/1 (பகுதி-5)	26.94.0	1.20.0	தீ.ஏ.த மலை	10
4	இட்டிக்கல் அகரம்	73 (பகுதி-1)	26.51.5	1.40.0	தீ.ஏ.த பாறை	10
5	இட்டிக்கல் அகரம்	73 (பகுதி-2)	26.51.5	1.40.0	தீ.ஏ.த பாறை	10
6	இட்டிக்கல் அகரம்	73 (பகுதி-3)	26.51.5	1.60.0	தீ.ஏ.த பாறை	10
7	இட்டிக்கல் அகரம்	81/1	2.45.0	2.45.0	தீ.ஏ.த பாறை	10
8	இட்டிக்கல் அகரம்	161 (பகுதி)	11.65.5	3.25.0	தீ.ஏ.த பாறை	10
9	பெல்லாரம்பள்ளி	56 /1 (பகுதி)	10.05.5	0.70.0	கல்வெட்டுக் குழி	10
10	ஆலப்படி	80/1 (பகுதி)	1.83.0	1.30.0	கல்வெட்டுக் குழி	10
11	பி.ஆர்.ஜி. மாதேப்பள்ளி	360 (பகுதி)	4.62.5	3.50.0	கல்லாங்குத்து	5
12	சென்னைசந்திரம்	279 (பகுதி-1)	7.38.0	1.00.0	கல்வெட்டுக்குழி	10
13	சென்னைசந்திரம்	279 (பகுதி-2)	7.38.0	1.00.0	கல்வெட்டுக்குழி	10
14	கொண்டேப்பள்ளி	113/1 (பகுதி)	17.28.5	1.20.0	தீ.ஏ.த பாறை	10
15	ஜீஞ்சுப்பள்ளி	218	2.26.0	2.26.0	தீ.ஏ.த பாறை	5
16	மல்லப்பாடி	761/1 (பகுதி-2)	9.15.0	1.20.0	மலை	10
17	மல்லப்பாடி	761/1 (பகுதி-3)	9.15.0	1.40.0	மலை	10
18	அச்சமங்கலம்	199/1 (பகுதி)	6.71.0	2.00.0	தீ.ஏ.த பாறை	5
19	கொண்டப்பநாயனாப்பள்ளி	279/1 (பகுதி-2)	36.50.5	2.25.0	மலை	10



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(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
		<u>ஊத்துங்கரை வட்டம்</u>				
20.	வெப்பாளம்பட்டி	7/1 (பகுதி)	2.84.0	2.00.0	தீ.ஏ.த. கல்லாங்குத்து	10
21.	வெப்பாளம்பட்டி	8/1 (பகுதி)	2.69.5	1.00.0	தீ.ஏ.த. கல்லாங்குத்து	10
		(ii) ஓசூர் வருவாய் கோட்டம்.				
		<u>ஓசூர் வட்டம்</u>				
22	வெங்கடேசபுரம்	86 (பகுதி-4)	60.80.0	4.00.0	தீ.ஏ.த. காரடு	5
23	வெங்கடேசபுரம்	86 (பகுதி-6)	60.80.0	2.50.0	தீ.ஏ.த. காரடு	5
24	வெங்கடேசபுரம்	86 (பகுதி-7)	60.80.0	2.50.0	தீ.ஏ.த. காரடு	5
25	வெங்கடேசபுரம்	135 (பகுதி-2)	45.34.5	3.00.0	தீ.ஏ.த. காரடு	5
26	வெங்கடேசபுரம்	136 (பகுதி-1)	69.36.0	2.80.0	தீ.ஏ.த. காரடு	5
27	வெங்கடேசபுரம்	136 (பகுதி-4)	69.36.0	2.00.0	தீ.ஏ.த. காரடு	5
28	வெங்கடேசபுரம்	136 (பகுதி-5)	69.36.0	1.30.0	தீ.ஏ.த. காரடு	5
29	வெங்கடேசபுரம்	136 (பகுதி-6)	69.36.0	2.75.0	தீ.ஏ.த. காரடு	5
30	வெங்கடேசபுரம்	136 (பகுதி-7)	69.36.0	3.50.0	தீ.ஏ.த. காரடு	5
31	வெங்கடேசபுரம்	136 (பகுதி-9)	69.36.0	3.00.0	தீ.ஏ.த. காரடு	5
32	வெங்கடேசபுரம்	269 (பகுதி-B)	22.75.0	3.25.0	தீ.ஏ.த. காரடு	5
33	வெங்கடேசபுரம்	269 (பகுதி-C)	22.75.0	3.50.0	தீ.ஏ.த. காரடு	5
34	வெங்கடேசபுரம்	269 (பகுதி-D)	22.75.0	3.00.0	தீ.ஏ.த. காரடு	5
35	வெங்கடேசபுரம்	270 (பகுதி-1)	5.82.0	2.30.0	தீ.ஏ.த. காரடு	10
36	வெங்கடேசபுரம்	270 (பகுதி-2)	5.82.0	2.00.0	தீ.ஏ.த. காரடு	10
37	புக்கசாகரம்	104/1 (பகுதி-A)	11.45.0	2.80.0	தீ.ஏ.த. பாறை	5
38	புக்கசாகரம்	104/1 (பகுதி-B)	11.45.0	3.60.0	தீ.ஏ.த. பாறை	5
39	புக்கசாகரம்	10/2	0.95.5	0.95.5	தீ.ஏ.த. பாறை	5
40	பேரிகை	313/2 (பகுதி)	3.58.0	2.44.0	தீ.ஏ.த. பாறை	10
41	பி.எஸ்.திம்மசந்திரம்	88/1 (பகுதி)	12.79.0	3.00.0	தீ.ஏ.த. பாறை	10
42	மினந்தொட்டி	93/1	1.32.0	1.32.0	தீ.ஏ.த. பாறை	10
43	மினந்தொட்டி	94	2.50.0	2.50.0	தீ.ஏ.த. பாறை	10
44	பட்டாகுருபரப்பள்ளி	173/1 (பகுதி-1)	11.12.5	1.00.0	தீ.ஏ.த. பாறை	10
45	பட்டாகுருபரப்பள்ளி	173/1 (பகுதி-2)	11.12.5	1.16.0	தீ.ஏ.த. பாறை	10



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(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
46	பஞ்சாட்சிபுரம்	603/1 (பகுதி-2)	21.20.5	3.00.0	தீ.ஏ.த தரிசு	5
47	பஞ்சாட்சிபுரம்	603/1 (பகுதி-3)	21.20.5	3.25.0	தீ.ஏ.த தரிசு	10
48	பஞ்சாட்சிபுரம்	603/1 (பகுதி-4)	21.20.5	3.00.0	தீ.ஏ.த தரிசு	10
49	பஞ்சாட்சிபுரம்	559/2 (பகுதி)	1.07.5	0.90.0	தீ.ஏ.த	10
50	பஞ்சாட்சிபுரம்	755 (பகுதி-2)	13.69.0	4.80.0	தீ.ஏ.த	10
51	துப்புகாணப்பள்ளி	314 (பகுதி-1)	34.64.0	3.00.0	தீ.ஏ.த	10
52	துப்புகாணப்பள்ளி	420 (பகுதி-2)	46.61.0	3.00.0	தீ.ஏ.த	10
53	காமன்தொட்டி	653 (பகுதி-2)	7.56.0	3.12.0	தீ.ஏ.த	5
54	காமன்தொட்டி	665 (பகுதி-1)	12.63.0	4.40.0	தீ.ஏ.த	10
55	காமன்தொட்டி	665 (பகுதி-2)	12.63.0	2.40.0	தீ.ஏ.த	10
56	காமன்தொட்டி	1266	4.04.5	4.04.5	அனாத்நம்	10
57	காமன்தொட்டி	1269/2யு	1.66.5	1.66.5	அனாத்நம்	10
58	கோபனப்பள்ளி	327/1 (பகுதி-1)	24.31.5	3.00.0	தீ.ஏ.த.	10
59	கோபனப்பள்ளி	327/1 (பகுதி-2)	24.31.5	3.00.0	தீ.ஏ.த.	10
60	கோபனப்பள்ளி	206/1 (பகுதி)	3.79.5	3.49.5	தீ.ஏ.த காடு.	5
61	சென்னப்பள்ளி	230 (பகுதி)	3.41.0	2.00.0	தீ.ஏ.த. காடு	10
<b>தேன்கணிக்கோட்டை வட்டம்</b>						
62	தாரவேந்திரம்	316 (பகுதி-1)	5.99.0	2.89.0	தீ.ஏ.த தரிசு	10
63	தாரவேந்திரம்	316 (பகுதி-2)	5.99.0	2.70.0	தீ.ஏ.த தரிசு	5
64	தண்டவர	738/1 (பகுதி)	61.78.0	4.00.0	மலை புறம்போக்கு	10
65	ஓசுபுரம்	457 (பகுதி-1)	17.81.5	2.00.0	கல்லாங்குத்து	10
66	ஓசுபுரம்	457 (பகுதி-2)	17.81.5	3.70.0	கல்லாங்குத்து	10

கிருஷ்ணகிரி,  
29.01.2016.

**C. கதிரவன்,**  
மாவட்ட ஆட்சியர்,  
கிருஷ்ணகிரி.



## பின் இணைப்பு VI

டெண்டர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குவதற்கான விண்ணப்பம்  
(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விடுநர்

பெறுநர்

மாவட்ட ஆட்சியர்,  
கிருஷ்ணகிரி.

அய்யா,

கிருஷ்ணகிரி மாவட்ட ஆட்சிதழ் (சிறப்பு வெளியீடு)எண். நாள் 2016 தினசரியில் வெளியிட்ட நாள்  
2016ன் படி இத்துடன் தமிழ்நாடு சிறுகுறியியல் சலுகை விதிகள் 1959 விதி 8ன் கீழ் எனது / எங்களது  
விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறுகுறியியல் சலுகை விதிகள் 1959 விதி 8ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நாள்  
கேட்டுக்கொள்கின்றேன் / நாங்கள் கேட்டுக்கொள்கின்றோம்

தேவையான விபரங்கள் கீழே கொடுக்கப்பட்டுள்ளது.

1) விண்ணப்பதாரர் பெயர் மற்றும் முழு முகவரி :

2) விண்ணப்பதாரர்

- அ) 1) தனிநபரா ? :  
2) தனிப்பட்ட நிறுவனமா ? :  
3) நிறுவனமா அல்லது கழகமா :

ஆ) தனிநபரானால் விண்ணப்பதாரர்  
எந்த நாட்டைச் சார்ந்தவர் :

இ) தனிப்பட்ட நிறுவனமானால்/கழகமானால்  
மேற்கண்ட நிறுவனத்தின் / கழகத்தின்  
இயக்குநர்களின் தாய் நாட்டை பற்றிய  
விவரம் (எழுத்தப் பூர்வ ஆதாரங்கள்)  
இணைக்கப்பட வேண்டும்)

3) பிணை வைப்புத்தொகை செலுத்திய விவரம்  
கேட்பு வரைவோலையின் எண் மற்றும் நாள் /  
வங்கி வரைவோலை இணைக்கப்பட வேண்டும் : ரூ.



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- 4) விண்ணப்பதாரரால் கீழ்க்கண்ட இனங்களுக்கு ஆணை உறுதி ஆவணம் (அபிடவிட்) இணைக்கப்பட்டுள்ளதா ?
- 5) விண்ணப்பதாரர் குவாரி செய்ய விரும்பும் சிறுகனிமத்தின் பெயர் மற்றும் விபரம்
- 6) குவாரி குத்தகை உரிமம் கோரும் காலம்
- 7) விண்ணப்பிக்கும் இடத்தின் மொத்த பரப்பளவு
- 8) டெண்டர் விண்ணப்பம் அல்லது விண்ணப்பம் செய்யப்படும் இடத்தின் விபரம்  
மாவட்டம்  
வட்டம்  
கிராமம்  
புல எண்  
பரப்பளவு (ஹெக்டேரில்)
- 9) குத்தகை உரிமம் பெறுவதற்கு விண்ணப்பதாரரால் செலுத்தப்படவுள்ள அதிக பட்ச ஒரு தடவை குவாரி குத்தகை தொகை (எண்ணாலும் எழுத்தாலும் எழுத்தப்பட வேண்டும்)
- 10) ஏற்கனவே தமிழ்நாட்டில் குவாரி குத்தகை உரிமம் பெற்ற இடத்தின் விபரம்
- 11) (அ) குவாரிகளுக்கு உரிய நிலுவை செலுத்துதல் தொடர்பாக கரங்க நிலுவை இல்லா சான்று இணைக்கப்பட்டுள்ளதா ?  
(ஆ) விண்ணப்பிக்கும் நாளில் குத்தகை உரிமம் ஏதும் விண்ணப்பதாரருக்கு இல்லை எனில் அதற்கு உண்டான ஆணை உறுதி ஆவணம் இணைக்கப்பட்டுள்ளதா ?
- 12) விண்ணப்பதாரரால் அளிக்கப்படும் வேறு ஏதேனும் கூடுதல் விபரங்கள்

என்னால்/ எங்களால் மேலே கொடுக்கப்பட்ட விபரங்கள் அனைத்தும் உண்மை. நான்/நாங்கள் அரசு /மாவட்ட ஆட்சியர், மாவட்ட வன அலுவலர் ஆகியவர்களால் கேட்கப்படும் இதர விபரங்கள் மற்றும் பிணை வைப்பு தொகையினை அளிக்க சம்மதிக்கின்றேன் / சம்மதிக்கிறோம். தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் கீழ் குத்தகை உரிமம் வழங்க உள்ள விதிகள் மற்றும் குவாரி செய்ய கொடுக்கப்பட்ட இதர நிபந்தனைகள் அனைத்தையும் தெரிந்து கொண்டேன் / கொண்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம். மேலும் எந்த சூழ்நிலையிலும் மேற்கண்ட குத்தகை உரிம இடத்திலிருந்து ஏற்றுமதிக்கு ஏற்ற அல்லது அறுத்து மெருகேற்றுவதற்கு (Polish) உகந்த பரிமாணமுள்ள கற்கள் (Dimension stone) மற்றும் பலகை கற்கள் (Slabs) வெட்டியெடுக்க மாட்டேன் / மாட்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம்.

நாள் :

தங்கள் உண்மையுள்ள.

இடம் :

P. Jayaraj  
விண்ணப்பதாரரின் கையொப்பம்



2. சென்னை - 56

## புலத்தணிக்கை அறிக்கை



அரசுக்கு வருவாய் ஈட்டும் வகையிலும், அருகில் உள்ள கிராம மக்களுக்கு வேலை வாய்ப்பு கிடைக்கும் என்பதை கருத்தில் கொண்டு, அரசு புறம்போக்கு புலங்களில் அனுமதியின்றி கள்ளத்தனமாக கனிமங்கள் வெட்டியெடுப்பதை தடுக்கும் வகையிலும் கிருஷ்ணகிரி மாவட்டம் ஓசூர் வட்டம், காமன்தொட்டி கிராமம் அரசு புல எண் 1266 அரசு புறம்போக்கு அனாதீனம் நிலத்தில் பாறை படிவங்களை வெட்டி எடுக்க டெண்டருடன் இணைந்த ஏலமுறையில் குவாரி குத்தகை வழங்குதல் தொடர்பாக மேற்கண்ட புலத்தினை தணிக்கை மற்றும் விசாரணை மேற்கொண்டு எனது அறிக்கையினை கீழ்க்கண்டவாறு தெரிவித்துக் கொள்கிறேன்.

கிருஷ்ணகிரி மாவட்டம், ஓசூர் வட்டம், காமன்தொட்டி கிராம புல எண் 1266'ல் 4.04.5 ஹெக்டேர் பரப்பளவு கிராம கணக்குகளின் படி அரசு புறம்போக்கு அனாதீனம் என வகைப்படுத்தப்பட்டுள்ளது. மேற்கண்ட புலம் விவசாயம் செய்வதற்கோ, நத்தம் புறம்போக்கு நிலமாக மாற்றும் செய்வதற்கோ வாய்ப்பில்லாத நிலமாக பாறைகள் நிறைந்து காணப்படுகிறது. மேற்கண்ட புலத்தில் ஜல்லி, சக்கை, ரப்கல் உடைக்க பயன்படும் சாதாரண வகை கற்கள் காணப்படுகின்றன.

மேற்கண்ட புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 300மீ சுற்றளவிற்குள் குடியிருப்பு பகுதிகளோ, கிராம நத்தமோ, அங்கீகரிக்கப்பட்ட வீட்டு மனைகளோ, புராதன சின்னங்களோ, தொல் பொருள் துறையினரால் பராமரிக்கப்பட்டு வரும் பாதுகாக்கப்பட்ட தொல்லியல் சின்னங்களோ அமைந்திருக்கவில்லை.

மேற்கண்ட புலத்தின் 50மீ சுற்றளவிற்குள் கோவில், மசூதி, கிருஸ்துவ தேவாலயம், பொது மயானம், மின் கம்பி பாதை, ஓடை போன்ற நிலையான அமைப்புகள் ஏதுமில்லை.

மேற்கண்ட புலத்தில் குவாரி உரிமம் வழங்குவது தொடர்பாக அருகில் உள்ள பட்டாதாரர்களிடமிருந்தோ ஊர் பொது மக்களிடமிருந்தோ புலத்தணிக்கையின் போது ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மேற்கண்ட புலத்திற்கு செல்ல புறம்போக்கு புலங்களின் வழியாக சாலை வசதி உள்ளது.

மேற்கண்ட பகுதி முழுவதும் பாறையாகவும், குன்றாகவும் உள்ளது.


குவாரி குத்தகை உரிமம் வழங்க உள்ள புலத்தின் செக்குபந்தி குறித்த விவரம் பின்வருமாறு.

புலஎண்	விஸ்தீரணம்	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
1266	4.04.5	759 - பட்டா நிலம், 745/2 பட்டா நிலம்	754 (ம) 760 - தீ.ஏ.த. (மலை), 1269/2A அனாதீனம்	1267/1 பாதை, 1268/1 பாதை	743 761/3,4,5, பட்டா நிலம் 761/6 அனாதீனம்

மேற்படி அரசு புறம்போக்கு நிலத்தில் உடைகல் மற்றும் ஜல்லி கற்கள் வெட்டியெடுக்க ஆட்சேபணைகள் ஏதும் இல்லையெனவும், அரசு மூலம் டெண்டர் மற்றும் பொது ஏலமுறையில்

குத்தகை உரிமம் வழங்கலாம் என காமன்தொட்டி கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார். எனவே, மேற்படி நிலத்தில் அரசுக்கு வருவாய் ஈட்டும் பொருட்டு ஆவணங்களின் அடிப்படையிலும் பொது மக்கள் ஆட்சேபணை ஏதும் தெரிவிக்காததாலும் உடைகல் மற்றும் ஜல்லி கற்கள் வெட்டி எடுக்க மேற்கண்ட புல எண்ணிற்கு அருகில் அமைந்துள்ள பாதை மற்றும் அனாதீனம் ஆகியவற்றிற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி செய்யவேண்டும் என்ற நிபந்தனை விதித்து அரசு மூலம் டெண்டரில் பொது ஏல முறை மூலம் குவாரி உரிமம் வழங்க பரிந்துரை செய்கிறேன்.

இத்துடன் கிராம நிர்வாக அலுவலரின் வாக்குமூலம், கிராம கணக்குகளின் நகல்கள் மற்றும் புல வரைபடம், கூட்டு வரைபடம் ஆகியவற்றை இணைக்கப்பட்டுள்ளது என தெரிவித்துக் கொள்கிறேன்.

  
வட்டாட்சியர்  
ஒசூர்.



கிருஷ்ணகிரி மாவட்டம் ஓசூர் வட்டம், காமன்தொட்டி கிராம நிர்வாக அலுவலகம் அமைந்துள்ள வாகுமூலம் ஆஜர்,

அரசு புலங்களில் டெண்டருடன் இணைந்த ஏல முறையில் சாதாரண வகை கற குவாரி உரிமம் வழங்குவது தொடர்பாக என்னால் கிருஷ்ணகிரி மாவட்டம், ஓசூர் வட்டம், காமன்தொட்டி கிராம புல எண் 1266 தணிக்கை செய்யப்பட்டது. மேற்கண்ட புல எண் கிராம கணக்குகளின் படி அரசு புறம்போக்கு அனாதீனம் என வகைப்படுத்தப்பட்டுள்ளது. அதன் மொத்த விஸ்தீரணம் 4.04.5 1266.0 ஹெக்டேர் ஆகும். மேற்கண்ட புலத்தில் ஜல்லி, சக்கை, ரப்கல் உடைக்க பயன்படும் சாதாரண வகை கற்கள் காணப்படுகின்றன. மேற்கண்ட புலத்தில் 300மீ சுற்றளவிற்குள் குடியிருப்பு பகுதிகளோ, கிராம நத்தமோ, அங்கீகரிக்கப்பட்ட வீட்டு மனைகளோ, புராதன சின்னங்களோ, தொல் பொருள் துறையினரால் பராமரிக்கப்பட்டு வரும் பாதுகாக்கப்பட்ட தொல்லியல் சின்னங்களோ அமைந்திருக்கவில்லை.

மேற்கண்ட புலத்தின் 50மீ சுற்றளவிற்குள் பள்ளி கட்டிடங்கள், கோவில், மருதி, கிருஸ்துவ தேவாலயம், பொது மயானம், மின் கம்பி பாதை, ஓடை, வாய்க்கால் போன்ற நிலையான அமைப்புகள் ஏதுமில்லை. மேற்கண்ட புலத்தில் குவாரி உரிமம் வழங்குவது தொடர்பாக அருகில் உள்ள பட்டாதாரர்களிடமிருந்தோ ஊர் பொது மக்களிடமிருந்தோ ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மேற்கண்ட புலத்திற்கு செல்ல பட்டா/ அரசு புறம்போக்கு புலங்களின் வழியாக சாலை வசதி உள்ளது. புலத்தின் நான்கு எல்லைகள் குறித்த விவரம் பின்வருமாறு.

- வடக்கு - 745 & 759 பட்டா இலக்கம்
- கிழக்கு - 754 to 760 & 1269/1 - ஸ்தல 1267/2A - அனாதீனம் 1267/2B பட்டா இலக்கம்
- தெற்கு - 1267 & 1268/2,3,4 & 5 பட்டா இலக்கம் 1268/1 ஸ்தல
- மேற்கு - 743 & 761 743 அனாதீனம் 2ம்

மேற்கண்ட புலத்தில் ஏற்கெனவே கற்கள் சாலைப்பணிக்காக கனிமங்கள் வெட்டி எடுத்த குழி காணப்படுகிறது. மேற்கண்ட புலத்தில் அரசு அனுமதியின்றி கள்ளத்தனமாக கனிமங்கள் வெட்டி எடுப்பதை தடுத்து முறைப்படுத்தும் பொருட்டும் டெண்டருடன் இணைந்த ஏல முறையில் குவாரி உரிமம் வழங்கும் பட்சத்தில் அருகில் உள்ள கிராம மக்களுக்கு வேலை வாய்ப்பு கிடைக்கும் என்பதை கருத்தில் கொண்டும், கிராம ஊராட்சிக்கு கனிமம் வெட்டி எடுப்பதன் மூலம் உரிய வருவாய் கிடைக்கும் என்பதை கருத்தில் கொண்டு காமன்தொட்டி கிராம புல எண் 1266-ல் டெண்டருடன் இணைந்த ஏல முறையில் குவாரி உரிமம் வழங்கலாம் என்பதை தெரிவித்துக்கொள்கிறேன்.

அதி. அலுவலர்  
வட்டாட்சியர்  
ஓசூர்.

//படித்து பார்த்துள்ளேன் கரி  
Village Administrative Officer  
No. 126, KAMANDODDI (Village)  
Ososur (Tk.), Krishnagiri (Dt.) T.N



Dr. H. Malleshappa, I.F.S  
Member Secretary

ANNEXURE - III  
STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY - TAMIL NADU  
3<sup>rd</sup> Floor, Panagammaaligal,  
No.1 Jeenis Road, Sandapet, Chennai-15  
Phone No.044-24359973  
Fax No. 044-24359975

**ENVIRONMENTAL CLEARANCE**

Lr. No. SEIAA-TN/F.No.5827/1(a)/ EC.No: 3856 /2016 dated: 31.05.2017

To  
Thiru. R. Rajappa  
S/o. V. Ramappa  
No. 3/883, Pillayakothoor Village  
Koneripalli Post  
Hosur Taluk  
Krishnagiri - 635109

Sir,

Sub: SE/AA-TN – Proposed Rough Stone quarry located at S.F.No 1266, Kammondoodi Village, Hosur Taluk, Krishnagiri District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 11.10.2016  
2. Minutes of the 82<sup>nd</sup> SEAC held on 21.10.2016 & 22.10.2016  
3. Minutes of the 213<sup>rd</sup> SEIAA meeting held on 31.05.2017

**Details of Minor Mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. R. Rajappa No. 3/883, Pillayakothoor Village Koneripalli Post Hosur Taluk Krishnagiri - 635109
2	Location of the Proposed Activity	
	Survey Number	1266
	Latitude and Longitude	12°39'42.27"N to 12°39'49.21"N 77°57'34.14"E to 77°57'43.82"E
	Village	Kammondoodi
	Taluk	Hosur

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	District	Krishnagiri
3	Proposed Activity	
	i. Minor mineral	Rough Stone
	ii. Mining Lease Area	4.04.5 Ha
	iii. Approved quantity	359910 cu.m of Rough Stone & 31600 cu.m of Top soil
	iv. Depth of Mining	16m (11m above ground level + 5m below ground level)
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Rc.No. 102/2016/Mines dated 29.02.2016
	viii. Mining plan approval	Deputy Director Rc.No. 102/2016/Mines-1 dated 05.10.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished
5	Man Power requirement per day:	13 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	293206 Litres of HSD
7	Cost	
	i. Project Cost	Rs.178.02 Lakhs
	ii. EMP Cost	Rs.7.10 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, GoI.
9	Date of Appraisal by SEAC:- Agenda No:	21.10.2016 & 22.10.2016 82-17
10	Date of Review/Discussion by SEIAA and the Remarks:-	The proposal was placed before the SEIAA in its 213 <sup>th</sup> Meeting held on 31.05.2017 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.
11	Validity:	This Environmental Clearance is granted to Mining of Rough Stone for the production quantity of 359910 cu.m of Rough stone & 31600 cu.m of Top Soil for the period of 5 Years from the date of execution of the Mining Lease period.



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**Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.



15. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
16. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
17. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
18. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
19. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
20. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
21. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
22. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
23. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
  - i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
24. The following measures are to be implemented to reduce Noise Pollution
  - i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
25. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 Issued by the MoE&F, GoI to control noise to the prescribed levels.
26. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
27. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
28. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
29. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention/ toe walls shall be provided at the foot of the dumps.

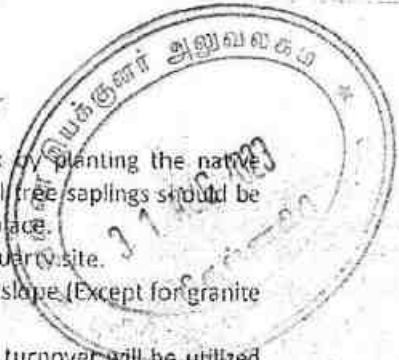
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- ii. Worked out slopes are to be stabilized by planting appropriate shrub/grass species on the slopes.
- 30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
- 31. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- 32. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
- 33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of silt be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
- 34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
- 35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
- 36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
- 37. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
- 38. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
- 39. Ground water quality monitoring should be conducted once in 3 Months
- 40. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
- 41. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
- 42. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
- 43. Bunds to be provided at the boundary of the project site.

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44. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
  45. At least 10 Neem trees should be planted around the boundary of the quarry site.
  46. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
  47. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
  48. The CSR funds should be channelized for planting programme, nature conservation support, tribal development and activities that support forest and environment.
  49. The Project Proponent shall provide solar lighting system to the nearby villages
  50. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
  51. Rainwater shall be pumped out Via Settling Tank only
  52. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
  53. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
  54. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
  55. Safety equipments to be provided to all the employees.
  56. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
  57. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
  58. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
  59. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
  60. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
  61. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
  62. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
  63. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
  64. The Project Proponent is also directed to strictly adhere to the Sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
  65. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 1m height.
  66. The quarrying activity in no way should disturb the Wildlife habitat, free migratory movement of the wildlife nor disturb the wildlife in any way.

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General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.



16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Krishnagiri District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. E1 Division, Ministry of Environment & Forests, Parvathan Bhawan, New Delhi.
10. Spare.

**PROCEEDINGS OF THE DISTRICT COLLECTOR, KRISHNAGIRI****Present: Thiru C.Kathiravan, I.A.S.,**Dated 31 AUG 2017  
10.2017

Roc.102/2016/Mines

Sub: Mines and Minerals – Minor Mineral – Rough Stone – Krishnagiri District – Hosur Taluk – Kammandoddi Village- Govt. Land in S.F. No. 1266 – Over an extent of 4.04.5 Hects. – Precise area for the grant of Quarry lease for rough stone issued to Thiru R.Rajappa, No. 3/883, Pillayakothor Village, Koneripalli Post, Hosur Taluk, Krishnagiri District under Tender-cum-Auction – SEIAA clearance obtained – order issued - reg.

- Ref:
1. Krishnagiri District Gazette Extra Ordinary No.2 dated 29.01.2016.
  2. Thiru R.Rajappa, No. 3/883, Pillayakothor Village, Koneripalli Post, Hosur Taluk, Krishnagiri District tender application dated 18.02.2016.
  3. The District Collector, Krishnagiri Memorandum in Roc.No.102/2016/Mines-2 dated 29.02.2016.
  4. Mining plan approved by the Deputy Director of Geology and Mining, Krishnagiri in Roc. No. 102/2016 / Mines-2 dated 05.10.2016.
  5. The State Level Environmental Impact Assessment Authority Tamil Nadu Letter No. SEIAA - TN/ F.No. 5827/1(a)/ECNo.3856/2016 dated 31.05.2017.
  6. Proceedings No. 1372HSR/RS/DEE/TNPCB/HSR/A/2017 dated 24.08.2017 of the District Environmental Engineer, Tamil Nadu Pollution Control Board, Hosur
  7. Proceedings No. 1372HSR/RS/DEE/TNPCB/HSR/W/2017 dated 24.08.2017 of the District Environmental Engineer, Tamil Nadu Pollution Control Board, Hosur .
  8. The Deputy Director of Town and County Paining Dharmapuri letter No. 1251/2017 Thama dated 04.10.2017.

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**ORDER:**

Thiru R.Rajappa, No. 3/883, Pillayakothor Village, Koneripalli Post, Hosur Taluk, Krishnagiri District had participated in the tender-cum-auction for the grant of quarry lease for rough stone over an extent of 4.04.5 Hects in Government land S.F.No.

**III) B) சாதாரண கற்குவாரி பணி செய்வதற்கான நிபந்தனைகள்:**



- (1) குத்தகை காலம், குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றும் நாளிலிருந்து பத்து ஆண்டுகளாகும்.
- (2) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் குவாரி செய்யும் வேலிக்கல்/குண்டுக்கல்/கட்டுக்கல்/சக்கை மற்றும் ஜல்லி ஆகியவற்றை மேற்படி இடத்திலிருந்து வெளியில் எடுத்துச் செல்வதற்கு முன்பு அவை ஒவ்வொன்றிற்கும் அவற்றிற்குரிய வீதத்தில் சீனியரேஜ் தீர்வை செலுத்தி இவ்வலுவலகத்தில் பர்மிட் மற்றும் நடைச்சீட்டு பெற்ற பின்புதான் மேற்படி கனிமங்களை குவாரியிலிருந்து வெளியில் எடுத்துச் செல்ல வேண்டும். 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், இணைப்பு II-ல் அவ்வப்போது அரசால் நிர்ணயிக்கப்படும் வீதத்தில் பரப்பு தீர்வை செலுத்த வேண்டும். மேற்கண்ட தொகையைத் தவிர அரசால் அவ்வப்போது நிர்ணயிக்கப்படும் இதர தொகைகளையும் குத்தகைதாரர் செலுத்த வேண்டும்.
- (3) குத்தகை இடத்திற்கு அருகிலுள்ள குடியிருப்புகள், கட்டடங்கள், நீர்நிலைகள், குளங்களின் கரைகள், மரங்கள், சாலைகள், வண்டிப்பாதைகள், நடைபாதைகள் மற்றும் இதர பொதுச் சொத்துக்களுக்கு பாதகமில்லாமல் குவாரி செய்ய வேண்டும்.
- (4) குத்தகை வழங்கப்பட்ட இடத்திற்கு அருகாமையில் உள்ள பட்டாதாரர்கள் மற்றும் பொது மக்களுக்கு பாதகமில்லாமல் குவாரி செய்ய வேண்டும்.
- (5) அ) குத்தகை வழங்கப்பட்ட இடத்திற்கு அருகிலுள்ள ரயில்பாதைகள், சாலைகள், மின்சாரம் மற்றும் தொலைபேசி கம்பிகளுக்கு 50 மீட்டரும், குடியிருப்பு பகுதியிலிருந்து 300 மீட்டரும், நடைபாதைகள், கிராம சாலைகளுக்கு 10 மீட்டரும் பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்ய வேண்டும்.  
ஆ) அருகிலுள்ள அரசு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணி செய்ய வேண்டும்.  
இ) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணி செய்ய வேண்டும்.
- (6) மாவட்ட ஆட்சித்தலைவர் (அல்லது) அரசால் அதிகாரம் வழங்கப்பட்ட அலுவலரை குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிடவும், குவாரி பதிவேடுகள், ஆவணங்கள் மற்றும் கணக்கை சரிபார்க்கவும் அனுமதிக்க வேண்டும். இது சம்மந்தமாக அவர்கள் கோரும் அனைத்து விவரங்களையும் வழங்க வேண்டும்.
- (7) சுற்றுப்புற சூழ்நிலை பாதுகாப்பு, கனிம பாதுகாப்பு, தொழிலாளர் பாதுகாப்பு முதலியவற்றைக் கருத்தில் கொண்டு விஞ்ஞான அடிப்படையில் திறமையுடன் முறையாகக் குவாரி செய்ய வேண்டும்.
- (8) மாவட்ட ஆட்சித்தலைவர் மற்றும் ஆணையர், புவியியல் மற்றும் கரங்கத்துறை, ஆகியோரால் அதிகாரம் வழங்கப்பட்ட அலுவலரை மேலே பத்தி (5)-ல் குறிப்பிட்டுள்ள நிபந்தனைகள் தொடர்பாகவும், மேற்கண்ட அலுவலர்களின் ஆணையை நிறைவேற்றவும் குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிட அனுமதிக்க வேண்டும்.
- (9) குத்தகைதாரரின் செலவில் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றி அதனை பதிவு செய்வதற்கு முன்பு குத்தகை இடத்தில் குவாரி மற்றும் இது சம்மந்தப்பட்ட வேலைகளைத் தொடங்கக்கூடாது.
- (10) குத்தகை வழங்கப்பட்டுள்ள இடத்திற்குள் எல்லையிலிருந்து 7.5 மீட்டர் தூரத்திற்குள் குவாரி செய்யக் கூடாது.
- (11) பொது சாலைகளிலிருந்து குத்தகை வழங்கப்பட்ட இடத்திற்குச் செல்ல பாதை வசதி குத்தகைதாரர் சொந்த பொறுப்பில் செய்து கொள்ள வேண்டும்.
- (12) குத்தகை ஒப்பந்தப்பத்திரத்துடன் இணைத்துள்ள வரைபடத்தில் காட்டியுள்ள குத்தகை இடத்தைச் சுற்றிலும் எல்லைக்கற்கள் நட்டு அவற்றைச் சரியானபடி பராமரிக்க வேண்டும்.



- (25) அரசின் அவ்வப்போதைய ஆணைகளுக்கேற்ப நிபந்தனைகளை மாற்றி அமைக்கவோ, நீக்கவோ, கூடுதலாக சேர்க்கவோ, மாவட்ட ஆட்சித்தலைவருக்கு முழு அதிகாரம் உண்டு.
- (26) மேற்கூறிய நிபந்தனைகளுடன் 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், சுரங்கங்கள் மற்றும் சுனிமங்கள் ( ஒழுங்குமுறை மற்றும் அபிவிருத்தி) சட்டம், 1957, மாவட்ட ஆட்சித்தலைவர் ஆகியோரால் அவ்வப்போது பிறப்பிக்கப்படும் ஆணைகள் குத்தகைதாரரைக் கட்டுப்படுத்தும்.
- (27) குவாரிகள்/சுரங்கங்களுக்கு பொருந்தக்கூடிய தொழிலாளர் சட்டங்களுக்கு கட்டுப்பட்டு குத்தகைதாரர் குவாரி செய்யவேண்டும். தவறினால் சம்மந்தப்பட்ட அரசின் சட்டப்பூர்வமான நடவடிக்கைகளுக்கு குத்தகைதாரர் உள்ளாக வேண்டி இருக்கும்.
- (28) இந்திய வெடிமருந்து சட்டம் 1884 (Central Act IV of 1884)-ன்படி உரிய வெடிமருந்து உரிமம் பெற்று குத்தகைதாரர் பாறைகளை வெடிவைத்து உடைக்க வேண்டும். தவறும் பட்சத்தில் குத்தகைதாரர் கடும் தண்டனைக்கு உள்ளாக வேண்டியிருக்கும்.
- (29) குத்தகைதாரர் குவாரியில் குழந்தை தொழிலாளர்களை பணியமர்த்தக்கூடாது.

IV) a) The conditions imposed by the Tamil Nadu Pollution Control Board in the consent to Operate in Air and Water Pollution Act should be strictly adhered and the consent should be renewed periodically.

b) The Environment Clearance issued by the SEIAA, Tamil Nadu should be renewed within the prescribed time limit.

V) Conditions imposed by the SEIAA.

1. (i) The Environmental Clearance is granted to Mining of Rough Stone for the production quantity of 359910 Cum of Rough stone for the period of 5 Years from the date of execution of the Mining lease period.

(ii) The approved quantity of rough stone to be quarried = 359910 CBM

(iii) Depth of mining permitted = 16 mts.

2. A. Conditions to be complied before the commencing of mining operation

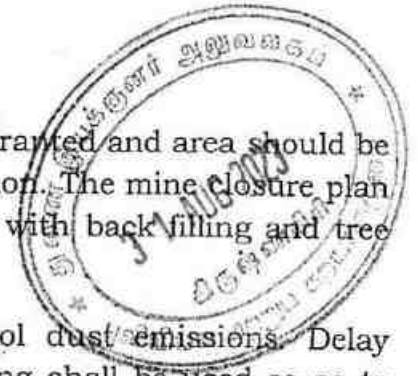
(1). The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that

(i). The project has been accorded Environmental Clearance.

(ii). Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.


(iii). Environmental Clearance may also be seen on the website of the SEIAA.

(iv). The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.



- (16). The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
- (17). Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
- (18). Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
- (19). The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
- (20). Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
- (21). A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
- (22). The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
- (23). The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- (i). Roads shall be graded to mitigate the dust emission.
  - (ii). Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.
- (24). The following measures are to be implemented to reduce Noise Pollution
- (i). Proper and regular maintenance of vehicles and other equipment.
  - (ii). Limiting time exposure of workers to excessive noise.
  - (iii). The workers employed shall be provided with protection equipment and earmuffs etc.
  - (iv). Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that measures shall be carried out. District Collector / Mining officer shall ensure this.

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- (35). No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
- (36). To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
- (37). It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
- (38). It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
- (39). Ground water quality monitoring should be conducted once in 3 Months.
- (40). Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
- (41). Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
- (42). Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
- (43). Bunds to be provided at the boundary of the project site.
- (44). The project proponent shall undertake plantation/ afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
- (45). At least 10 Neem trees should be planted around the boundary of the quarry site.
- (46). Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.





- (60) The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before execution of mining lease.
- (61) The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
- (62) Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
- (63) The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, three plantation and bio diversity, surrounding water bodies etc.
- (64) The project proponent is also directed to strictly adhere to the Sustainable Sand Mining Management guidelines, 2016 wherever applicable.
- (65) The proponent shall provide green belt development at the rate of not less than 400 trees/ Hectare. The tree saplings shall be not less than 1m height.
- (66) The quarrying activity in no way should disturb the Wildlife habitat, free migratory movement of the wildlife nor disturb the wildlife in any way.

**B. General Conditions:**

- (1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- (2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- (3) No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
- (4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- (5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.



(16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

(17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance

(18) The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.

(19) The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA.TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.

(20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

(21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

(22) Any other conditions stipulated by other Statutory/ Government authorities shall be complied.

VI. The lessee should strictly adhere all the conditions imposed in the environmental clearance issued by The SEIAA Tamil Nadu and consent order of the Tamil Nadu Pollution Control Board.

VII. The lessee should periodically renew the environmental clearance and the consent orders of the Tamil Nadu Pollution Control Board without any lapse.

VIII. If any illicit quarrying is found in the area over an extent of 4.04.5 hectares in S.F.No. 1266 of Kammandoddi Village, Hosur Taluk Krishnagiri

District before the date of execution of lease deed, this lease deed is liable to be cancelled and criminal action will be initiated.

IX. If the quarry area is situated within 10 km distance from any protected areas NOC from the Standing committee of NBWL should be obtained before commencing the quarry operation.

X. If the lease holder wants to quarry more than the quantity permitted in the environmental clearance within the lease period, modified mining plan / scheme and Environment Clearance for the additional quantity should be submitted.

*hpy*  
DISTRICT COLLECTOR,  
KRISHNAGIRI.

*3/2*

*6.10.18*

To  
Thiru R.Rajappa,  
No. 3/883, Pillayakothor Village,  
Koneripalli Post,  
Hosur Taluk,  
Krishnagiri District.

Copy to

1. The Sub Collector, Hosur.
2. The Tahsildar, Shoolagiri
3. The Village Administrative Officer, Kammandoddi village.

*De*  
*6.10.18*



காழிநாடு தமிழ்நாடு TAMILNADU Rs: 5000/- J 522236 522236  
 5654 R. Rajappa  
 13. 9. 2017 Pillaiakothur  
 Kamandoddi  
 T. SRINIVAS  
 S.V. Licence No: 3925/B  
 NALLAGANAKOTHAPALI

**LEASE DEED FOR QUARRYING AND CARRYING AWAY MINOR  
 MINERALS BY PRIVATE PERSONS  
 (APPENDIX - I)**

(See Rule 8 of Tamil Nadu Minor Mineral Concession Rules 1959  
 and Krishnagiri District Collector's Proc. No.102/2016 (Mines-1)  
 dated 06.10.2017.

THIS INDENTURE MADE THIS 13<sup>th</sup> day of October 2017 between the  
 Governor of Tamil Nadu (hereinafter referred to as "the Lessor" which expression shall,  
 where the context so admits include his successors in office and assigns) on the one  
 part, and Thiru R.Rajappa, No. 3/883, Pillayakothor Village, Koneripalli Post, Hosur  
 Taluk, Krishnagiri District (hereinafter called "the lessee" which expression shall where  
 the context so admits include his heirs, executors, administrators, legal representatives  
 and assigns) of the other part.

LESSEE

DISTRICT COLLECTOR



கரிகிழங்காடு தமில்நாடு TAMILNADU Rs. 5000/- I 522237  
 5655  
 13. 9. 2017  
 R. Rajappa  
 Pillaiakottur  
 Kannadoddi  
 T. SRINIVAS  
 S.V. Licence No: 3925/B  
 NALLAGANAKOTHAPAL  
 52223

WHEREAS the lessee has been the successful bidder in a sealed tender cum public auction conducted by the Government of Tamil Nadu (hereinafter referred as "the Government") for the lease of land in Krishnagiri district for the purpose of quarrying rough stone, jelly and sized stone and has deposited with the Collector of Krishnagiri a sum of Rs. 12,00,000 (Rupees twelve lakhs only) at State Bank of India, Krishnagiri on 14.09.2017 as security for the due and faithful performance by the lessee of the covenants and conditions on the part of the lessee hereinafter contained.

AND WHEREAS the lessor has agreed to grant the lessee, a lease of the lands and premises hereinafter described, as per Tamil Nadu Minor Mineral Concession Rules, 1959 (herein after called "The Rules").

AND WHEREAS the lessee had paid to the credit of the Government a sum of Rs. 1,20,00,000/- (Rupees one crore twenty lakhs only) as one time lease amount for Ten years of lease.

LESSEE

DISTRICT COLLECTOR



NOW THERE PRESENTS WITNESS AS FOLLOWS:-

1. The lessor hereby demises to the lessee all those several pieces or parcels of land situate in the village of Kummandoddi in the Registration District of Shoolagiri in the State of Tamil Nadu being more particularly described in the Schedule hereunder written and delineated in the map or plan hereunto annexed and there in coloured.

2. There are included in the said demise and for the purposes thereof the liberties following:-

(1) To get rough stone, jelly and sized stones from the said demised pieces of land.

(2) For the purpose aforesaid to use any water in or under the said demised pieces of land and to divert the same and to make or construct any water courses or ponds so, however, that nothing shall be done in the exercise of this authority which shall interfere with the rights of any adjoining owners or tenants of the lessor in respect of such water.

(3) Generally to do all things which shall be convenient or necessary for getting the rough stone, jelly etc. hereby authorised to be got and for removing and disposing thereof as aforesaid.

3. There are excepted from and reserved to the lessor out of this demise:-

(1) All earth, minerals and other substances not hereinbefore expressly authorised to be got from the demised lands by the lessee.

(2) Liberty for the lessor or other persons authorised by them to search for, work, get, carry away and dispose of the excepted minerals and other substances and for such purposes to have the right of ingress, egress and regress over the said demised pieces of land and to make, erect and use all pits, machinery, buildings, roads and other necessary works and conveniences provided that the rights hereby reserved shall be exercised in such a way as to cause as little obstruction as possible to the lessee in the use and enjoyment of his rights hereunder and that reasonable compensation for damages caused by any such obstruction shall be paid to the lessee the amount thereof and in case of difference to be settled by arbitration as hereinafter provided.

4. The said premises shall be held by the lessee for the term of TEN YEARS from the 1<sup>st</sup> day of October-2017 to the 1<sup>st</sup> day of October-2027 which shall however be determinable as hereinafter provided.

5. The lessee shall pay during the said term the area assessment the cess and neighbourhood fee or dead rent which ever is greater, for the minerals removed or consumed at the rates prescribed from time to time in appendix II of the rules.

(1) The said neighbourhood fee as prescribed in appendix II from time to time shall be paid before the same is removed from the demised pieces of land. The mode of payment of the same shall be indicated by the District Collector from time to time.

Handwritten signature/initials



DISTRICT COLLECTOR



(2) The lessee hereby covenants that any fee, cessa, rent, ~~tax~~ or any other sum due to the Government if not paid within the stipulated period will pay with interest as envisaged in the rules.

6. The lessee hereby covenants with the lessor as follows:-

(1) To pay the assessment, cessa and seigniorage fee or dead rent which ever is greater and other amounts due to the Government, on the days and in the manner aforesaid.

(2) To bear, pay and discharge all existing and future rates, taxes, assessment, duties, impositions, outgoings and burdens whatsoever imposed or charged upon the demised premises or the produce thereof or the land assessment, the cessa and the seigniorage fee or dead rent hereby reserved or upon the owner or occupier in respect thereof or payable by either in respect thereof except such charges or impositions as the lessee is or may hereby be by law exempted from.

(3) Before digging or opening any part of the said demised pieces of land for rough stone, jelly etc. carefully remove the surface soil and lay aside and store the same in some convenient part of the said demised piece of land until the land from which it has been removed is again restored to a state, fit for cultivation as hereinafter provided.

(4) To effectually fence off the same demised pieces of land from the adjoining lands and to keep the fences in good repairs and -condition.

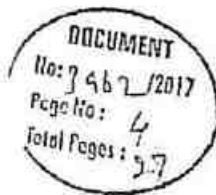
(5) Not to assign, underlet or part with the possession of the demised premises or any part thereof without the written consent of the lessor first obtained.

(6) After working out any part of the said demised pieces of land forthwith to level the same and replace the surface soil thereof and slope the edges where necessary so as to afford convenient connection with the adjoining land.

(7) That the lessee shall keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of the mineral obtained by the lessee from the said lands and also the number of persons employed in carrying on the said quarrying operations therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and workings in the said lands and shall allow any officer thereunto authorized by the Government from time to time and at any time, to examine such accounts and any such plans and shall when so required supply and furnish to the Government all such information and returns regarding all or any of the matters aforesaid, the Government shall from time to time require and direct.

(8) That the lessor's agents, servants and workmen shall be at liberty at all reasonable times during the said term to inspect and examine the works carried on by the lessee under the liberties herein before granted and the lessee shall and will from time to time and at all times during the said term hereby granted confirm to and

LESSEE



DISTRICT COLLECTOR



observe all orders and regulations which the lessor or his authorised agents as the result of such inspection may from time to time see fit to impose to keep the premises in good and substantial repair, order and condition or in the interest of public health and safety.

(9) That the lessee shall not without the express sanction in writing of the Collector cut down or injure any timber or trees on the said lands but he may clear away brush wood or undergrowth which interferes with any operations authorized by these presents.

(10) That if the lands shall be used for any purpose other than quarrying for rough stone, jelly etc. or if they are not under or at any time cease to be used for the said purpose the lessor shall be at liberty to terminate the lease without notice.

(11) That this lease may be terminated in respect of the whole or any part of the premises by six months notice in writing on either side.

(12) That on such determination the lessee shall have no right to compensation of any kind.

(13) That the land assessment, cess and seigniorage, rents or other amounts payable under these presents, shall be recoverable under the provisions of Tamil Nadu Revenue Recovery Act 1864 (Tamil Nadu Act II of 1864) or any subsisting statutory modification thereof.

(14) At the determination of the lease to deliver up the demised premises in such condition as shall be in accordance with the provisions of these presents save that the lessee shall, if so required by the lessor, restore in manner provided by the foregoing covenant in that behalf the surface of any part of the land which has been occupied by the lessee for the purpose of the works hereby authorized and has not been so restored.

(15) That the lessee shall abide by the conditions laid down in the payment of Wages Act 1936, the Mines Act 1952 (Central Act XXXV of 1952) and the Indian Explosives Act, 1884 (Central Act IV of 1884). Metalliferous Mines Regulations, 1961, Mines and Minerals (Development and Regulation) Act, 1957 and rules made there under.

(16) The lessee shall comply with the provision of labour laws applicable to quarries and any contravention of the provisions shall attract legal proceedings of the appropriate Government.

(17) After signing this agreement and in the sketch of FMB, the lessee has no rights to question about the measurement of the area leased out, lease conditions and other related matters.

(18) On any account neither the lease period can be extended nor renewed for a further period.

*L. Rajan*  
LESSEE



*U.S.*  
DISTRICT COLLECTOR





(19) (a) On execution of these presents, the lessee has to take possession of the leasehold area immediately by giving proper acknowledgement.

(b) On the date of expiry of the lease period, the lessee shall hand over the leased out area to the Village Administrative Officer concerned through an affidavit, and the acknowledgement obtained from the Village Administrative Officer for having done so shall be handed over to the Taluk Tahsildar concerned under intimation to the concerned Revenue Divisional Officer and the District Collector.

(20) The lessee hereby covenants to get the lease agreement registered at his expenses under clause (d) of sub section (1) of section 17 of Registration Act 1908.

(21) The lessee shall remove, or allow removal and transportation of the mineral prescribed from the area where quarrying is permitted only after obtaining bulk transport permit and authenticated despatch slips in the forms prescribed in Appendices XII and XIII to these rules, from the Deputy Director (Geology and Mining) Krishnagiri. The lessee or his men shall issue the facsimiled despatch slips to the vehicles used for removal or transportation of the mineral furnishing all the particulars in the despatch slips specifically indicating the vehicle number, the quantity of the mineral allowed to be transported by the vehicle by using that despatch slip and the date and time of issue of the despatch slip to the vehicle. All the vehicles used for transporting minor mineral from the leased out area shall accompany with the individual despatch slips for the quantity of the minerals available in the vehicle at all the times of transportation of the mineral by the vehicles and produce them for check and verification by the competent authorities.

(22) Any violation of the above condition will lead to penal action under Tamil Nadu Minor Mineral Concession Rules 1959 read with Mines and Minerals (Development and Regulation ) Act 1957 (hereinafter called the Act).

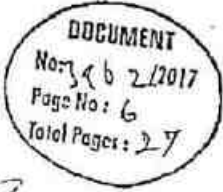
(23) (a) Only rough stone, jelly and sized stone must be quarried and the lessee should not quarry big granite blocks or ornamental stone of export worthy blocks to be used for cutting and polishing.

(b) If it is found that the lessee is producing granite blocks for cutting and polishing and for export, the lease granted in these presents will be cancelled, with forfeiture of security deposit to the Government and penal action will be initiated as per Mines and Minerals (Development & Regulation ) Act 1957.

(24) The lessee has to form approach road at his own cost and the Government will not be responsible for dispute if any with or nearby Pattadars or other third parties.

(25) The lessee has to quarry according to the provisions of Mines and Minerals (Development and Regulation) Act 1957, Metalliferrous Mines Regulations 1961 and the rules made thereunder.

1. Rajan  
LESSEE



1/22  
DISTRICT COLLECTOR

26) The lessee should maintain at his cost boundary pillars, proper sign board indicating the survey number and extent, period of lease, name of the lessee and maintain the sign board during the lease period.

7. The lessor hereby covenants with the lessee that the lessee paying the land assessment, the cess and the seigniorage fee hereby reserved and observing and performing the several covenants and stipulations on the part of the lessee herein contained shall peacefully hold and enjoy the premises, liberties and powers hereby demised and granted during the said term without any interruption by the lessor or any persons rightfully claiming under or in trust for him.

8. It is hereby further agreed between the parties as follows:-

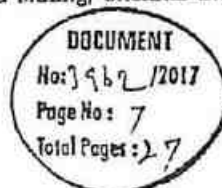
(1) If any part of the land assessment, cess or seigniorage hereby reserved shall be unpaid for thirty days after becoming payable (whether formally demanded or not) or if the lessee which the demised premises or any part thereof remain vested in him, shall become insolvent or if any covenant on the lessee's part herein contained shall not be performed or observed, then and in any of the said cases it shall be lawful for the lessor at any time thereafter to declare the whole or any part of the said security deposit of Rs. 12,00,000/- to be forfeited and also to re-enter upon the demised premises or any part thereof in the name of the whole and thereupon the demise shall absolutely determine but without prejudice to the rights of action of the lessor in respect of any breach or non-observance of the lessee's covenants herein contained.

(2) At the determination of the lease, the lessee shall be at liberty to remove, carry away and dispose off all the stock of rough stone, jelly etc ready for delivery and all engines, machinery, and all plant, articles and things whatsoever (not being building or brick or stones), the lessee first paying any land assessment, cess and seigniorage and other sums which may be due and performing and observing the covenants on his part herein before reserved and contained and also making good any damage done by such removal but any buildings which shall be erected on the said demised pieces of lands by the lessee and left there on at the determination of lease shall be the absolute property of the lessor who shall not be bound to pay any price for the same.

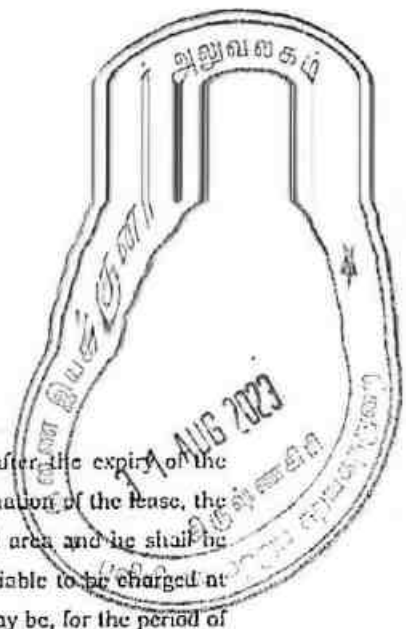
(3) If the lessee shall have paid the land assessment, cess and seigniorage due to the Government and duly observed and performed the covenants and conditions on his part herein contained, the said deposit of Rs. 12,00,000/- (Rupees twelve lakhs only) shall be returned to him at the expiration of the said term of Ten years.

(4) Should any question or dispute arise regarding this agreement executed in pursuance of these Rules or any other matter or thing connected therewith or the powers of the lessee thereunder the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining, Chennai. In case the lessee is not satisfied with the decision of the Director of Geology and Mining, Chennai the matter shall be referred to the State Government for decision.

M. J. S.  
LESSEE



DISTRICT COLLECTOR



9. If the lessee is in occupation of the lease-hold area after the expiry of the period for which the lease has been granted or after the determination of the lease, the lessee shall be deemed to be in unlawful possession of the said area and he shall be liable for eviction from the lease-hold area in addition to being liable to be charged at double the rate of the lease amount or bid amount as the case may be, for the period of such occupation.

10. All land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, as if they were arrears of land revenue.

11. In the event of any breach by the lessee by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector to give notice in writing to the lessee of his intention to cancel these presents whereupon the same shall stand canceled but without prejudice to any rights which the Government may have against the pattadar in respect of any antecedent claim or breach of covenant or condition.

12. The lessee shall abide by the conditions laid down in the payment of wages Act, 1936, (Central act IV of 1936), the Mines Act, 1952 ( Central act XXXV of 1952) and the Indian Explosives Act, 1884 (Central Act IV of 1884).

13. No hindrance should be caused to, the surrounding patta fields and poramboke lands.

14. The lessee should strictly adhere to the conditions and rules stipulated by the Government for Minor Minerals from time to time and he should remit seigniorage for the Minerals removed as per the rates stipulated by Government from time to time.

15. The lessee should maintain a safety zone of 7.5 metres on the boundary of the patta lands and 10 metre from the poramboke lands in and around the lease hold area.

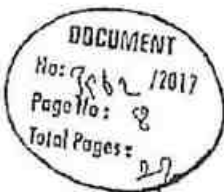
16. The lessee should demarcate the leasehold area at his own cost and should quarry stone only within that area.

17. The lessee should not assign, underlet or sublet any part of the lease area.

18. The lessee should obtain the permit, and the despatch slips for the transport of Rough stone/Jelly, etc from the Assistant Director/Deputy Director of Geology and Mining, Krishnagiri. The despatch slips should be kept in the quarry site and be issued to all the vehicle while transporting the stone, Jelly etc from the quarry.

19. The lessee should leave a safety distance of 50 metres from the railway line, National Highways roads, low tension and high tension and Telephone lines, transformers, temples, or historical importance etc. 10 metre from the village road and 300 metre from the approved layout and habitations.

*H. S. S. S.*  
LESSEE



*[Signature]*  
DISTRICT COLLECTOR

9/22





- (5) அ) குத்தகை வழங்கப்பட்ட இடத்திற்கு அருகிலுள்ள ரூபாய்தகைகள், மூலக்கள், மின்சாரம் மற்றும் தொலைபேசி கம்பிகள் குறுக்கு 50 மீட்டரும், குடியிருப்பு பகுதியிலிருந்து 300 மீட்டரும், நடைபாதைகள், மீளும் சாலைகளுக்கு 10 மீட்டரும் பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்ய வேண்டும்.  
ஆ) அருகிலுள்ள அருக நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்வது செய்ய வேண்டும்.  
இ) அருகிலுள்ள மட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்வது செய்ய வேண்டும்.
- (6) மாவட்ட ஆட்சித்தலைவர் (அல்லது) அரசால் அதிகாரம் வழங்கப்பட்ட அலுவலரை குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிடவும், குவாரி பதிவேடுகள், அலுவலர்கள் மற்றும் உணர்வுகள் சரிபார்க்கவும் அனுமதிக்க வேண்டும். இது சம்பந்தமாக அலுவலர்கள் மேலும் அனைத்து விவரங்களையும் வழங்க வேண்டும்.
- (7) கற்றுடிக் குடிநீரை பாதுகாப்பு, கனிம பாதுகாப்பு, தொழிலாளர் பாதுகாப்பு முதலியவற்றைக் கருத்தில் கொண்டு விஞ்ஞான அடிப்படையில் திறமையுடன் முறையாகக் குவாரி செய்ய வேண்டும்.
- (8) மாவட்ட ஆட்சித்தலைவர் மற்றும் ஆளாளர், புலியியல் மற்றும் கரங்கற்றுறை, ஆயிரியோரால் அதிகாரம் வழங்கப்பட்ட அலுவலரை மேலே பத்தி (5)-ல் குறிப்பிட்டுள்ள நிபந்தனைகள் தொடர்பாகவும், மேற்கண்ட அலுவலர்களின் ஆணையை நிறைவேற்றவும் குத்தகை வழங்கப்பட்ட இடத்தைப் பார்வையிட அனுமதிக்க வேண்டும்.
- (9) குத்தகைதாரரின் செலவில் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றி அதனை பதிவு செய்வதற்கு முன்பு குத்தகை இடத்தில் குவாரி மற்றும் இது சம்பந்தப்பட்ட வேலைகளைத் தொடங்கக்கூடாது.
- (10) குத்தகை வழங்கப்பட்டுள்ள இடத்திற்குள் எல்லையிலிருந்து 7.5 மீட்டர் தூரத்திற்குள் குவாரி செய்வக் கூடாது.
- (11) பொது சாலைகளிலிருந்து குத்தகை வழங்கப்பட்ட இடத்திற்குச் செல்ல பாதை வசதி குத்தகைதாரர் செய்து பொறுப்பில் செய்து கொள்ள வேண்டும்.
- (12) குத்தகை ஒப்பந்தப்பத்திரத்தின் இணைத்துள்ள வரைபடத்தில் காட்டியுள்ள குத்தகை இடத்தைக் கற்றிலும் எல்லைகளுக்கள் நட்டு அவற்றைச் சரியானபடி அளவளிக்க வேண்டும்.
- (13) 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் இணைப்பு XII மற்றும் XII-ல் உள்ள மூலக்களில் முறையே இணைக்கப்பட்டு மற்றும் நடைச்சீட்டினைத் தயார் செய்து அவற்றில் மாவட்ட ஆட்சித்தலைவரால் அதிகாரம் வழங்கப்பட்ட அலுவலரின் கையெழுத்து முத்திரை மற்றும் அலுவலக முத்திரைகள் பெற்று குவாரியிலிருந்து குவாரிக்குள், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லி ஆகியவற்றை வெளியில் எடுத்துச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் ஒவ்வொரு நடைக்கும் வழங்கப்பட வேண்டும். குவாரிக்குள், கட்டுக்கல், சக்கைகள், ஐஸ்லி ஆகியவற்றை ஏற்றிச் செல்லும் ஒவ்வொரு வாகனமும் அதனைச் சோதனைச் செய்வதற்கு அதிகாரம் பெற்ற அலுவலர் சோதனைச் செய்யும்போது நடைச்சீட்டினைக் காண்பிக்க வேண்டும். இணைக்கப்பட்டு மற்றும் நடைச்சீட்டின் நகல்களை குவாரியில் வைத்திருக்க வேண்டும். முறையான இணைக்கப்பட்டு மற்றும் நடைச்சீட்டுகள் இல்லாமல் செய்க்களை ஏற்றிச் செல்லும் வாகனங்கள் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் மற்றும் சாங்கல் மற்றும் கனிமங்கள் (ஒழுங்குமுறை மற்றும் அபிவிருத்தி) சட்டம், 1957-ன்படி கைப்பற்றப்பட்டு, குத்தகைதாரர் மீது நடவடிக்கை எடுக்கப்படுவதன் குவாரிக்கு குத்தகையையும் ரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.
- (14) குத்தகை வழங்கப்பட்ட இடத்தை குவாரிக்குள், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லி குவாரி செய்ய மட்டும் பயன்படுத்த வேண்டும். குத்தகை உரிம ஆளாளர் அல்லது குத்தகை ஒப்பந்தப்பத்திரத்தில் தவறுதலாக கனிம விவரம் குறிக்கப்பட்டு இருந்தால் அதனை எந்த நேரத்திலும் திருத்திவதற்கு மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகைதாரர் அதனடிப்படையில் எந்த உரிமையும் கோரமுடியாது.
- (15) மெருகேற்றுவதற்கும், அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும் பயன்படும் செலிய கற்றுண்டங்கள் வடிவத்தில் ஏற்குவாரி செய்யக் கூடாது.
- (16) குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிக்கப்படாத வேறு ஏதாவதொரு கனிமம் கிடைத்தால், அதனை சம்பந்தப்பட்ட அலுவலரின் அனுமதியைப் பெறாமலும், அதற்குரிய சீரமைப்புத் தொகையைச் செலுத்தாமலும் எடுக்கக்கூடாது. புதிய கனிமம் கிடைத்த விவரத்தை 30 தினங்களுக்குள் தெரிவிக்காமல் எடுத்துச் சென்றால் இக்குற்றத்திற்கு அந்த கனிமத்திற்குரிய சாதாரண சீரமைப்புத் தொகையைச் செலுத்தாமல் 15 மடங்குவரை மாவட்ட ஆட்சித்தலைவரால் அபராதம் விதித்து வசூலிக்கப்படும்.
- (17) குத்தகை காலம் முடிந்தபிறகு, குத்தகை வழங்கப்பட்ட இடத்திலிருந்து குவாரிக்குள், கட்டுக்கல், சக்கை மற்றும் ஐஸ்லிய குவாரி செய்து வெளியில் எடுத்துச் செல்ல குத்தகைதாரருக்கு உரிமையிடுகல்.

P. K. Sath  
LESSEE



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- (18) குத்தகை காலம் முடிவடைந்த பிறகு குத்தகை இடத்தில் எந்தவித மாற்றங்களும் தராத பொருட்சேய்யும் கையாடும்படிக்கு உட்பட்டது. அன்றைய குத்தகை காலத்தில் கடைபிடிக்கப்பட்ட குத்தகைதரர் எடுத்தும் சென்றபடி வேண்டும்.
- (19) குத்தகைகளை வேறு எங்குக்கும் உள் குத்தகைக்கு விடக்கூடாது.
- (20) குவாரி செயல்படும் இடம் அங்குள்ள பகுதிக்கு மேலகக்கூடாது.
- (21) குவாரியில் வேலை செய்கும் தொழிலாளர்கள் மற்றும் இது நபர்களுக்கு விபத்து ஏற்படுவது ஏற்படும் அல்லது முழுப் பொருள்சேய்யும் குத்தகைதரரைச் சேரும். இதற்கு அரசு பொறுப்பில்.
- (22) அரசுக்கு செலுத்த வேண்டிய தொகையை உரிய காலத்திற்குள் செலுத்தவில்லை என்றால் அத்தொகை 24 % அல்லது அரசால் அனுப்பியோடு நிர்ணயிக்கப்படும் விகிதத்தில் வட்டியுடன் குத்தகைதரரிடமிருந்து வசூலிக்கப்படும்.
- (23) அரசுக்கு செலுத்த வேண்டிய பங்கித் தொகை தமிழ்நாடு வசூலாய் வசூல் சட்டம் 1954-ன் கீழ் வசூலிக்கப்படும்.
- (24) குத்தகை நிபந்தனைகள், 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுசெயி சலுகை விதிகள், அரசு ஆய்வகம், டிவிசியல் மற்றும் கங்குலாறு, மாவட்ட ஆட்சித்தலைவர் ஆபீசுமூலம் ஆய்வகம் கீழ்க்கட்டும் மீறல்களுக்கு அபாயம் விதிக்கப்பட்டு அம்மாதம் குத்தகைதரர்களுக்கு நேர்ப்பு விவரணைக்கு வாய்ப்பளித்த பின் குத்தகை உரிமை ரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.
- (25) அரசின் அனுப்பியோடு ஆய்வகங்களுக்கேற்ப நிபந்தனைகளை மாற்றி அமைக்கலாம், நீக்கலாம், கூடுதலாக சேர்க்கலாம், மாவட்ட ஆட்சித்தலைவருக்கு முழு அதிகாரம் உண்டு.
- (26) மேற்கூறிய நிபந்தனைகளுடன் 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுசெயி சலுகை விதிகள், கங்குலாறு மற்றும் கலிங்கம் ( ஒலங்குமுறை மற்றும் அலிகிருத்தி) சட்டம் 1957, மாவட்ட ஆட்சித்தலைவர் ஆபீசுமூலம் அனுப்பியோடு மீறப்படும் ஆய்வகம் குத்தகைதரரைக் கட்டுப்படுத்தும்.
- (27) குவாரி/பாங்குக்களுக்கு பொருத்தமான தொழிலாளர் சட்டங்களுக்கு கட்டுப்பட்டு குத்தகைதரர் குவாரி செயல்பெண்டும் தவறாமல் சம்மதிக்கப்பட்ட அரசின் சட்டப்பூர்வான நடவடிக்கைகளுக்கு குத்தகைதரர் உள்ளாக வேண்டி இருக்கும்.
- (28) இந்திய வெடிமருத்து சட்டம் 1884 (Central Act IV of 1884)-ன்படி உரிய வெடிமருத்து உரிமை பெற்று குத்தகைதரர் பாறைகளை வெடிவைத்து உடைக்க வேண்டும். தவறும் பட்சத்தில் குத்தகைதரர் கடும்கண்டனக்கு உள்ளாக வேண்டியிருக்கும்.
- (29) குத்தகைதரர் குவாரியில் குடிநீர் தொழிலாளர்களை பணிபுத்தக்கடாது.

27) n) The conditions imposed by the Tamil Nadu Pollution Control Board in the consent to establishment in Air and Water Pollution Act should be strictly adhered and the consent should be renewed periodically.

b) The Environment Clearance issued by the SEIAA, Tamil Nadu should be renewed within the prescribed time limit.

**28) Conditions imposed by the SEIAA.**

1. i) The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 years from the date of issue whichever is earlier.

ii) The approved quantity of rough stone to be quarries = 359910 cbm

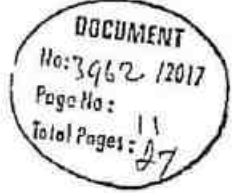
iii) Depth of mining permitted = 16 mts.

**2. A. Conditions to be complied before the commencing of mining operation**

(1). The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that

(i). The project has been accorded Environmental Clearance.

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(ii). Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.

(iii). Environmental Clearance may also be seen on the website of the SEIAA.

(iv). The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

(2) Mining activity should be reviewed by the District Collector after three years and decide for further extension.

(3) The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.

(4). NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

(5). The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.

(6). A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.

(7). Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.

(8). The proponent shall ensure that First Aid Box is available at site.

(9). The excavation activity shall not alter the natural drainage pattern of the area.

(10). The excavated pit shall be restored by the project proponent for useful purposes.

(11). The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.

(12). The quarrying operation shall be restricted between 7AM and 5 PM.

(13). The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.

(14). A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

(15). Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.

(16). The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.

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(17). Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.

(18). Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.

(19). The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

(20). Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.

(21). A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.

(22). The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, Govt on 16.11.2009.

(23). The following measures are to be implemented to reduce Air Pollution during transportation of mineral

(i). Roads shall be graded to mitigate the dust emission.

(ii). Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.

(24). The following measures are to be implemented to reduce Noise Pollution

(i). Proper and regular maintenance of vehicles and other equipment.

(ii). Limiting time exposure of workers to excessive noise.

(iii). The workers employed shall be provided with protection equipment and earmuffs etc.

(iv). Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

(25). Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, Govt to control noise to the prescribed levels.

*A. Rajan*  
LESSEE



*[Signature]*  
DISTRICT COLLECTOR



(26). Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director CGWB. Suitable measures should be taken for rainwater harvesting.

(27). Permission from the competent authority should be obtained for drawl ground water, if any, required for this project.

(28). Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

(29). The following measures are to be adopted to control erosion of dumps:-

(i). Retention/ toe walls shall be provided at the foot of the dumps.

(ii). Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

(30). Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.

(31). Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

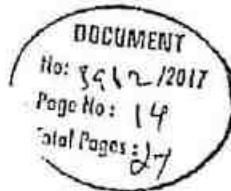
(32). Rain water harvesting to collect and utilize the entire water falling in land area should be provided.

(33). Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the (lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.

(34). The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that measures shall be carried out. District Collector / Mining officer shall ensure this.

(35). No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

*N. Raju*  
LESSEE



*[Signature]*  
DISTRICT COLLECTOR

15/2

(36). To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.

(37). It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.

(38). It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site.

(39). Ground water quality monitoring should be conducted once in 3 Months.

(40). Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

(41). Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.

(42). Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.

(43). Bunds to be provided at the boundary of the project site.

(44). The project proponent shall undertake plantation/ afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.

(45). At least 10 Neem trees should be planted around the boundary of the quarry site.

(46). Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.

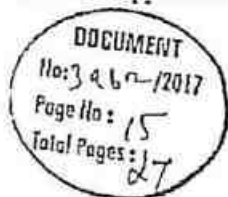
(47). The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity

(48) The CSR funds should be channelized for planting programme, nature conservation support, tribal development and activities that support forest and environment.

(49) The project Proponent shall provide solar lighting system to the nearby villages.

(50). The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.

LESSBE



16/2  
DISTRICT COLLECTOR

(51). Rainwater shall be pumped out Via Settling Tank only

(52). Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.

(53). As per MoEF & CC, Gov. Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.

(54). The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.

(55) Safety equipments to be provided to all the employees.

(56) Safety distance of 50 m has to be provided in case of railway, reservoir, canal/odai

(57) The Assistant / Deputy Director Department of Geology and Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.

(58) The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.

(59) The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.

(60) The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before execution of mining lease.

(61) The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.

(62) Heavy earth machinery equipments if utilized, after getting approval from the competent authority.

(63) The proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.

(64) The project proponent is also directed to strictly adhere to the Sustainable Sand Mining Management guidelines, 2016 wherever applicable.

A. Rajam  
LESSEE



17/6/23  
DISTRICT COLLECTOR

(65) The project shall provide green belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 1 m height.

(66) The quarrying activity in no way should disturb the Wildlife habitat, free migratory movement of the wildlife not disturb the wildlife in any way.

**E. General Conditions:**

(1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.

(2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.

(3) No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.

(4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.

(5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.

(7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.

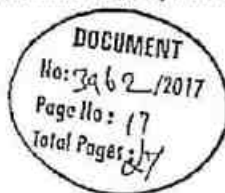
(8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

(9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.

(10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.

(11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

LESSEE



DISTRICT COLLECTOR

(12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. Workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

(13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.

(14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.

(15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its regional office located at Chennai.

(16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

(17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance

(18) The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.

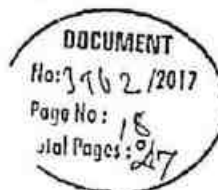
(19) The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA.TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.

(20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

(21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

(22) Any other conditions stipulated by other Statutory/ Government authorities shall be complied.

*R. Rajan*  
LESSEE



*[Signature]*  
DISTRICT COLLECTOR

29. The lessee should strictly adhere all the conditions imposed in the environmental clearance issued by The SEIAA Tamil Nadu and consent order of the Tamil Nadu Pollution Control Board.

30. The lessee should periodically renew the environmental clearance and the consent orders of the Tamil Nadu Pollution Control Board without any lapse.

31. If any illicit quarrying is found in the area over an extent of 4.04.5 hectares in S.F.No. 1266 of Kammandoddi Village, Hosur Taluk, Krishnagiri District before the date of execution of lease deed, this lease deed is liable to be cancelled and criminal action will be initiated.

32. If the quarry area is situated within 10 km distance from any protected areas NOC from the Standing committee of NBWL should be obtained before commencing the quarry operation.

33. If the lease holder wants to quarry more than the quantity permitted in the environmental clearance within the lease period, modified mining plan / scheme and Environment Clearance for the additional quantity should be submitted.

#### THE SCHEDULE

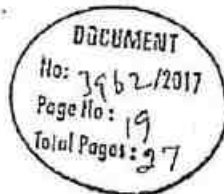
TALUK : HOSUR

VILLAGE : KAMMANDODDI

Sl. No.	Survey number	Field	Extent Leased out in Hectares	Boundary			
				North S.F No.	East S.F No.	South S.F No.	West S.F No.
1.	1266		4.04.5	745 (p) & 759 (p)	754 & 760, 1269(p)	1267 (p) & 1268 (p)	745 (p), 743 (p) & 761 (p)


*[Signature]*  
LESSEE

*[Signature]*  
DISTRICT COLLECTOR



In Witness whereof Thiru C. Kathiravan I.A.S the Collector of Krishnagiri District acting for and on behalf of and by the order and direction of the Governor of TamilNadu, "The Lessor" and Thiru R.Rajappa, No. 3/883, Pillayakottar Village, Koneripalli Post, Hosur Taluk, Krishnagiri District " The lessee" hereunto set their respective hands.

R. Rajappa  
LESSEE

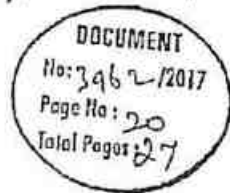
  
DISTRICT COLLECTOR

21/22


Signed by the above named  
in the presence of the following  
witnesses

1. M. Natarajan  
CM-NATARAJAN  
8th MANI  
PUDUKADU  
Uthangomali (T.N.)  
Krishnagiri (P.T.)

2. M. Thangadurai  
4. Thangadurai  
Villangudi (C.P.O.)  
Pochampalli (C.F.K.)  
Krishnagiri - 635201.



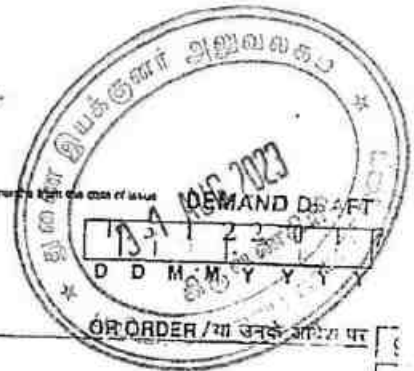
Signed by the above named  
in the presence of the  
following witnesses.

  
DEPUTY DIRECTOR  
Department of Geology and Mining,  
Collectorate, Krishnagiri.

  
ASSISTANT GEOLOGIST  
O/o, the Dept. of Geology and Mining,  
Collectorate, Krishnagiri.

AS PAID

KVB Karur Vysya Bank  
वि.कम.वी.स. बैंक लिमिटेड THE KARUR VYSYA BANK LIMITED  
HOSUR - BATHALAPALLI BRANCH, 44/442, A/B,  
MORANAPALLI, BATHALAPALLI POST, HOSUR - 635109  
IFSC Code: KVBL0001742



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HOSUR

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अधिकृत हस्ताक्षरकर्ता  
AUTHORISED SIGNATORY

*J. Savithan*  
J. Savithan  
अधिकृत हस्ताक्षरकर्ता 826  
AUTHORISED SIGNATORY

Please sign above

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Government of India  
 Election Commission  
 சமீபம் தேர்தல்கள்  
 சமீபம் தேர்தல்கள்  
 சமீபம் தேர்தல்கள்  
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 சமீபம் தேர்தல்கள்

Address:  
 EO Government of India  
 PELAKKOTTA, KUNNAM  
 Taluk, PERAMBALUR  
 District, TAMIL NADU  
 PIN - 621709

8688 6542 3449  
 சமீபம் தேர்தல்கள் - சாதாரண மனிதனைக் கட்டுவதற்கும்

8688 6542 3449

Election Commission of India  
 IDENTIFICATION CARD  
 TN25161-0192121



Name : சமுமுமுமு  
 Elector's Name : Arumugam  
 சமீபம் தேர்தல்கள் : சமுமுமுமு  
 Father's Name : Mallamuthu  
 Sex : ஆண் / Male  
 Date of Birth : XX/XX/1974

Address : 345-3-345  
 Kizhathur Maruthu  
 Kunnam Taluk  
 Perambalur District 621709

Date : 03/12/2023  
 Regional Officer  
 143 - Kunnam  
 Assembly Constituency

DOCUMENT  
 No: 3962/2017  
 Page No: 25  
 Total Pages: 27



**ELECTION COMMISSION OF INDIA**  
IDENTITY CARD

ಆಯ್ಕೆ ಆಯೋಜನೆ  
ಆಯ್ಕೆ ಆಯೋಜನೆ

FMS1690692



Elector's Name : Rajappa  
ಅವನ ಹೆಸರು : ರಾಜಪ್ಪ  
Father's Name : Ramappa  
ತಂದೆಯ ಹೆಸರು : ರಾಮಪ್ಪ  
Sex / ಲಿಂಗ : Male / ಪುರುಷ  
Age as on 17/1/2002 : 22  
1/1/2002 ನಲ್ಲಿ ವಯಸ್ಸು : 22

Address : 823  
Pillayalathur  
Kannatholi (P)  
Kannan Kottal  
CHAYALAPURU 635117

ವಿಳಾಸ : 823  
ಪಿಲಾಯಲತುರು  
ಕನ್ನಾತೊಳಿ (ಪಿ)  
ಕನ್ನಾನ್ ಕೊತ್ತಲ  
ಚಾಯಲಪುರು 635117

Facsimile Signature of Electoral Registration Officer  
ಅವನ ಹೆಸರು ಉಳಿಸಿ ಇದರೊಂದಿಗೆ ಮುದ್ರಿಸಿದ ಚಿತ್ರ  
For 074 - Hosur

Assembly Constituency  
074 - 998  
ಹೊಸೂರು ಜಿಲ್ಲೆ

Place : Hosur  
ಸ್ಥಳ : ಹೊಸೂರು

Date : 28/04/2003  
ದಿನ : 28/04/2003

*R. Rajappa*

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No: 3962/2017  
Page No: 24  
Total Pages: 27

கிஷ்ணகிரி

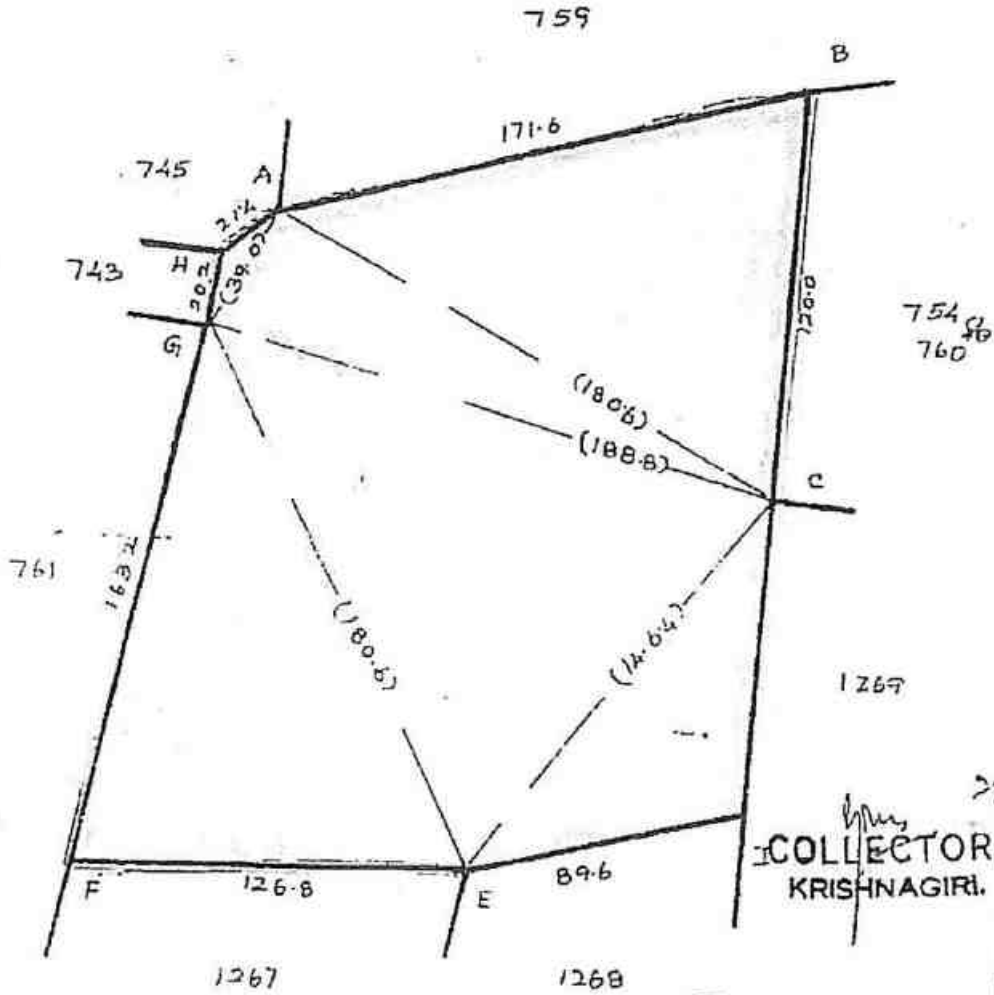
சீலை

புள்ளி: 1266.

பரப்பு: 6.98 ஏக்கர்



சீலாதி உரிமை உயர்த்த 2ம் ம 045  
4.04.5 ஏக்கர்



COLLECTOR, KRISHNAGIRI.

LESSEE

வட்டிசாயர்  
ஓகர்.

TALUK SUB INSPECTOR OF SURVEY  
HC3UR

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26/1/17

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No: 3962/2017  
Page No: 21  
Total Pages: 314

Village Administration Officer  
No. 126, KAMARODDI (Village)  
Talur (Tr.), Krishnagiri (Dt.)

Government of Tamil Nadu  
Registration Department  
Acknowledgement



Reference Details

SRO Name	Soolagiri
Application No.	S01RRA2SS201712110000220
Transaction No.	REG20171211000246
Transaction Date	11/12/2017

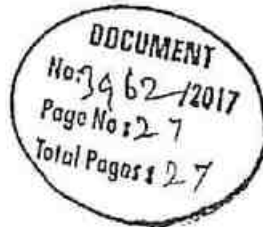
Application Details

Applicant Name	R Rajappa
Service Type	Document Registration (New) in SRO
Stamp Duty collected under Section 41	82040.00
Registration Fee	20400.00
IP Camera Fee	50.00

Payment Details

Name Of the Bank	IndianBank
Bank Ref. No.	IB121220170574859
Payment Mode	Online
Amount Paid	Rs.102490.00
Payment Date	11/12/2017

Printed On :11/12/2017 10.09 AM



வணம் காப்போம்

தமிழ்நாடு வனத்துறை

அனுப்புதல்  
திரு. இ.ராஜேந்திரன்,  
மாவட்ட வன அலுவலர்  
ஓசூர் கால்நடை பண்ணை அஞ்சல்  
மத்திகிரி, ஓசூர் - 635 110.  
தொலைபேசி எண் 04344-262259  
நிகரி எண் - 04344-262869

பெறுதல்  
மாவட்ட ஆட்சித் தலைவர்,  
கிருஷ்ணகிரி மாவட்டம்,  
கிருஷ்ணகிரி.



ந. க. எண். 9277/2014-எல் நாள். 22.04.2015

சூழலிய வரும் சித்திரை 09, திருவள்ளூர் ஆண்டு 2045)

அய்யா,

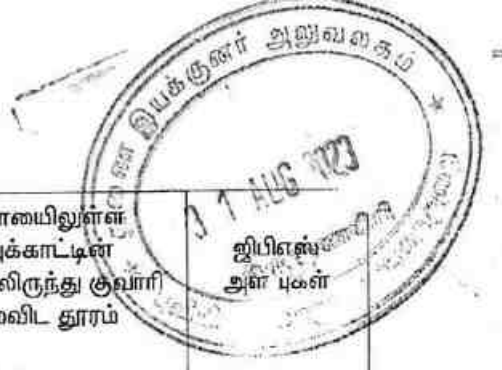
பொருள் : கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் ஓசூர் மற்றும் தேன்கனிக்கோட்டை வட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களை சாதாரண உடைக்கல் மற்றும் ஜல்லி கற்களை வெட்டி எடுக்க டெண்டர்/பொது ஏலம் மூலம் குவாரி குத்தகை வழங்குவது தொடர்பாக வனத்துறையின் தடையின்மை சான்று கோரியது - தணிக்கை செய்து அறிக்கை அனுப்புதல் - தொடர்பாக.

- பார்வை :
1. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.600/2014 (கனிமம்-2) நாள்.13.03.2015.
  2. வனச்சரக அலுவலர், ஓசூர் கடித நாள்.03.04.2015, 04.04.2015 மற்றும் 05.04.2015.
  3. உதவி வனப்பாதுகாவலர், ஓசூர் அறிக்கை நாள். 05.04.2015.
  4. வனப்பாதுகாவலர், தருமபுரி மண்டலம் ந.க.எண்.3638/2015/வ நாள்.22.04.2015.

\*\*\*\*\*

கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் சாதாரண உடைக்கல் மற்றும் ஜல்லி கற்களை வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகை வழங்க கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவரால், பார்வை 2-ல் காணும் கடிதத்தில் வனத்துறையின் தடையின்மை சான்று கோரிய கீழ்க்கண்ட குவாரி பகுதிகளுக்கு அறிக்கையினை அனுப்பி வைக்குமாறு பணிக்கப்பட்டுள்ளது.

வ. எண்.	வட்டம்	கிராமத்தின் பெயர்	புல.எண். மற்றும் வகைப்பாடு	உத்தேச பரப்பளவு (ஹெக்டரிஸ்)	அருகையிலுள்ள காப்புக்காட்டின் எல்லையிலிருந்து குவாரி அமைவிட தூரம்	ஜிபிஎஸ் அளவுகள்
1.	ஓசூர்	காமன்தொட்டி	653 அரசு தீர்வை ஏற்படாத தரிக	5.000	சானமாவு - 3.520 கி.மீ	N:12.66458 E:077.94971
2.	ஓசூர்	காமன்தொட்டி	665 அரசு தீர்வை ஏற்படாத தரிக	5.000	சானமாவு - 3.500 கி.மீ	N:12.66233 E:077.94957



வ. எண்.	வட்டம்	கிராமத்தின் பெயர்	புல.எண். மற்றும் வகைப்பாடு	உத்தேச பரப்பளவு (ஹெக்டாரில்)	அருகாமையிலுள்ள காப்புக்காட்டின எல்லையிலிருந்து குவாரி அமைவிட தூரம்	கூடுதல் தகவல்
3.	ஓசூர்	காமன்தொட்டி	1266 அரசு புஞ்சை அனாதீனம்	4.045	செட்டிப்பள்ளி - 2.680 கி.மீ	N:12.66193 E:077.96141
4.	ஓசூர்	காமன்தொட்டி	1269/2ஏ அரசு புஞ்சை அனாதீனம்	1.665	செட்டிப்பள்ளி - 2.720 கி.மீ	N:12.66151 E:077.96152
5.	ஓசூர்	துப்புகாணப்பள்ளி	420 அரசு தீர்வை ஏற்படாத தரிக - கரடு மலை	5.000	சானமாவூ - 4.570 கி.மீ	N:12.62485 E:077.95221
6.	ஓசூர்	துப்புகாணப்பள்ளி	314 அரசு தீர்வை ஏற்படாத தரிக - ஜேனுகால் மலை	5.000	சானமாவூ - 3.330 கி.மீ	N:12.61290 E:077.92413
7.	ஓசூர்	கோபனப்பள்ளி	327/1 அரசு தீர்வை ஏற்படாத தரிக	5.000	சானமாவூ - 6.420 கி.மீ	N:12.644608 E:077.815897

மேற்குறிப்பிடப்பட்டுள்ள நிலங்களை ஓசூர் வனச்சரக அலுவலர், 03.04.2015, 04.04.2015 மற்றும் 05.04.2015 ஆகிய நாட்களில் களத்தணிக்கை மேற்கொள்ளப்பட்டு மாவட்ட வன அலுவலர், ஓசூருக்கு அறிக்கை சமர்ப்பித்துள்ளனர்.

இனம் 1-ல் காணும் காமன்தொட்டி கிராமம் புல எண் 653 (பகுதி)-ல் 4.440 எக்டர் பரப்பளவில் மாவட்ட மாவட்ட ஆட்சித் தலைவரின் செ.மு.ஆ.எண்.128/2008(கனிமம்-2) நாள்.26.03.2008-ல் குவாரி பணி செய்ய அனுமதி வழங்கப்பட்டு குவாரி பணி நடைபெற்று வந்தது என வனச்சரக அலுவலர் அறிக்கை சமர்ப்பித்துள்ளனர்.

இனம் எண் 5-ல் காணும் துப்புகாணப்பள்ளி கிராம ச.எண்420(பகுதி-5)க்கு அருகில், துப்புகாணப்பள்ளி கிராம ச.எண்420(பகுதி-5)-ல் 5.00.0 ஹெக்டர் பரப்பளவில் குவாரி பணி செய்ய மாவட்ட ஆட்சித் தலைவர் செயல்முறை ஆணை எண்.91/2008(கனிமம்-2) நாள்.29.03.2008-ல் அனுமதி வழங்கப்பட்டு குவாரி செய்யும் பணி நடைபெற்று வந்தது எனவும், தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரிய ஆணை எண்.F.HSR.0981 / RS / DEE / TNPCB / HSR / W / 2014 நாள்.02.09.2014-ன்படி இப்பகுதியில் சாதாரண கற்கள் உடைக்கும் இயந்திரம் நிறுவ அனுமதி பெற்றுள்ளனர் எனவும் வனச்சரக அலுவலர் அறிக்கை சமர்ப்பித்துள்ளனர்.

இனம் எண்.6-ல் காணும் துப்புகாணப்பள்ளி கிராமம் புல எண்.314 (பகுதி-2)-ல் 5.00.0 ஹெக்டர் பரப்பளவில் குவாரி பணி செய்ய மாவட்ட ஆட்சித் தலைவர் செயல்முறை ஆணை

எண்.703/2005(கனிமம்-2) நாள்.23.07.2005-ல் அனுமதி வழங்கப்பட்ட குவாரி செய்யும் பணி நடைபெற்று வந்தது என வனச்சரக அலுவலர் அறிக்கை சமர்ப்பித்துள்ளார்.

இனம் எண்.7-ல் காணும் கோபனப்பள்ளி கிராமம் புல எண்.327/க்கு அருகில், குசியூர் கிராம ச.எண்கள்.346 (பகுதி), 353, 354/2-ல் 2.02.5 ஹெக்டர் பரப்பளவில் குவாரி பணி செய்ய மாவட்ட ஆட்சித் தலைவர் செயல்முறை ஆணை எண்.650/2009(கனிமம்-2) நாள்.27.10.2009-ல் அனுமதி வழங்கப்பட்டு குவாரி செய்யும் பணி நடைபெற்று வந்தது எனவும், தமிழ்நாடு மாக கட்டுப்பாட்டு வாரிய ஆணை எண்.F.HSR 0574 / RS / DEE / TNPCB / HSR /2014 நாள்.04.09.2014-ன்படி இப்பகுதியில் சாதாரண கற்கள் உடைக்கும் இயந்திரம் நிறுவ அனுமதி பெற்றுள்ளனர் வனச்சரக அலுவலர் அறிக்கை சமர்ப்பித்துள்ளார்.

மேலும் மேற்காணும் குவாரி குத்தகை வழங்க வேண்டிய நிலப்பகுதியில் அரியவகை தாவரங்களோ, வன விலங்குகளோ ஏதும் இல்லை எனவும், யானைகளின் வலசை பாதையில் (Migratory Path) அமையவில்லை எனவும், "கடுமையான பாறைகள் உள்ள பகுதிகளில் மட்டும்" மேற்கண்ட அட்டவணையில் குறிப்பிட்டுள்ள பரப்பளவிற்கு குத்தகை அனுமதி வழங்க வனத்துறையின் சார்பாக தடையில்லாச் சான்று வழங்கலாம் என வனச்சரக அலுவலர் அறிக்கை சமர்ப்பித்துள்ளார்.

மேற்காணும் புல எண்களை ஒரூர் உதவி வனப்பாதுகாவலரால் 05.04.2015 அன்று தணிக்கை செய்து, வனச்சரக அலுவலரின் அறிக்கை ஏற்றுக்கொள்ளத்தக்கதாக உள்ளதாக கூறி, வனத்துறையின் தடையில்லாச் சான்று வழங்க பரிந்துரை செய்து அறிக்கை சமர்ப்பித்துள்ளார்.

மேலும், மேற்காண் பொருள் குறித்து வனப்பாதுகாவலரால் 02.03.2015 அன்று காலை 10.00 மணியளவில் கிருஷ்ணகிரி மாவட்ட ஆட்சித்தலைவர் அலுவலகத்தில் மாவட்ட ஆட்சித் தலைவருடன் கலந்துரையாடப்பட்டது. அது சமயம் மாவட்ட ஆட்சித் தலைவரால் அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்குவாரிகளை குத்தகைக்கு விடுவதன் மூலம் அரசுக்கு கணிசமான வருவாய் ஈட்டப்படுவதின் முக்கியத்துவத்தை மாண்புமிகு தொழில்துறை அமைச்சர் அவர்களும் தொழில்துறை கூடுதல் தலைமைச் செயலர் அவர்களும் வழங்கப்பட்டுள்ள அறிவுரையினை கருத்தில் கொண்டு அவ்வாறே குவாரிகளை குத்தகைக்கு விட வனத்துறையின் தடையின்மை சான்று விரைவில் வழங்க கேட்டுக்கொள்ளப்பட்டது.

வனச்சரக அலுவலர் மற்றும் உதவி வனப்பாதுகாவலர் அறிக்கைகளின் அடிப்படையில், ஒரூர் மாவட்ட வன அலுவலரால் 06.04.2015 மற்றும் 08.04.2015 ஆகிய நாட்களில் களத்தணிக்கை மேற்கொள்ளப்பட்டது. தணிக்கையில் வனச்சரக அலுவலர் மற்றும் உதவி வனப்பாதுகாவலர் அறிக்கைகள் ஏற்றுக்கொள்ளத் தக்கதாக உள்ளது. எனவே மேற்கண்ட புல எண்களுக்கு வனத்துறையின் தடையில்லாச் சான்று வழங்க வனப்பாதுகாவலர், தருமபுரி மண்டலம் அவர்களின் இசைவு கேட்டு இவ்வலுவலக ந.க.எண்.9277/2014/எல் நாள்.15.04.2015 அன்று கடிதம் அனுப்பப்பட்டது. பார்வை 4-ல் கண்ட கடிதத்தில் கீழ்க்கண்ட நிபந்தனைகளுடன்

வழங்க வனப்பாதுகாவலர், தருமபுரி மண்டலம் அவர்கள் துணது இசைவினை தெரிவித்துள்ளார்.



1. வருவாய்த்துறை ஆவணங்களின்படி இந்நிலங்களின் வகைப்பாடு காடு மற்றும் காடு புறம்போக்கு நிலங்கள் அல்ல என்பதை ஊர்ஜிதம் செய்யப்பட வேண்டும்.
2. யானைகளின் வலசை பாதையில் (Migratory Path) அமையாமலிருந்த போதிலும், அவ்வப்போது யானைகளின் நடமாட்டம் ஏற்பட்டு மனித விலங்கு மோதல்கள் ஏற்பட வாய்ப்புள்ளதால் நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் மாலை 6.00 மணிக்கு மேல் காலை 6.00 மணி வரை குவாரி பகுதியில் பாறைகளை வெடி வைத்து தகர்க்க கூடாது.
3. அவ்வாறே நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் மாலை 6.00 மணிக்கு மேல் காலை 6.00 மணி வரை உடை கற்கள் எடுத்துச்செல்லவோ மற்றும் யாதொரு காரணத்திற்காகவோ வாகனங்கள் பயன்படுத்தக்கூடாது.
4. வனப்பாதுகாவலரது சுற்றறிக்கை எண்.02/2014/வ நாள்:08.09.2014-ல் வழங்கப்பட்டுள்ள அறிவுரைகளுக்குட்பட்டிருக்க வேண்டும்.
5. குவாரி செய்யப்படும் இடத்தினைச் சுற்றி பாதுகாப்பு கருதி 5 அடி உயர் முள்கம்பி வேலி அமைக்கப்பட வேண்டும்.
6. குவாரி குத்தகைக்கு அனுமதிக்கப்படும் பகுதியை சுற்றி குறைந்தபட்சம் 250 மரக்கன்றுகளாவது நடவு செய்து பாதுகாத்து பராமரித்து பசுமை வளையம் அமைக்கப்பட வேண்டும்.

மேற்கண்ட நிபந்தனைகளுடன் மேற்கண்ட அட்டவணையில் குறிப்பிடப்பட்டுள்ள சர்வே எண்களில் சாதாரண உடைக்கல் மற்றும் ஐல்வி கற்களை வெட்டி எடுக்க வனத்துறையின் சார்பாக தடையில்லாச் சான்று (No Objection Certificate) வழங்கப்படுகிறது என்பதை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,  
ஓம்.இராஜேந்திரன்,  
மாவட்ட வன அலுவலர்,  
ஓசூர் வனக்கோட்டம்.

நகல்- வனச்சரக அலுவலர், ஓசூருக்கு தகவலுக்காக அனுப்பப்படுகிறது.

- உ.ந.உ.ப. -

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கண்காணிப்பாளர்

22/4/2023





भारत सरकार/ Govt. of India

श्रम एवं रोजगार मंत्रालय/ Ministry of Labour & Employment  
खान सुरक्षा महानिदेशालय/ Directorate General of Mines Safety  
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बेंगलुरु, दिनांक, 12/10/2018.

प्रेषक/ From,

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बेंगलुरु क्षेत्र, बेंगलुरु/Bengaluru Region, Bengaluru.

सेवार्ने/To,

1. Shri R.Rajappa,

Owner: R.Rajappa Rough Stone Quarry,  
Kammandoddi Village, Shoolagiri Taluk,  
Krishnagiri District, Tamilnadu- 635 109.

2. Sri C.Surendiran,

Owner: Surendiran Rough Stone Quarry,  
Pillaykothur Village, Kammandoddi Post,  
Shoolagiri Taluk, Krishnagiri District,  
Tamilnadu- 635 117

Subject: Permission under Regulation 111(3) of the Metalliferous Mines Regulations, 1961 to extend opencast workings up to common boundaries of and Shri R.Rajappa Rough Stone Quarry (Sy.No.1266; Extent: 4.04.5 Ha) of Shri R.Rajappa and Surendiran Rough Stone Quarry (Sy.No.1269/2A; Extent of 1.66.50 Ha) of Shri C.Surendiran at Kammandoddi Village, Shoolagiri Taluk of Krishnagiri District in Tamilnadu State.

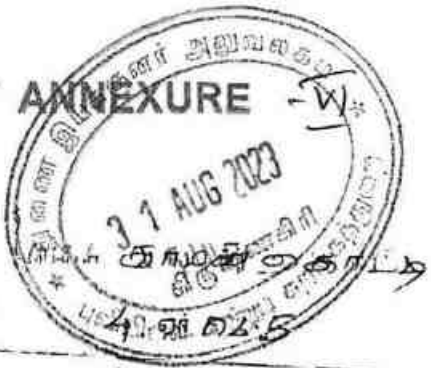
Sir,

Please refer to your letter No.Nil dated 29.08.2018 and the Joint Survey Plan no.Nil dated 28.08.2018 signed by the surveyor (Shri D N Lakshmi Prasad), both the managers and both Owners enclosed therewith on the above subject.

The matter has since been examined on the basis of the information furnished and plans & sections submitted by you. By virtue of the powers conferred on the Chief Inspector of Mines (also designated as Director General of Mines Safety) under the provisions of Regulation 111(3) of the Metalliferous Mines Regulations, 1961 and by virtue of the authorization granted to me by the Chief Inspector of Mines (also designated as Director-General of Mines Safety) under Section 6(1) of the Mines Act, 1952, you are hereby permitted to extend opencast workings up to the common boundary between R.Rajappa Rough Stone Quarry (Sy.No.1266, Extent: 4.05.00 Ha) of Shri R.Rajappa and Surendiran Rough Stone Quarry (Sy.No.1269/2A, Extent of 1.66.50 Ha) of Shri C.Surendiran at Kammandoddi Village & Shoolagiri Taluk of Krishnagiri District in Tamilnadu State, as shown on Joint Survey Plan No.Nil dated 28.08.2018, subject to the following conditions being strictly complied with:

1. Conditions of this permission shall be shown on all statutory plans of both the mines.
2. Except in the areas of common boundaries between the above mines, no working shall be extended within 7.5m of other boundaries unless permission for that effect was obtained from this Directorate under relevant provisions of law.
3. The Boundary lines shall be physically demarcated at all times by at least 03m high raised flags placed at not more than 10m apart, so as to be always conspicuous.

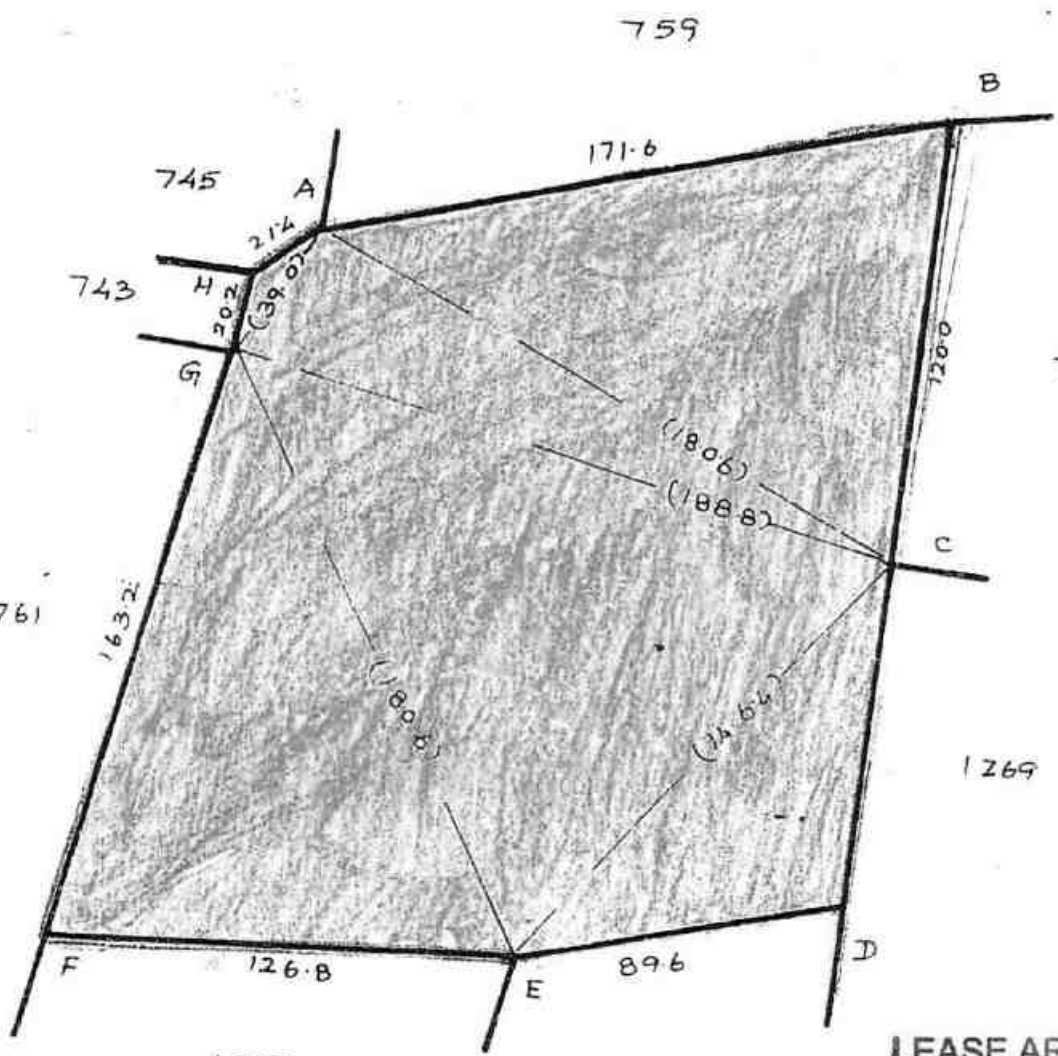
கிண்டிணகிர்



1266

பரப்பு: செக்டர்கள்

சீமன்) 2160 மீட்டர் 2mm வரது 4.04.5 டிசைன்



LEASE AREA

Handwritten signature and name of the surveyor.

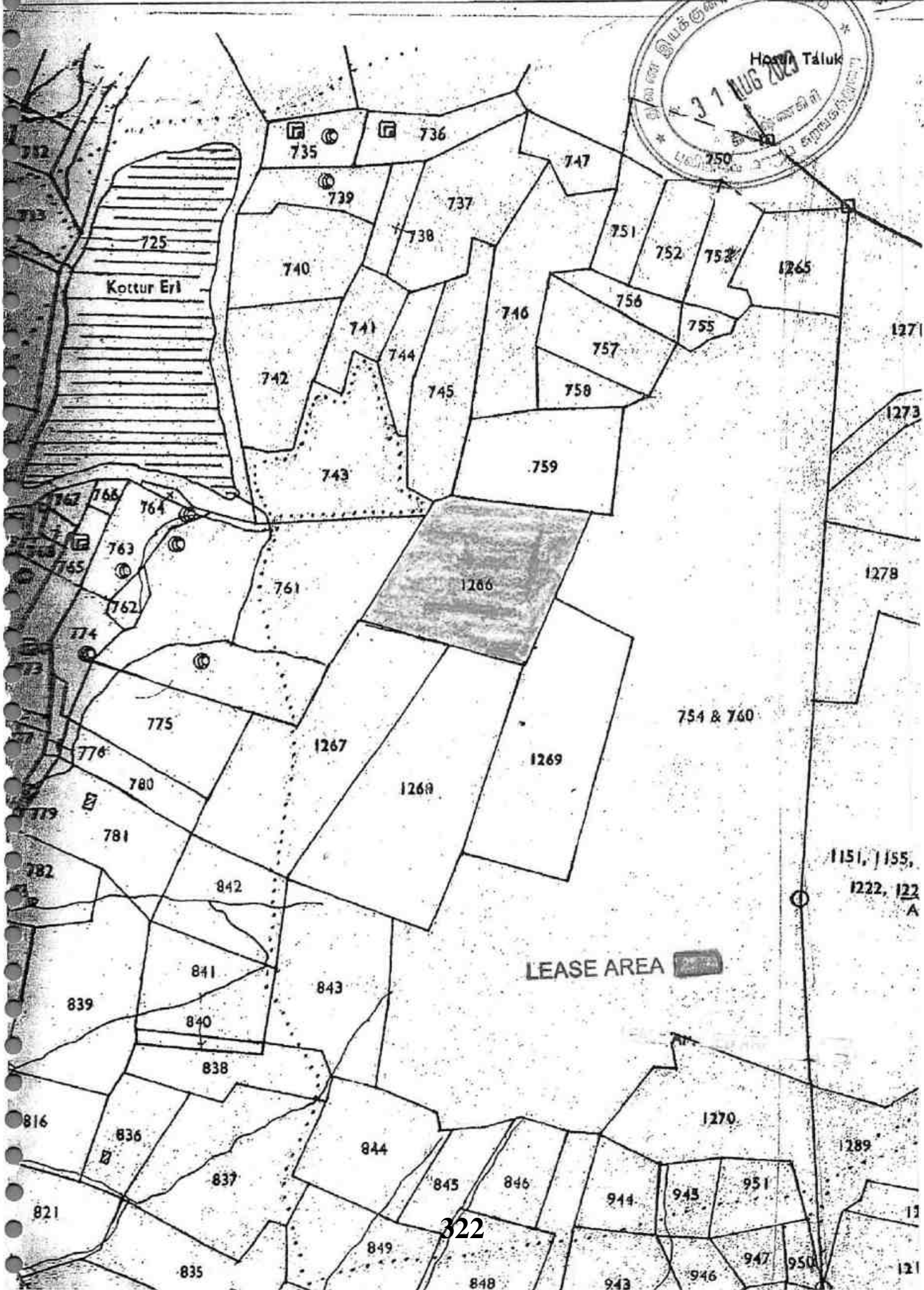
TALUK SUB INSPECTOR OF SURVEY HOSUR

	G		
	39.0		
	20.0	7.2	H
	A		

321

Handwritten signature and 'Village Administration Officer' text.

Handwritten notes at the bottom left corner.



Kottur Eri

LEASE AREA

322



1	2	3	4	5	6	7	8	9	10		
1259	1	1259-1	ர	4	...	8-3	8	2 15	0 66.0	1 84	444 பி. வெங்க டெசன்.
	2	-2	ர	4	...	8-3	8	2 15	2 13.0	5 91	164 பி. கிருஷ் ணப்பா.
									2 79.0	7 75	
1260	1	1260-1	அ	4	...	8-5	12	0 62	0 66.0	0 41	.....
	2	-2	ர	4	...	8-5	12	0 62	1 96.5	1 62	334 அ. வெங்கட் டப்பன்.
									2 62.5	2 03	
1261	...	1261	ர	4	...	8-5	12	0 62	1 98.0	1 25	704 த. முனியப்பன்.
1262	①	1262-1	ர	4	...	8-5	12	0 62	1 48.5	0 94	1278 கி. அம்மையம்மா (1), மு. அப் பய்யா(2).
	②	-2	ர	4	...	8-5	12	0 62	1 25.0	0 75	1278 கி. அம்மையம்மா (1), மு. அப் பய்யா(2).
									2 73.5	1 69	
1263	1	1263-1	ர	4	...	8-5	12	0 62	0 83.5	0 50	21 மு. அப்பய்யா.
	2	-2	ர	4	...	8-5	12	0 62	3 10.5	1 94	470 ம. பாப்பம்மா.
									3 94.0	2 44	
1264	...	1264	அ	கி. ஏ. த.	...	...	...	...	3 22.5	...	.....
1265	1	1265-1	அ	4	...	8-5	12	0 62	0 26.5	0 17	.....
	2	-2	ர	4	...	8-5	12	0 62	1 19.0	0 73	645 கு. பீரப்பா.
									1 45.5	0 90	
1266	...	1266	அ	4	...	8-5	12	0 62	4 04.5	2 50	.....
1267	1	1267-1	அ	புற	...	...	...	...	0 08.0	...	.....
	2	-2	ர	4	...	8-5	12	0 62	1 34.5	0 81	1279 க. தொட்டன் (1), க. திம்ம ராயன் (2).
	3	-3	ர	4	...	8-5	12	0 62	1 99.5	1 25	806 ம. சக்கரை யப்பா.

323

Village Administration

No. 126/KAMANDODD  
Hosur (Tk.), Krishnagiri

PRITHVI MINERALS,




ANNEXURE - X  
© 04288 - 262489  
VARANALLAMPALAYAM,  
ALATHUR POST - 637 303.  
SANKARI Tk, Salem Dt. Tamil Nadu

Date : .....27.12.08.

TO WHOMSOEVER IT MAY CONCERN

This is to certify that SHRI S. DHANASEKAR, S/o. Shri A. Sundaram residing at No.8/3, Kullappan Street, Omalur Taluk, Salem District - 636 455 is working in our mines for the date of 15.10.2003 to till date as Geologist. During the above tenure of service his execution of the assigned work is exemplary and worth mentioning. We wish him success in his future endeavours.

For PRITHVI MINERALS,

  
(T.P. THANGAVEL.)  
Partner



X7



  
**சர்க்கார் அலுவலகம்**  
**Government of India**



Issue Date: 21/08/2023  

  
**ராஜப்பா ரா**  
**Rajappa R**  
**பிறந்த நாள்/DOB: 15/06/1978**  
**ஆண்/ MALE**

**3297 4593 3828**  
**VID : 9135 4060 7809 9230**

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**எனது ஆதார். எனது அடையாளம்**






  
**Unique Identification Authority of India**

**முகவரி:**  
**S/O ராமப்பா, 3/883, பிள்ளைகொத்தூர்,**  
**சூலகிரி, சூலகிரி, கிருஷ்ணகிரி,**  
**தமிழ் நாடு - 635117**

**Address:**  
**S/O Ramappa, 3/883, Pillaiakothur,**  
**Shoolagiri, Shoolagiri, Krishnagiri,**  
**Tamil Nadu - 635117**

**3297 4593 3828**  
**VID : 9135 4060 7809 9230**

---

 1847 |  help@uidai.gov.in |  www.uidai.gov.in



*[Handwritten Signature]*

अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र  
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)  
**CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON**  
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. करुपण्ण, मॉंगनीकाडू, मुत्तमपट्टी पोस्ट, बोम्मीडी वर्यो, ओमलूर तालुक, सेलम डीस्टीक्ट, तमिलनाडू - 635 301, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोष जनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri S. Karuppannan, Manganikadu, Muthampatty (Post), Bommididi (Via), Omalur Taluk, Salem District, Tamilnadu - 635 301, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकीपंजीयन संख्या है

His registration number is

RQP /MAS/263/2014/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 15.12.2024 को समाप्त होगी।  
This recognition is valid for a period of 10 years ending on 15.12.2024.

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान/ Place : Chennai

दिनांक/ Date : 16.12.2014.

*[Handwritten Signature]*

क्षेत्रीय खाननियंत्रक / Regional Controller of Mines  
भारतीय खानब्यूरो / Indian Bureau of Mines  
चेन्नई क्षेत्र / Chennai Region

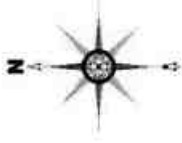


PLATE NO-J

APPLICANT:

**Mr.R.RAJAPPA,**  
S/o.V.RAMAPPA  
No.3/883, PILLAYAKOTHOOR VILLAGE,  
KONERIPALLI POST,  
SHOOLAGIRI TALUK,  
KRISHNAGIRI DISTRIC - 635109.

LEASE AREA:

S.F.NO : 1266  
EXTENT : 4.04.5Hect  
VILLAGE : KAMANDODDI  
TALUK : SHOOLAGIRI  
DISTRICT : KRISHNAGIRI

INDEX

- MINE LEASE BOUNDARY
- SAFETY AREA
- APPROACH ROAD
- CART ROAD
- VILLAGE ROAD

SH - 131

KEY

Not to Scale

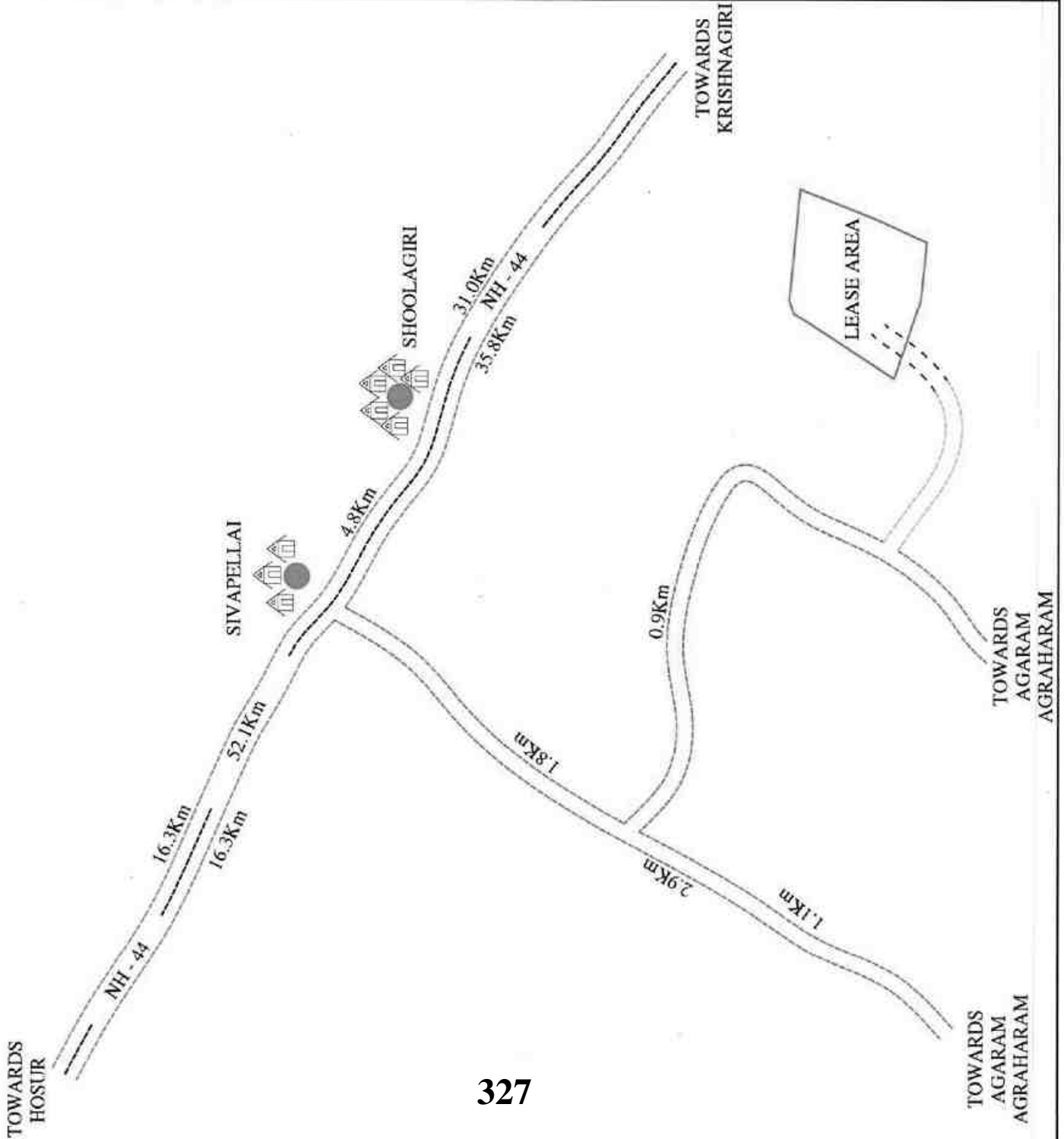


Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS  
BEEN CHECKED BY ME AND IS CORRECT  
TO THE BEST OF MY KNOWLEDGE

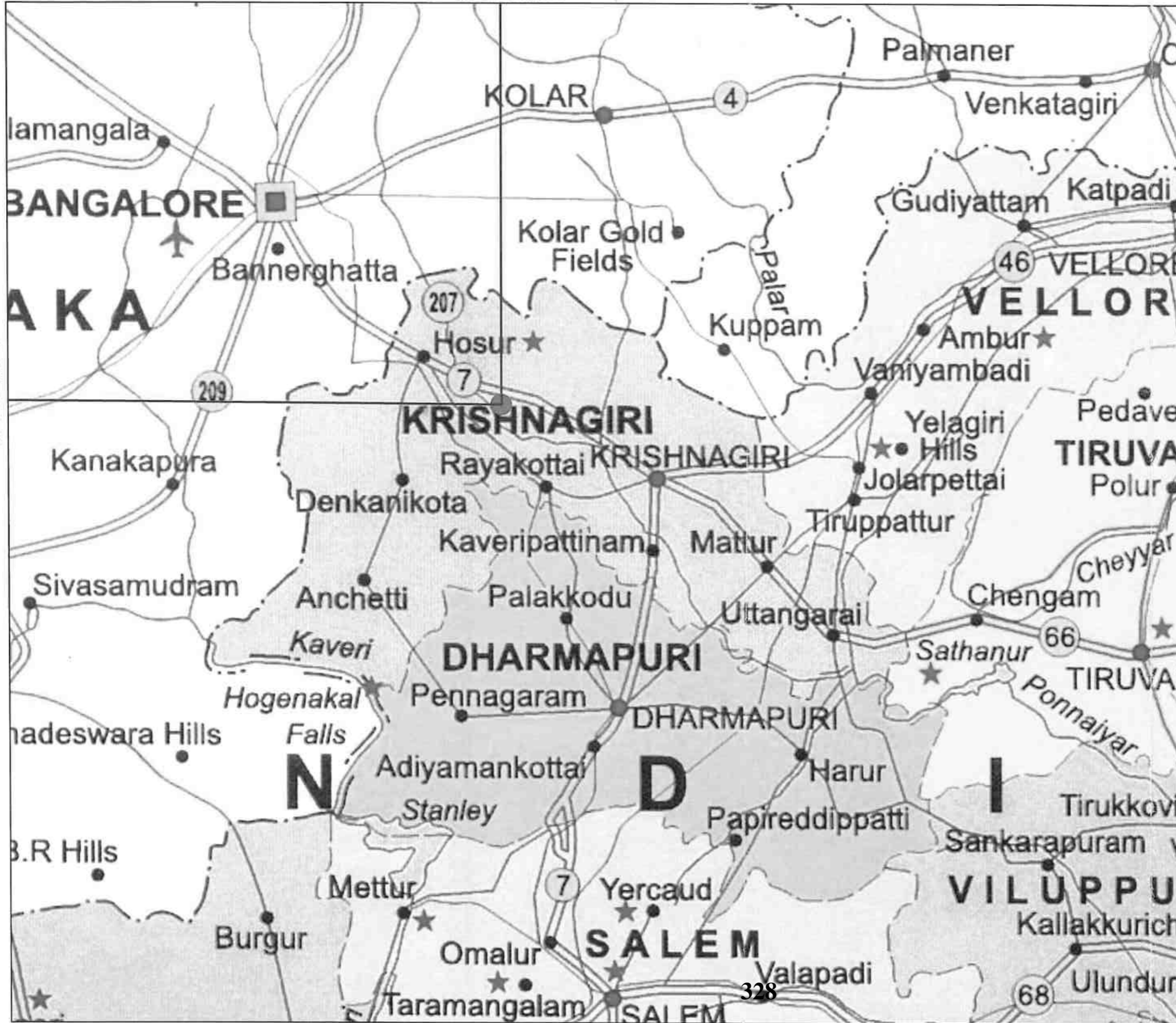
*[Signature]*

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/263/2014/A





12°39'49.71"N



77°57'34.73"E

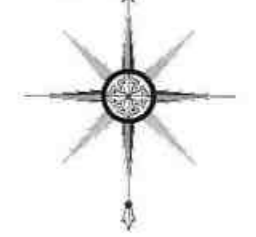


PLATE NO-IA

APPLICANT:  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 SHOOLAGIRI TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

LEASE AREA:  
 S.F.NO : 1266  
 EXTENT : 4.04.5Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA : ●  
 TOPO SHEET NO : 57-H/14  
 LATITUDE : 12°39'42.80"N to 12°39'49.71"N  
 LONGITUDE : 77°57'34.73"E to 77°57'44.39"E

LOCATION PLAN

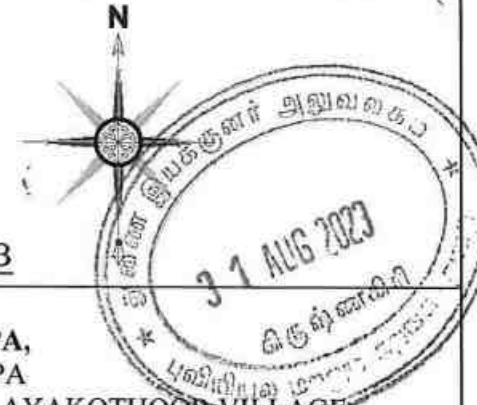
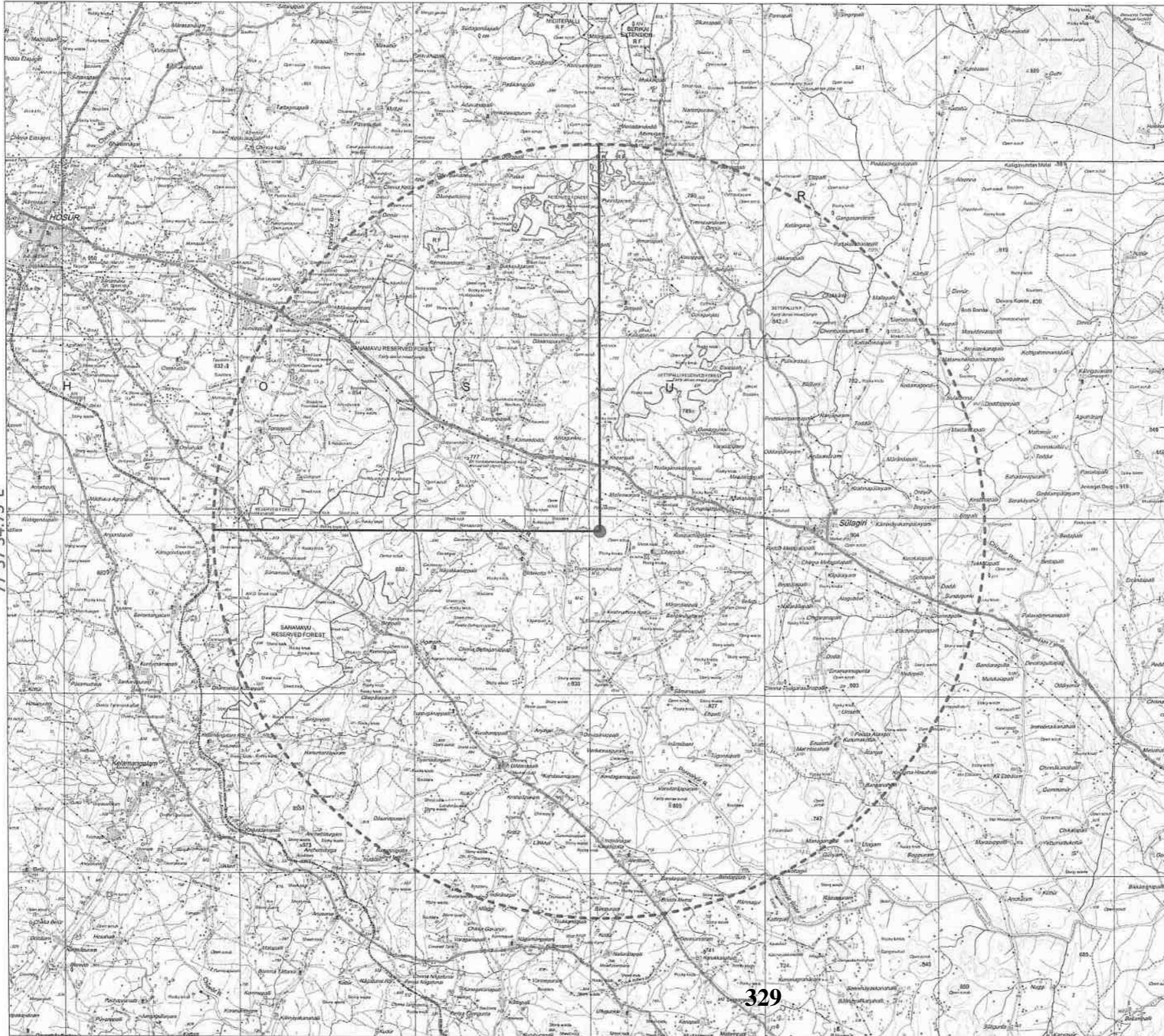
NOT TO SCALE

Prepared By:  
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 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A

12°39'49.71"N

77°57'34.73"E


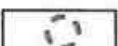


**PLATE NO-IB**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
**S/o.V.RAMAPPA**  
**No.3/883, PILLAYAKOTHOOR VILLAGE,**  
**KONERIPALLI POST,**  
**HOSUR TALUK,**  
**KRISHNAGIRI DISTRICT - 635109.**

**LEASE AREA:**  
**S.F.NO : 1266**  
**EXTENT : 4.04.5Hect**  
**VILLAGE : KAMANDODDI**  
**TALUK : SHOOLAGIRI**  
**DISTRICT : KRISHNAGIRI**

**TOPO SHEET NO : 57-H/14**  
**LATITUDE : 12°39'42.80"N to 12°39'49.71"N**  
**LONGITUDE : 77°57'34.73"E to 77°57'44.39"E**

**MINE LEASE BOUNDARY**   
**10KM RADIUS** 

CONVENTIONAL SYMBOLS	
Equip highway with 4L with bridge with bridge stone	
Roads, marked according to hierarchy	
Roads, both categories, according to nature	
Unimproved road, Carriageway, Path, track with post, track post	
Drains, with rock in bed, without stone	
Some houses or rock-huts, without wall	
River, dry, with stone, without wall, with stone, with stone	
Submerged river, Canal, Drain, Ditch	
Wells, with stone, with wall, spring, tank, pond, etc.	
Excavations, well, or pit, rock, stone, gravel	
Reliefs, marked, paper, stone, with wall, with stone, with stone	
Railways, other gauges, (Metric, gauge, with stone, with stone)	
Warehouses, or storage, etc., with stone, with stone	
Outcrops, with stone, with stone, with stone, etc.	
Settlements, (Urban, (Settlement, (Settlement, (Settlement)	
Towns or villages, (Urban, (Settlement, (Settlement)	
High, permanent, temporary, Tower, Anemometer	
Temp, (Settlement, (Settlement, (Settlement, (Settlement)	
(Lighted, Lighted, (Settlement, (Settlement, (Settlement)	
Wire, (Settlement, (Settlement, (Settlement, (Settlement)	
Power, (Settlement, (Settlement, (Settlement, (Settlement)	
Area, (Settlement, (Settlement, (Settlement, (Settlement)	
Boundary, (Settlement, (Settlement, (Settlement, (Settlement)	
Water, (Settlement, (Settlement, (Settlement, (Settlement)	
Boundary, (Settlement, (Settlement, (Settlement, (Settlement)	
Height, (Settlement, (Settlement, (Settlement, (Settlement)	
Boundary, (Settlement, (Settlement, (Settlement, (Settlement)	
Foot, (Settlement, (Settlement, (Settlement, (Settlement)	
Foot, (Settlement, (Settlement, (Settlement, (Settlement)	
Comp, (Settlement, (Settlement, (Settlement, (Settlement)	
Spot, (Settlement, (Settlement, (Settlement, (Settlement)	
Height, (Settlement, (Settlement, (Settlement, (Settlement)	
Boundary, (Settlement, (Settlement, (Settlement, (Settlement)	
Foot, (Settlement, (Settlement, (Settlement, (Settlement)	

**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

**Dr.S.KARUPPANNAN,M.Sc.,Ph.D.**  
**RECOGNIZED QUALIFIED PERSON**  
**RQP/MAS/263/2014/A**

Towards  
Koneripalli

12°39'49.71"N

Towards  
Koneripalli



77°57'34.73"E

Towards  
Chappadi

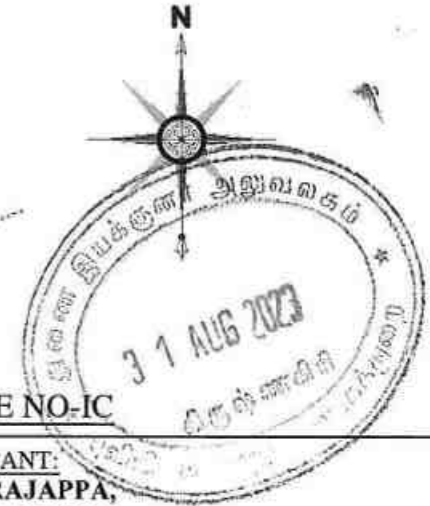


PLATE NO-IC

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
 EXTENT : 4.04.5Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

**INDEX**

MINE LEASE BOUNDARY	
APPROACH ROAD	
VILLAGE ROAD	
CART ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING PIT	

TOPO SHEET NO : 57-H/14

LATITUDE : 12°39'42.80"N to 12°39'49.71"N

LONGITUDE : 77°57'34.73"E to 77°57'44.39"E

**SATELITE IMAGERY MAP**

SCALE- 1:5000

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.  
 RECOGNIZED QUALIFIED PERSON  
 ROP/MAS/263/2014/A

Towards  
Agaram Agraharam

330

OCTOBER TO DECEMBER

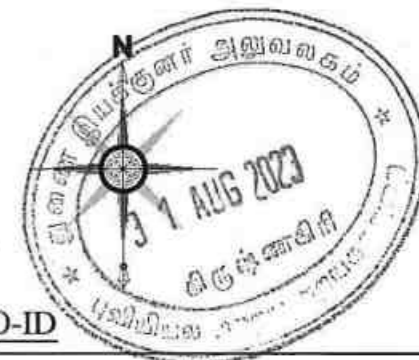


PLATE NO-ID

APPLICANT:  
**Mr.R.RAJAPPA,**  
S/o.V.RAMAPPA  
No.3/883, PILLAYAKOTHOOR VILLAGE,  
KONERIPALLI POST,  
HOSUR TALUK,  
KRISHNAGIRI DISTRICT - 635109.

LEASE AREA:  
S.F.NO : 1266  
EXTENT : 4.04.5Hect  
VILLAGE : KAMANDODDI  
TALUK : SHOOLAGIRI  
DISTRICT : KRISHNAGIRI

**INDEX**

MINE LEASE BOUNDARY	
APPROACH ROAD	
VILLAGE ROAD	
CART ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING PIT	
HABITATION	
SHURBS & TREES	

TOPO SHEET NO : 57-H/14  
LATITUDE : 12°39'42.80"N to 12°39'49.71"N  
LONGITUDE : 77°57'34.73"E to 77°57'44.39"E

**ENVIRONMENTAL PLAN**

SCALE- 1:5000

Prepared By:  
I DO HEREBY CERTIFY THAT THE PLATE HAS  
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TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/263/2014/A

12°39'49.71"N

Towards  
Koneripalli

Towards  
Koneripalli

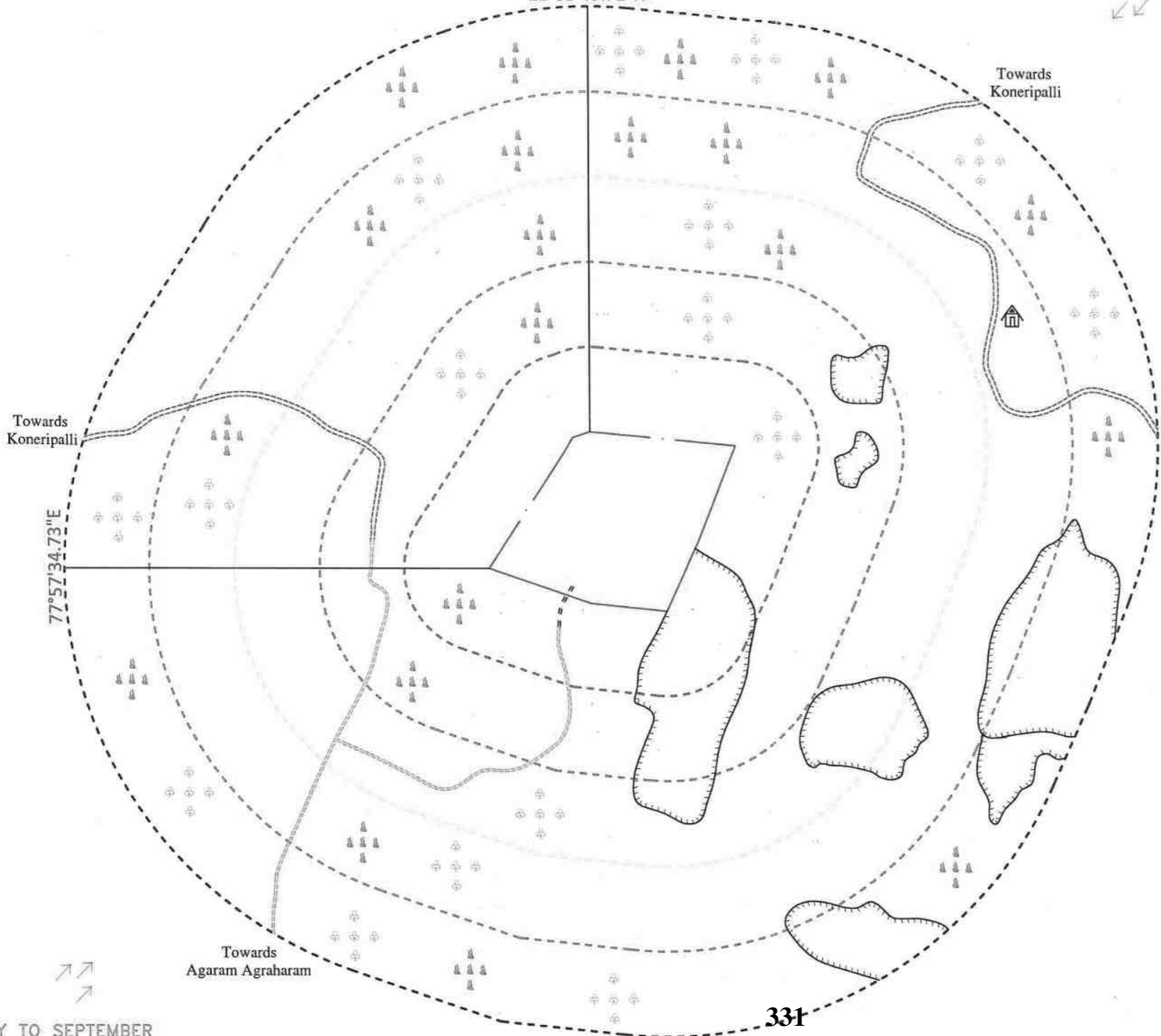
Towards  
Chappadi

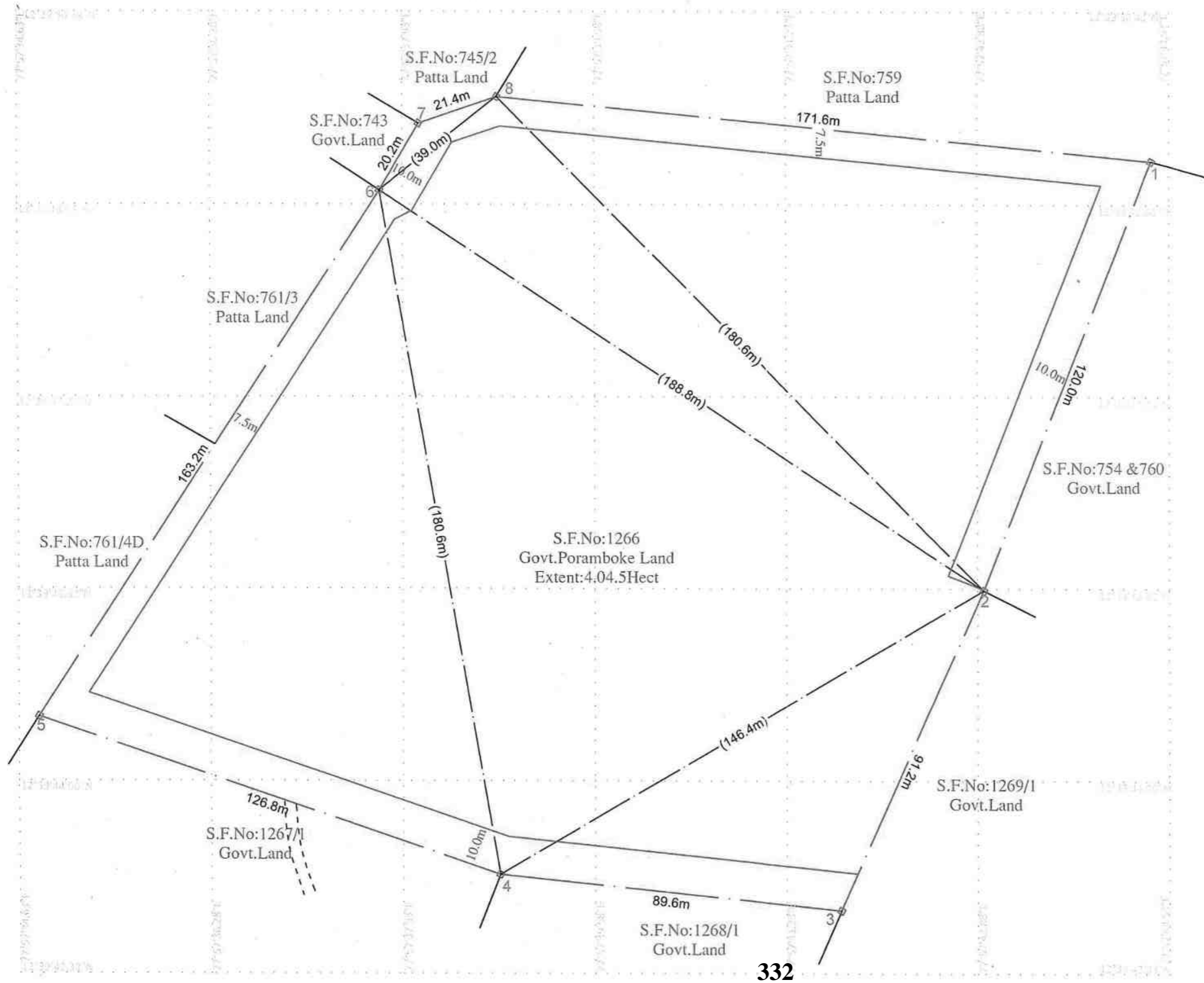
77°57'34.73"E

Towards  
Agaram Agraharam

JULY TO SEPTEMBER

331





**PLATE NO-II**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**

S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

Pillar No	Latitude	Longitude
1	12°39'49.11"N	77°57'44.39"E
2	12°39'45.49"N	77°57'42.90"E
3	12°39'42.80"N	77°57'41.64"E
4	12°39'43.14"N	77°57'38.69"E
5	12°39'44.51"N	77°57'34.73"E
6	12°39'48.89"N	77°57'37.70"E
7	12°39'49.49"N	77°57'38.07"E
8	12°39'49.71"N	77°57'38.74"E

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- MINE LEASE BOUNDARY
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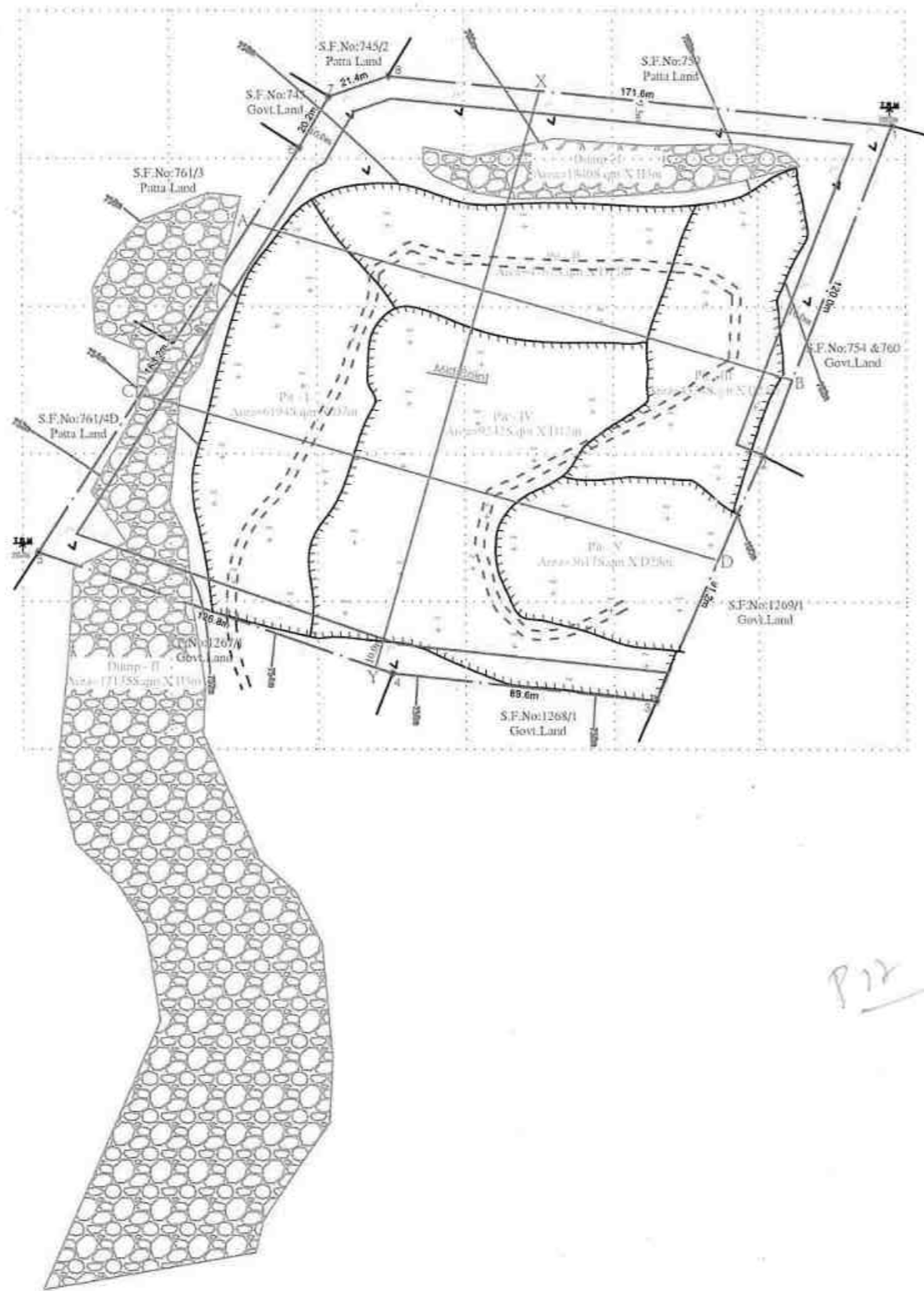
**MINE LEASE PLAN**

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

Dr.S.KARUPPANNAN, M.Sc., Ph.D.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



**PLATE NO-III**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**

S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

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TEMPORARY BENCH MARK	
DUMP	

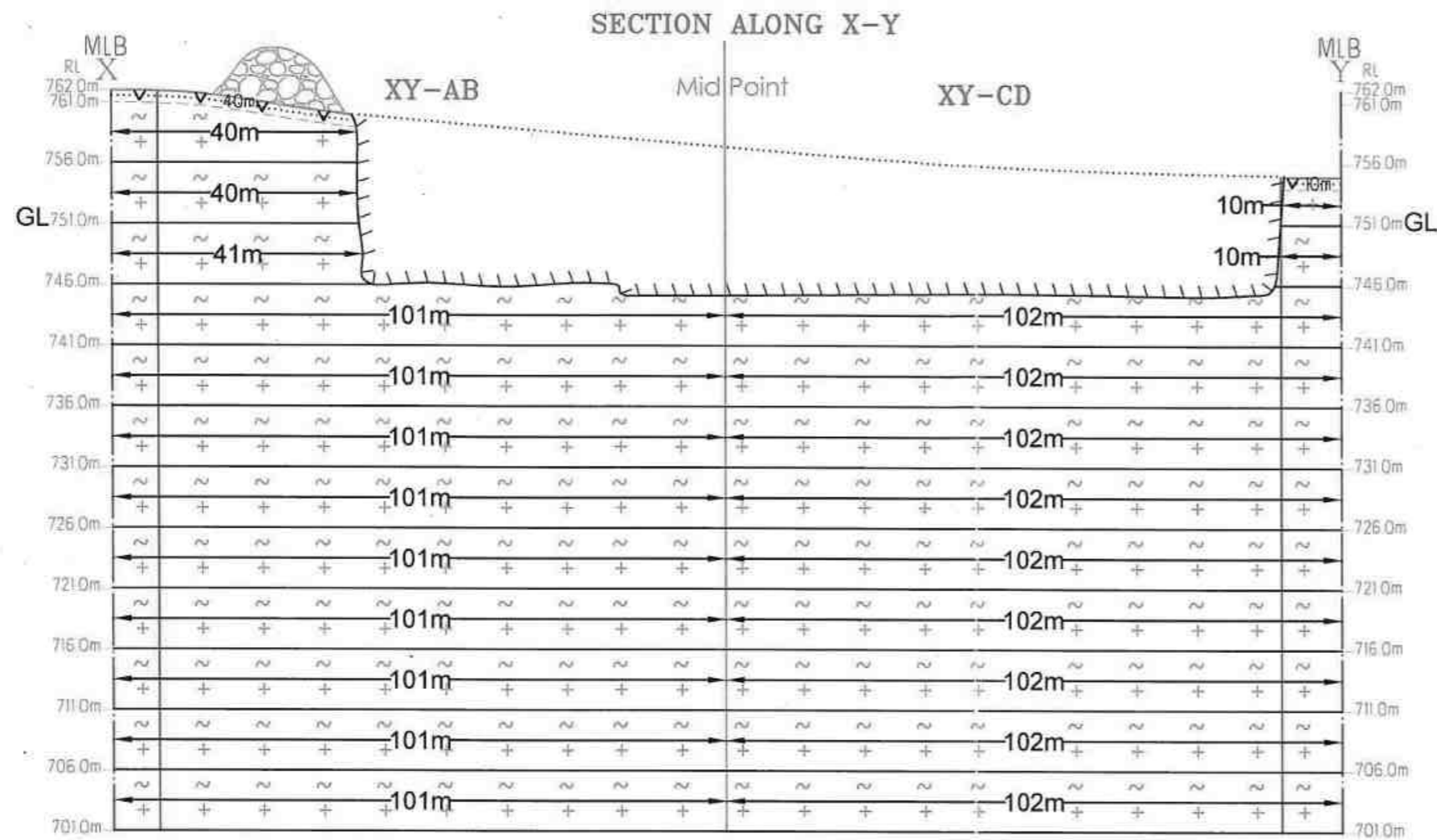
**SURFACE & GEOLOGICAL PLAN**

SCALE 1: 2000

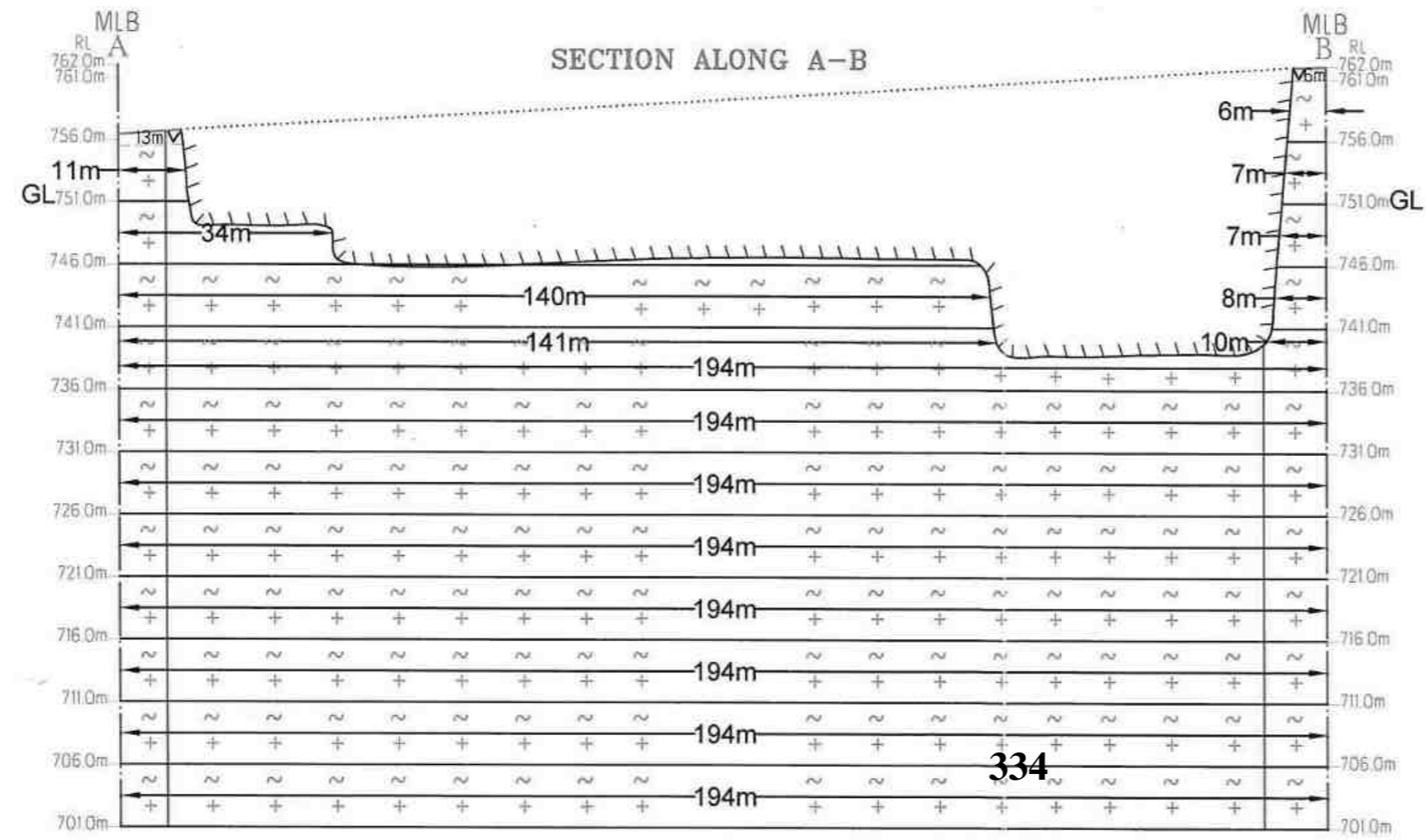
Prepared By:

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



**GL-GROUND LEVEL**



334

**PLATE NO-III A**  
**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

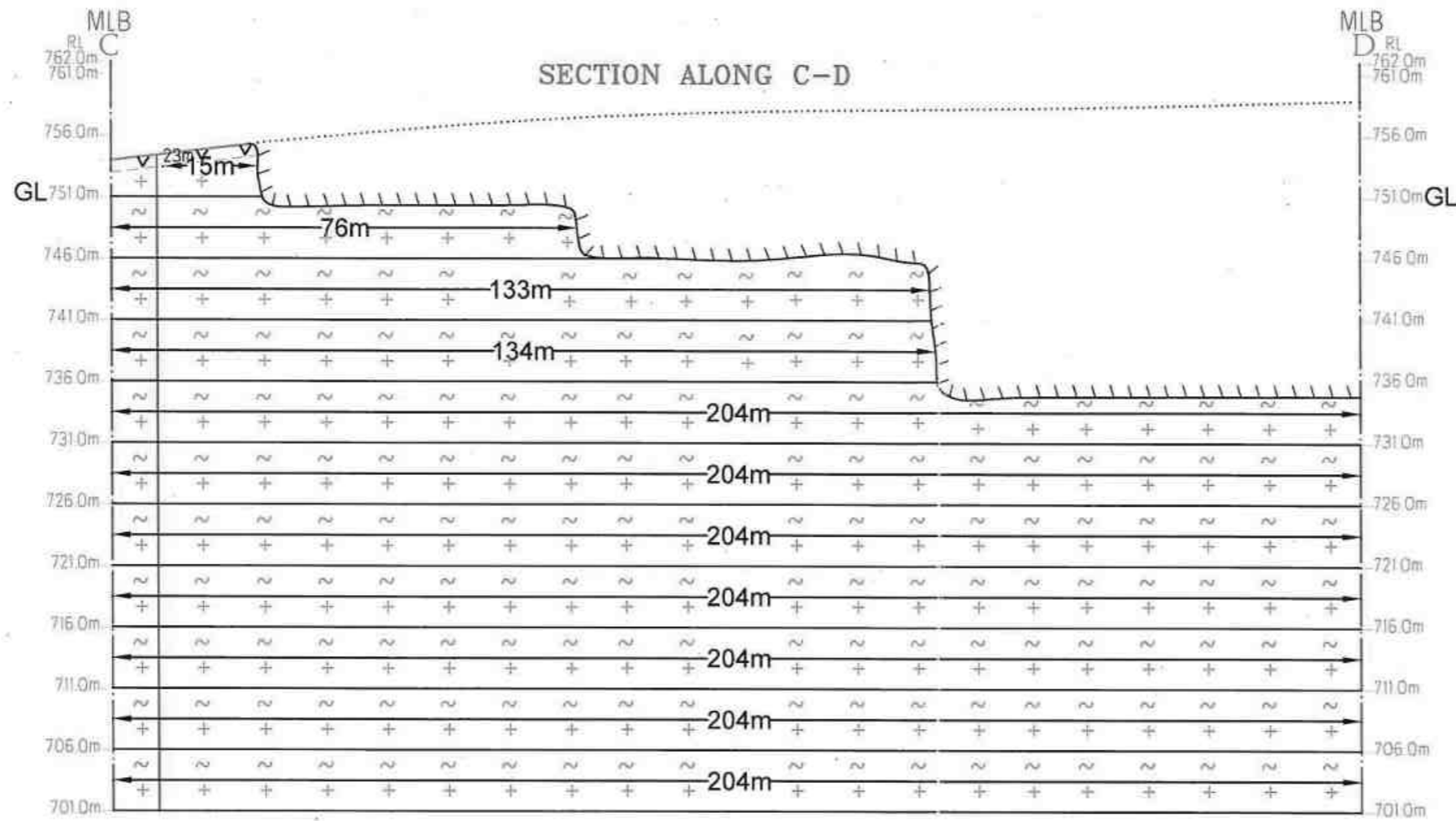
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**GEOLOGICAL SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1: 500

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



GL-GROUND LEVEL



GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Rough Stone in M <sup>3</sup>	Top Soil in M <sup>3</sup>
XY-AB	I	40	19	1	760	.....	760
	II	40	6	5	1200	1200	.....
	III	40	18	5	3600	3600	.....
	IV	41	41	5	8405	8405	.....
	V	101	148	5	74740	74740	.....
	VI	101	151	2	30502	30502	.....
	VII	101	194	3	58782	58782	.....
	VIII	101	194	5	97970	97970	.....
	IX	101	194	5	97970	97970	.....
	X	101	194	5	97970	97970	.....
	XI	101	194	5	97970	97970	.....
	XII	101	194	5	97970	97970	.....
	XIII	101	194	5	97970	97970	.....
<b>TOTAL</b>					<b>863779</b>	<b>863019</b>	<b>760</b>
XY-CD	I	10	23	1	230	.....	230
	II	10	15	5	750	750	.....
	III	10	76	5	3800	3800	.....
	IV	102	133	5	67830	67830	.....
	V	102	134	5	68340	68340	.....
	VI	102	204	5	104040	104040	.....
	VII	102	204	5	104040	104040	.....
	VIII	102	204	5	104040	104040	.....
	IX	102	204	5	104040	104040	.....
	X	102	204	5	104040	104040	.....
	XI	102	204	5	104040	104040	.....
	XII	102	204	5	104040	104040	.....
<b>TOTAL</b>					<b>869230</b>	<b>869035</b>	<b>230</b>
<b>GRAND TOTAL</b>					<b>1733009</b>	<b>1732019</b>	<b>990</b>

**PLATE NO-IIIB**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

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MINE LEASE BOUNDARY

SAFETY DISTANCE

ROUGH STONE

TOP SOIL

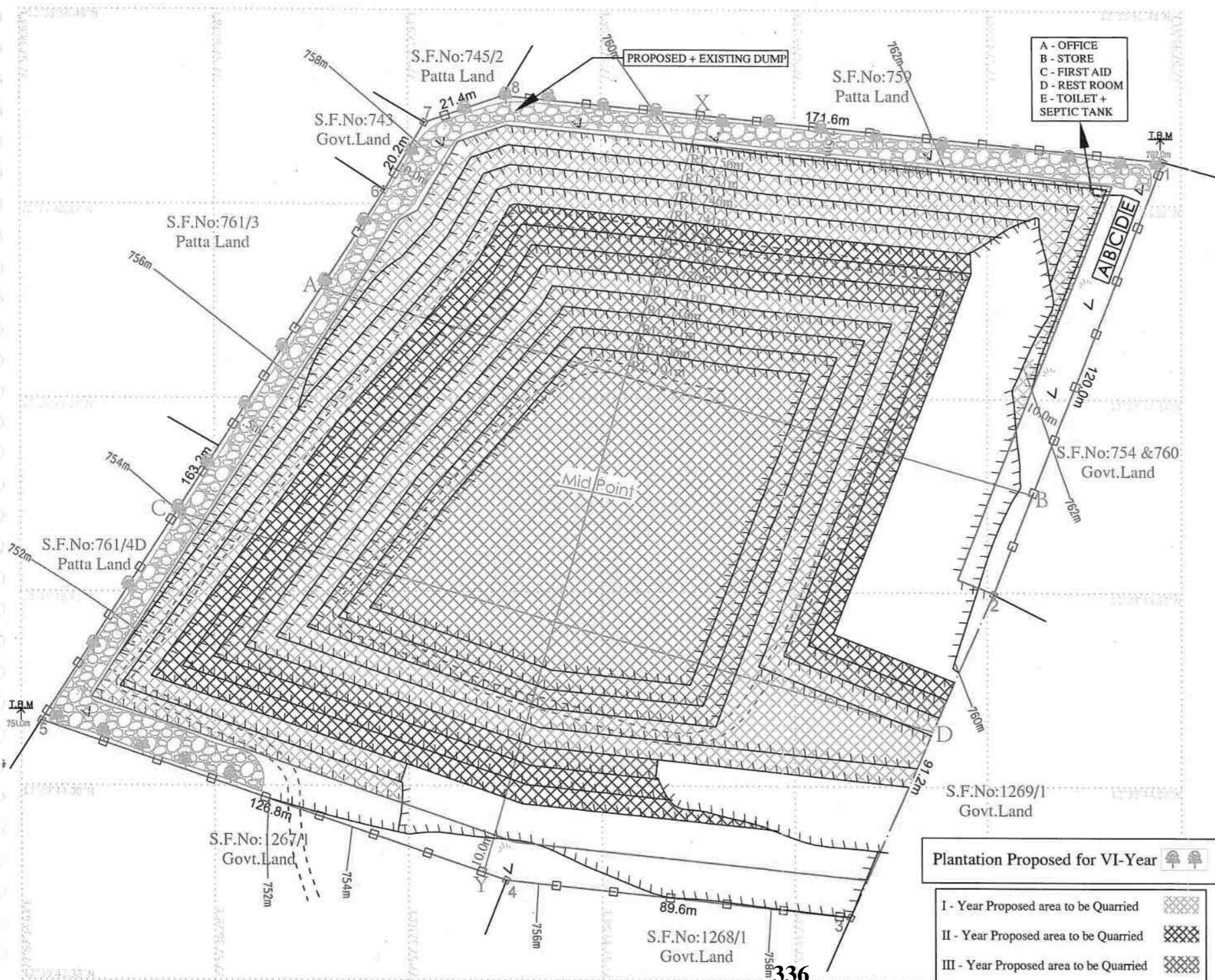
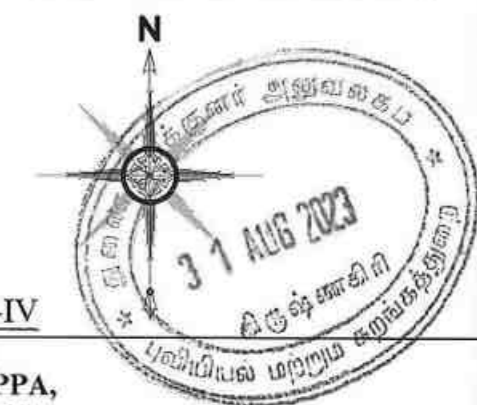
EXISTING PIT

**GEOLOGICAL SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1: 500

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A





**PLATE NO-IV**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
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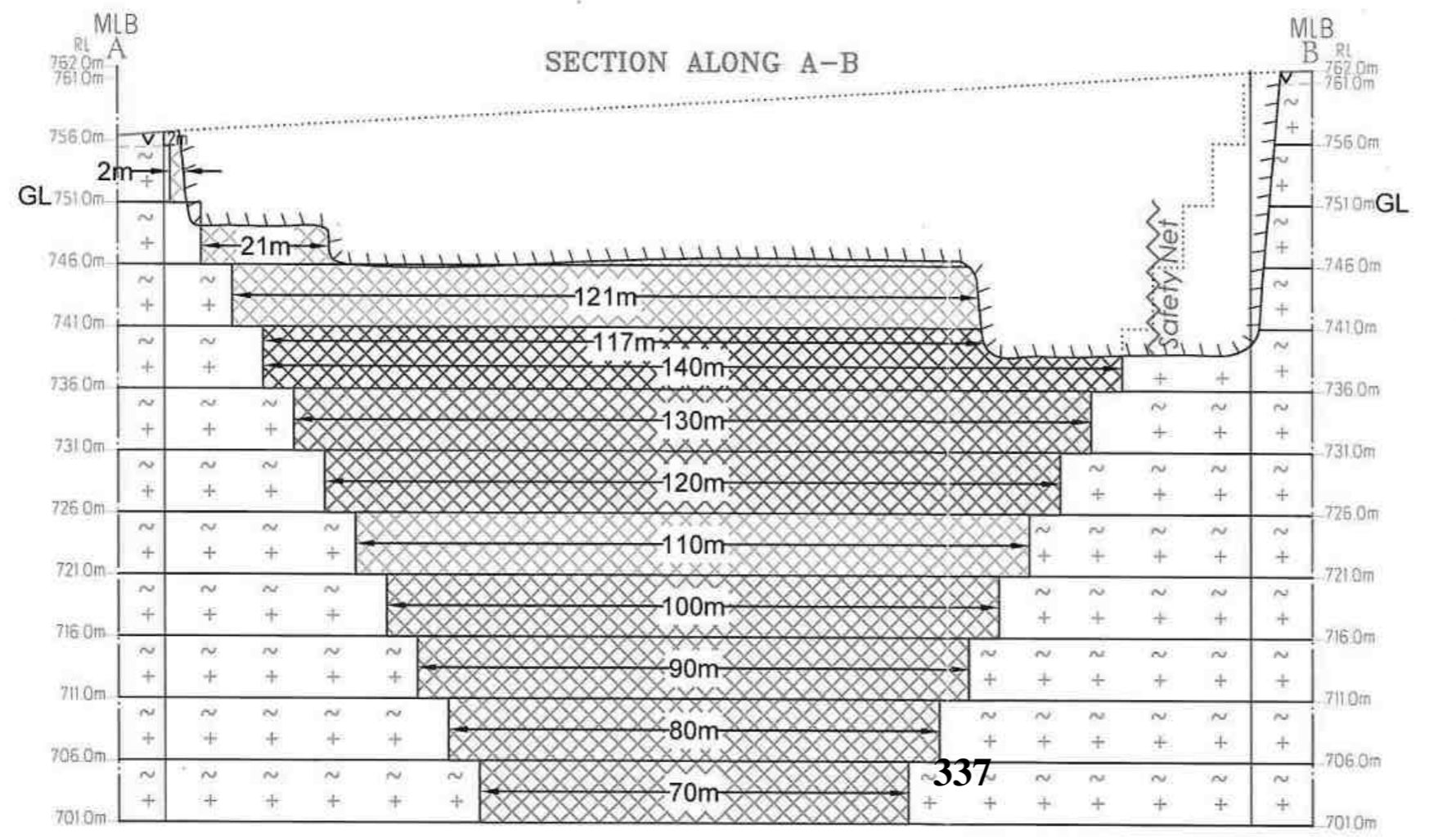
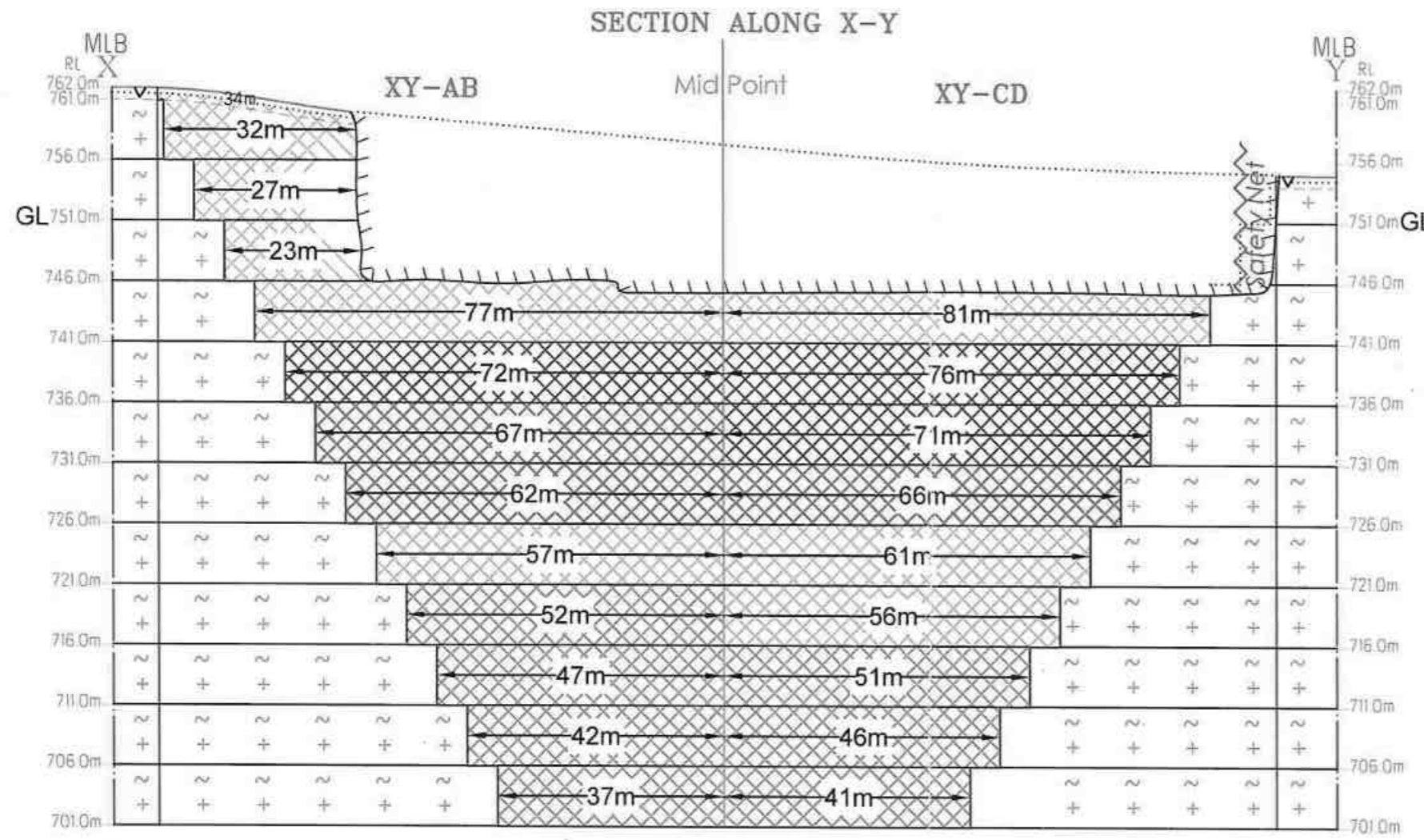
**YEARWISE DEVELOPMENT & PRODUCTION PLAN**  
 SCALE 1: 1000

Prepared By:  
 I DO HEREBY CERTIFY THAT THE PLATE  
 HAS BEEN CHECKED BY ME AND IS CORRECT  
 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A

**Plantation Proposed for VI-Year**

I - Year Proposed area to be Quarried	
II - Year Proposed area to be Quarried	
III - Year Proposed area to be Quarried	
IV - Year Proposed area to be Quarried	
V - Year Proposed area to be Quarried	



**GL-GROUND LEVEL**

- I - Year Proposed area to be Quarried
- II - Year Proposed area to be Quarried
- III - Year Proposed area to be Quarried
- IV - Year Proposed area to be Quarried
- V - Year Proposed area to be Quarried

**PLATE NO-IVA**  
**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

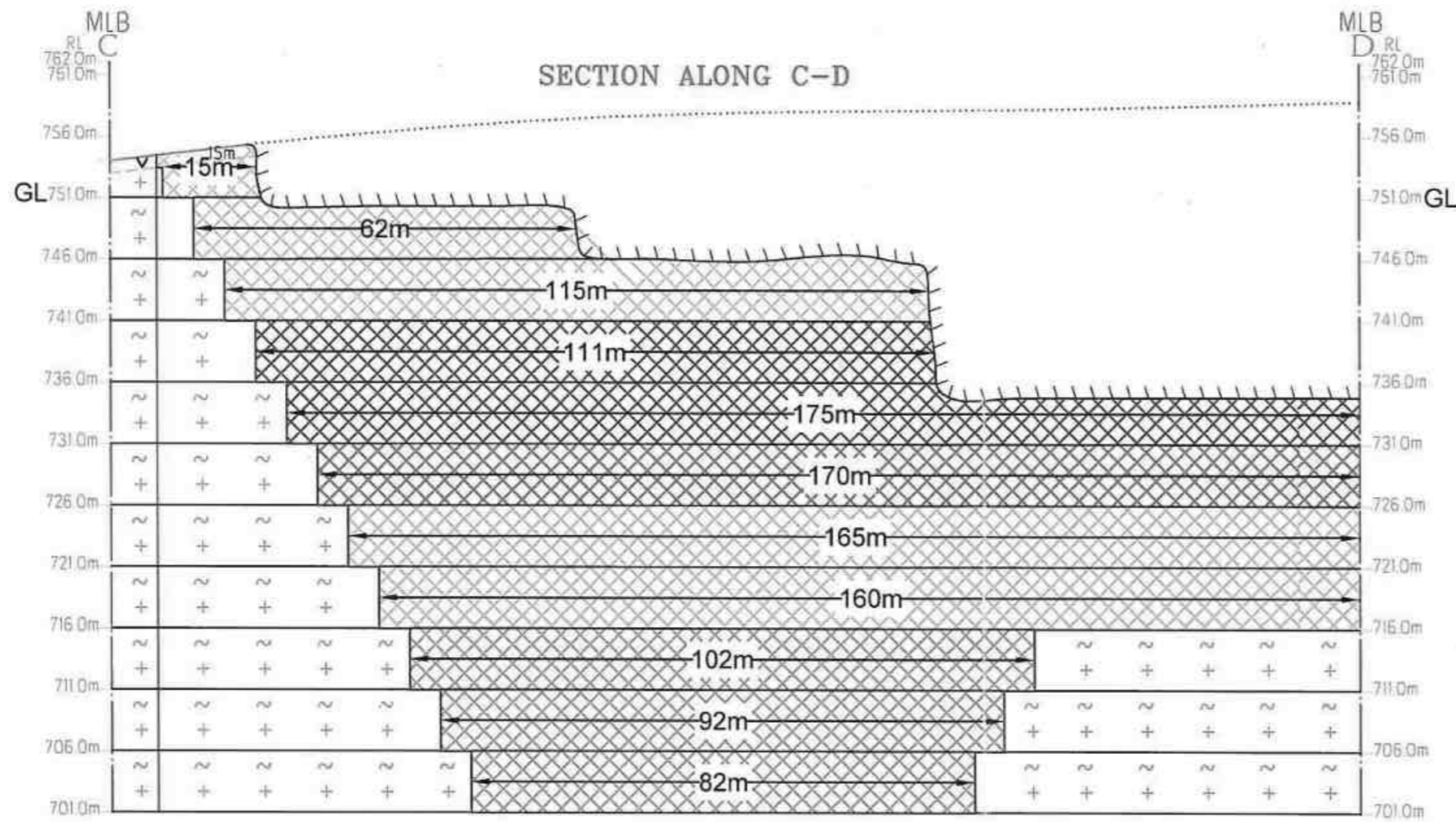
**LEASE AREA:**  
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 DISTRICT : KRISHNAGIRI

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**YEARWISE DEVELOPMENT & PRODUCTION SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1 : 50

Prepared By:  
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Dr.S.KARUPPANNAN, M.Sc., Ph.D.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



**GL-GROUND LEVEL**

- I - Year Proposed area to be Quarried
- II - Year Proposed area to be Quarried
- III - Year Proposed area to be Quarried
- IV - Year Proposed area to be Quarried
- V - Year Proposed area to be Quarried



**PLATE NO-IVB**  
**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
 TALUK : SHOOLAGIRI  
 DISTRICT : KRISHNAGIRI

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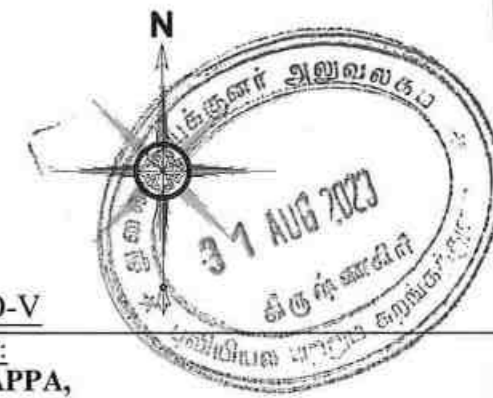
MINE LEASE BOUNDARY	
SAFETY DISTANCE	
ROUGH STONE	
TOP SOIL	
EXISTING PIT	
PROPOSED BENCH	

YEARWISE PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Rough Stone in M <sup>3</sup>	Top Soil in M <sup>3</sup>
VI	XY-AB	I	34	2	1	68	.....	68
		II	32	2	5	320	320	.....
		III	27	2	5	270	270	.....
		IV	23	21	5	2415	2415	.....
		V	77	121	5	46585	46585	.....
	XY-CD	I	10	15	1	150	.....	150
		II	10	15	5	750	750	.....
		III	10	62	5	3100	3100	.....
		IV	81	115	5	46575	46575	.....
	<b>TOTAL</b>						<b>100233</b>	<b>100015</b>
VII	XY-AB	VI	72	117	2	16848	16848	.....
		VI	72	140	3	30240	30240	.....
	XY-CD	V	76	111	5	42180	42180	.....
		VI	71	175	5	62125	62125	.....
<b>TOTAL</b>						<b>151393</b>	<b>151393</b>	<b>0</b>
VIII	XY-AB	VII	67	130	5	43550	43550	.....
		VIII	62	120	5	37200	37200	.....
	XY-CD	VII	66	170	5	56100	56100	.....
<b>TOTAL</b>						<b>136850</b>	<b>136850</b>	<b>0</b>
IX	XY-AB	IX	57	110	5	31350	31350	.....
		VIII	61	165	5	50325	50325	.....
	XY-CD	IX	56	160	5	44800	44800	.....
<b>TOTAL</b>						<b>126475</b>	<b>126475</b>	<b>0</b>
X	XY-AB	X	52	100	5	26000	26000	.....
		XI	47	90	5	21150	21150	.....
		XII	42	80	5	16800	16800	.....
		XIII	37	70	5	12950	12950	.....
	XY-CD	X	51	102	5	26010	26010	.....
		XI	46	92	5	21160	21160	.....
		XII	41	82	5	16810	16810	.....
<b>TOTAL</b>						<b>140880</b>	<b>140880</b>	<b>0</b>
<b>GRAND TOTAL</b>						<b>655831</b>	<b>655613</b>	<b>218</b>

**YEARWISE DEVELOPMENT & PRODUCTION SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1 : 50

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



**PLATE NO-V**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**

S.F.NO : 1266  
 EXTENT : 4.04.5 Hect  
 VILLAGE : KAMANDODDI  
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 DISTRICT : KRISHNAGIRI

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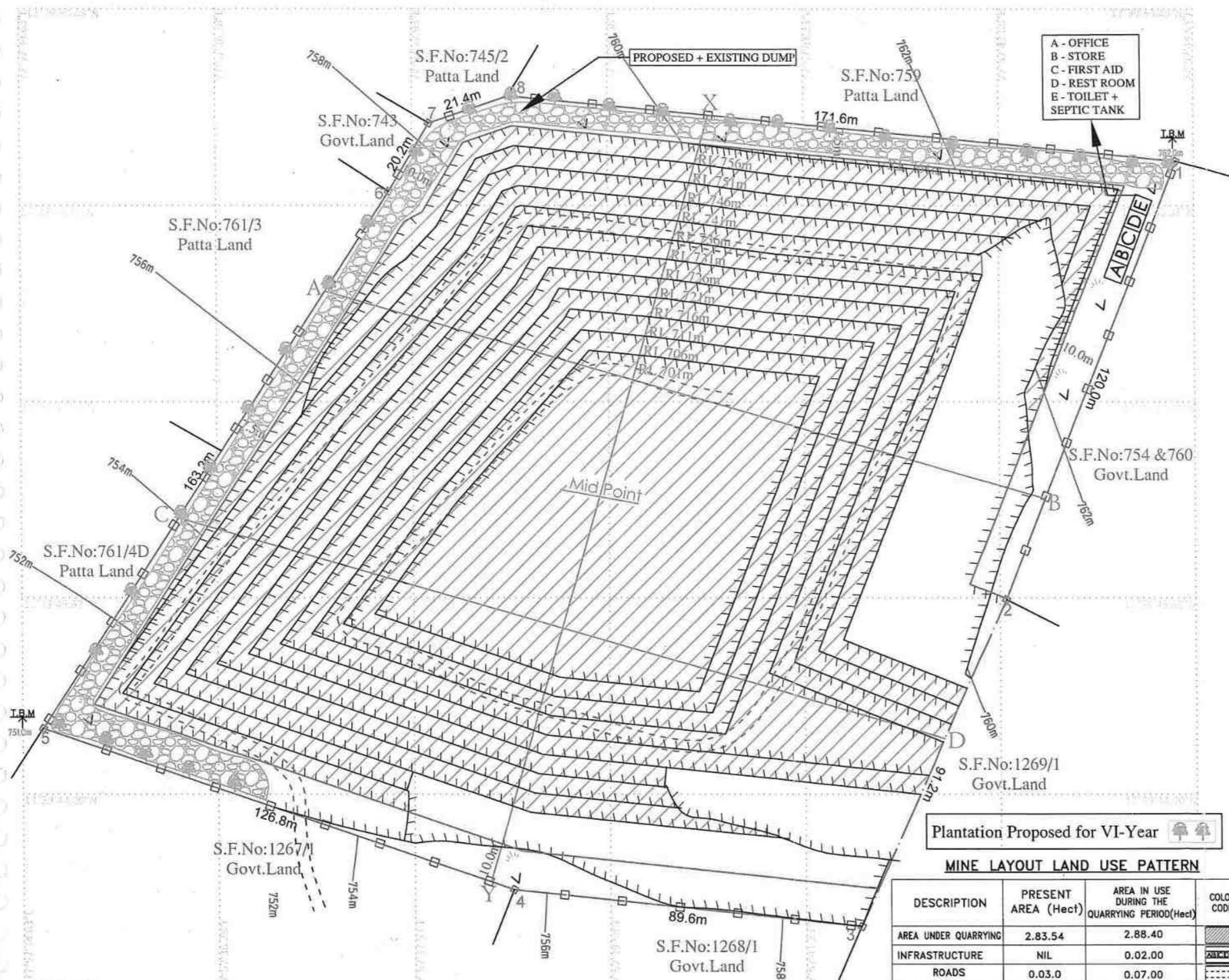
**MINE LAYOUT PLAN AND  
 LAND USE PATTERN**

SCALE 1 : 1000

Prepared By:

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 TO THE BEST OF MY KNOWLEDGE

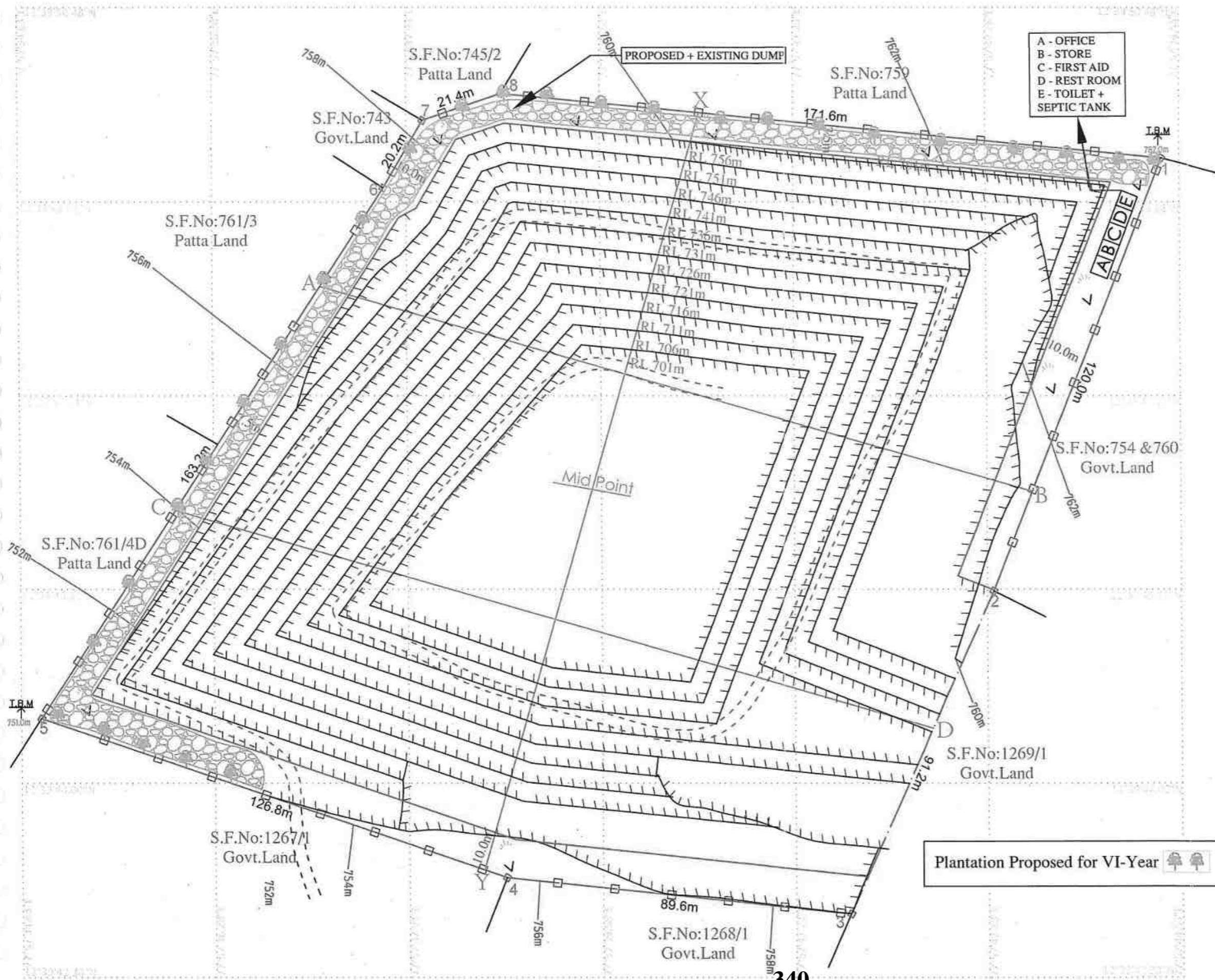
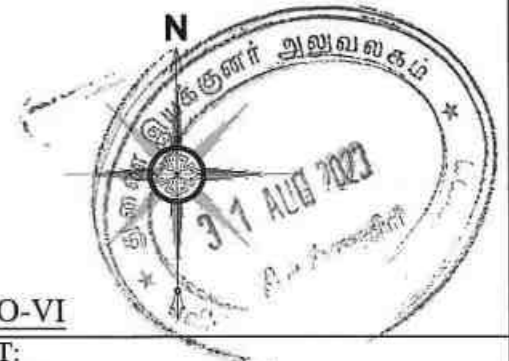
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



Plantation Proposed for VI-Year

**MINE LAYOUT LAND USE PATTERN**

DESCRIPTION	PRESENT AREA (Hect)	AREA IN USE DURING THE QUARRYING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	2.83.54	2.88.40	
INFRASTRUCTURE	NIL	0.02.00	
ROADS	0.03.0	0.07.00	
GREEN BELT + DUMP	0.95.21	0.42.50	
UN-UTILIZED AREA	0.22.75	0.64.60	NIL
GRAND TOTAL	4.04.50	4.04.50	NIL



**PLATE NO-VI**

**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
 S.F.NO : 1266  
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 VILLAGE : KAMANDODDI  
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 DISTRICT : KRISHNAGIRI

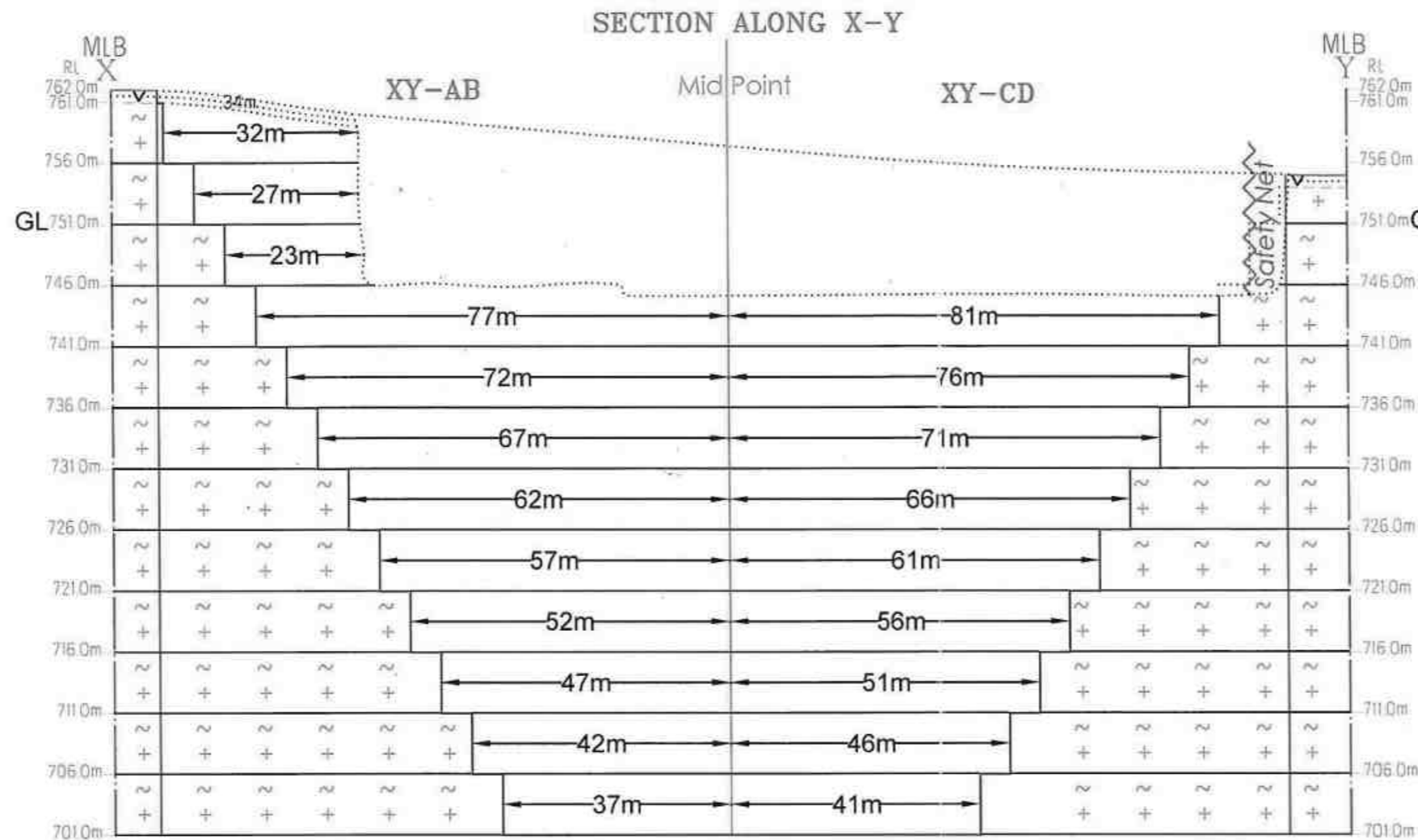
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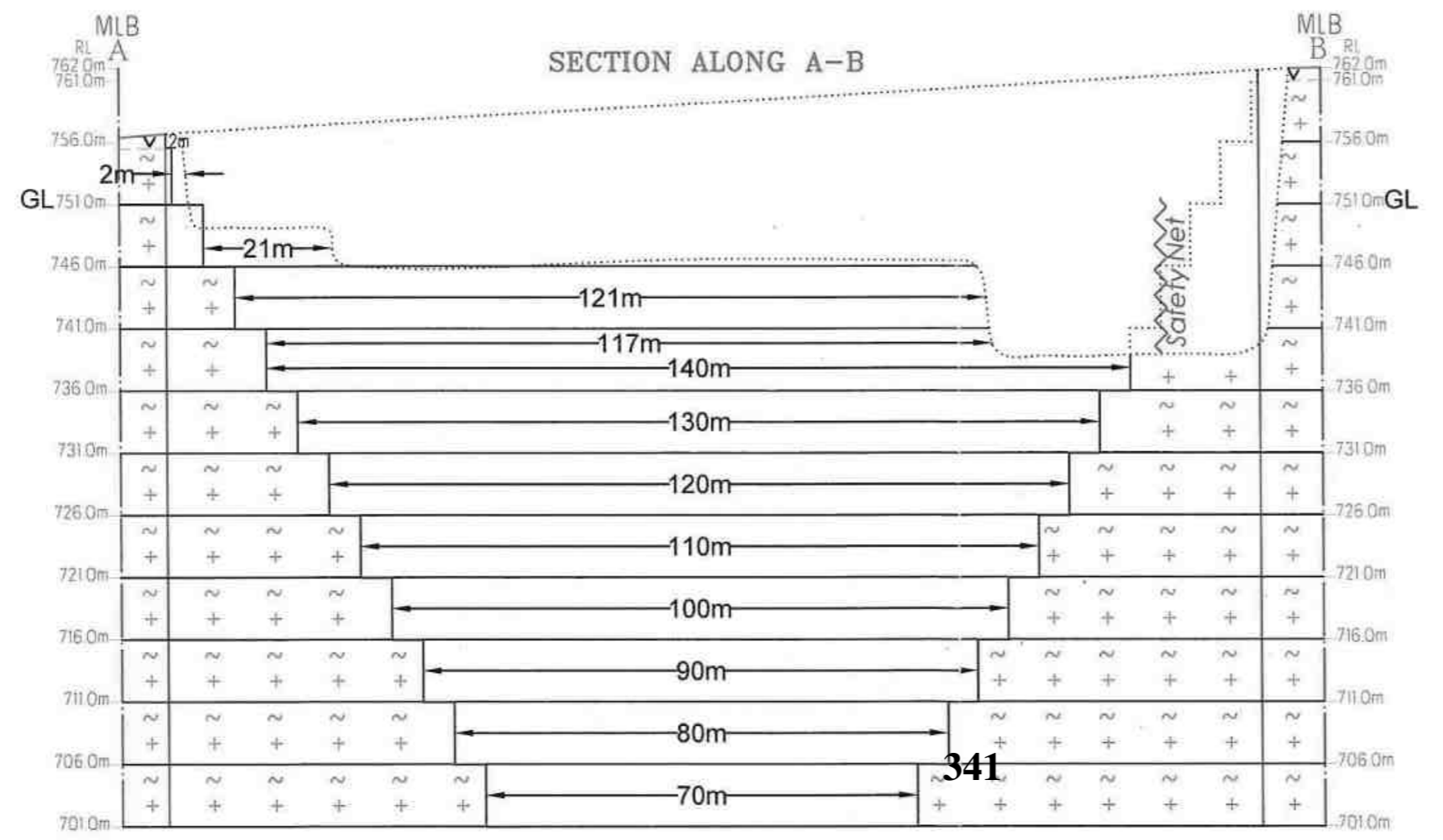
**CONCEPTUAL PLAN**  
 PLAN SCALE 1: 1000

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



**GL-GROUND LEVEL**



**PLATE NO-VIA**  
**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

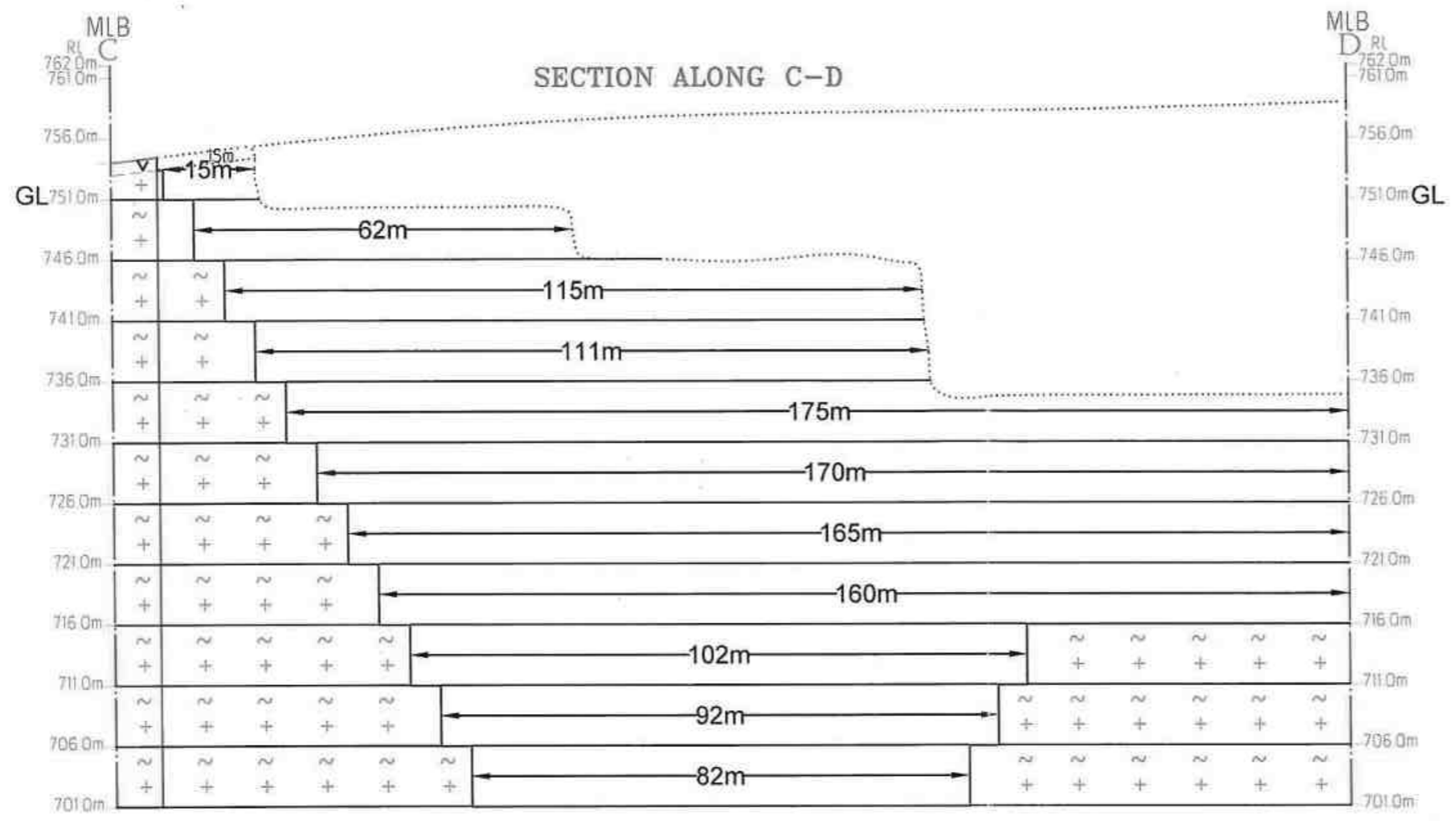
**LEASE AREA:**  
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**CONCEPTUAL SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1: 500

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.**  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A



MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M <sup>3</sup>	Rough Stone in M <sup>3</sup>	Top Soil in M <sup>3</sup>
XY-AB	I	34	2	1	68	.....	68
	II	32	2	5	320	320	.....
	III	27	2	5	270	270	.....
	IV	23	21	5	2415	2415	.....
	V	77	121	5	46585	46585	.....
	VI	72	117	2	16848	16848	.....
	VII	72	140	3	30240	30240	.....
	VIII	67	130	5	43550	43550	.....
	VIII	62	120	5	37200	37200	.....
	IX	57	110	5	31350	31350	.....
	X	52	100	5	26000	26000	.....
	XI	47	90	5	21150	21150	.....
	XII	42	80	5	16800	16800	.....
XIII	37	70	5	12950	12950	.....	
<b>TOTAL</b>					<b>285746</b>	<b>285678</b>	<b>68</b>
XY-CD	I	10	15	1	150	.....	150
	II	10	15	5	750	750	.....
	III	10	62	5	3100	3100	.....
	IV	81	115	5	46575	46575	.....
	V	76	111	5	42180	42180	.....
	VI	71	175	5	62125	62125	.....
	VII	66	170	5	56100	56100	.....
	VIII	61	165	5	50325	50325	.....
	IX	56	160	5	44800	44800	.....
	X	51	102	5	26010	26010	.....
	XI	46	92	5	21160	21160	.....
	XII	41	82	5	16810	16810	.....
<b>TOTAL</b>					<b>370085</b>	<b>369935</b>	<b>150</b>
<b>GRAND TOTAL</b>					<b>655831</b>	<b>655613</b>	<b>218</b>

GL-GROUND LEVEL

**PLATE NO-VIB**  
**APPLICANT:**  
**Mr.R.RAJAPPA,**  
 S/o.V.RAMAPPA  
 No.3/883, PILLAYAKOTHOOR VILLAGE,  
 KONERIPALLI POST,  
 HOSUR TALUK,  
 KRISHNAGIRI DISTRICT - 635109.

**LEASE AREA:**  
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**CONCEPTUAL SECTIONS**  
 SECTION HOR 1 : 1000 & VER 1: 500

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.  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/263/2014/A

From

Dr.S.Vediappan, M.Sc.,Ph.D.,  
Deputy Director,  
Dept. of Geology and Mining,  
Krishnagiri.

To

Thiru.R. Rajappa,  
3/883, Pillaiyakothur village,  
Koneripalli post, Hosur taluk,  
Krishnagiri District - 635109.

**Roc.No. 896/2019/Mines Dated: 31.08.2023.**

**Sir,**

**Sub:** Mines and Minerals - Minor Mineral - Rough stone -  
Krishnagiri District - Shoolagiri Taluk - Kamandoddi Village -  
Government poramboke S.F.No.1266 - over an extent of  
4.04.50 Hects - Quarry lease granted for quarrying rough stone  
in favor of Thiru.R. Rajappa - Scheme of Mining submitted for  
the 2<sup>nd</sup> five year period 2022-2023 to 2026-2027- Approved -  
Reg.

- Ref:**
1. The District Collector, Krishnagiri Proc.Roc.No.102/2016/  
Mines-1 dated: 06.10.2017.
  2. Mining plan approved by the Deputy Director of Geology  
and Mining, Krishnagiri in Rc.No.102/2016/Mines-1 dated:  
05.10.2016.
  3. Scheme of mining plan for the period 2022 - 2023 to 2026 -  
2027 submitted by the lessee on 20.12.2021 and  
10.07.2023.
  4. Assistant Geologist and Sub Inspector of Survey (Mines)  
inspection report dated: 21.07.2023.

-----  
Kind attention is invited to the references cited.

2) Quarry lease had been granted in favor of Thiru.R. Rajappa to  
quarry rough stone over an extent of 4.04.50 Hect. of Government  
poramboke land in S.F. No. 1266 of Kamandoddi village, Shoolgiri Taluk,  
Krishnagiri District vide District Collector's Proceedings Rc. No.  
102/2016/Mines dated:06.10.2017 under TNMMCR Rules, 1959 for a



period of 10 years under tender cum auction. The lease deed was executed on 13.10.2017 and the lease period is valid up to 12.10.2027.

3) The Mining plan for the subject rough stone quarry was approved by the Deputy Director of Geology and Mining, vide letter Rc. No. 102/2016/Mines Dated:05.10.2016 which came into effect from the date of execution i.e., on 13.10.2017.

4) In this connection as stipulated in the TNMMCR Rules 1959, the applicant has submitted the scheme of mining for the period from 2022 - 2023 to 2026 - 2027 (13.10.2022 to 12.10.2027) on 20.12.2021 and as instructed carried out corrections and resubmitted the scheme on 10.07.2023.

5) As per the scheme of mining plan submitted for approval, it is mentioned that the total available geological reserves are calculated as 1732019 Cbm and after providing spaces for necessary benches the mineable reserves are calculated as 655613 Cbm @ 100% recovery upto a maximum of depth of 61m (11m above RL + 50m below RL).

6) As per the Scheme of mining the year wise production for the proposed five years are as follows.

Year	Recoverable reserves @ (m <sup>3</sup> )	Gravel
13.10.2022 to 12.10.2023	100015	218
13.10.2023 to 12.10.2024	151393	-
13.10.2024 to 12.10.2025	136850	-
13.10.2025 to 12.10.2026	126475	-
13.10.2026 to 12.10.2027	140880	-
<b>Total</b>	<b>655613</b>	<b>218</b>

7) The lessee had obtained transport permits of 282000 Cbm as against the proposed production of 359910 Cbm (for the Mining plan period from 2017-2018 to 2021-2022).

8) The lessee has obtained Environment Clearance from SEIAA vide Lr.No.SEIAA-TN/F.No.5827/1(a)/EC.No.3856/2016 dated:31.05.2017 for a quantity of 359910 for five years.

9) During the field inspection conducted by the Assistant Geologist and Surveyor (Mines) it is verified that the lessee has complied the terms and conditions stipulated in the lease granting proceedings and lease deed except a quantity of 9494 cbm of rough stone quarried in excess and also depth more than the permitted depth.

10) The draft Scheme of Mining submitted by Thiru. R. Rajappa has been scrutinized as per the guide lines/ Instructions issued by the Commissioner of Geology and Mining, Chennai-32. The Scheme of mining is prepared in accordance with the guidelines/ instructions issued.

11) Hence, in accordance with the TNMMCR 1959 and instructions issued by the Director of Geology and Mining, Chennai, the said scheme of mining for the next five-year period 2022-23 to 2026-27 submitted by the lessee Thiru. R.Rajappa in respect of the area granted in Government Poramboke land S.F.No 1266 over an extent of 4.04.5 Hects hereby approved in exercise of the powers conferred under Rule 41 (9) (iii) of TNMMCR 1959 subject to the following conditions.

- i. As per the pit measurements during the inspection conducted by the Assistant Geologist (Mines) and Sub Inspector of Survey (Mines), the lessee has quarried a quantum of 291484 Cbm of rough stone and obtained permits for a quantum of 282000 upto 24.09.2021 as per the office records. Hence, for the violations committed by the lessee by transporting 9494 CBM of rough stone unauthorizably without payment of seigniorage fee by quarried over depth than the permitted depth for which the lessee should adhere orders if any to be passed by the Sub Collector, Hosur in this regard.
- ii. That the scheme of mining 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.
- iii. This approval of the scheme of mining does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980,

Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Mineral Conservation and Development Rules 1988 and The Tamil Nadu Minor Mineral Concession rules, 1959.

- iv. This scheme of Mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- v. 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.
- vi. Provisions made under Mines and Minerals (Development and Regulation) Act, 1957, MMDR amendment Act, 2015 made there under shall be complied with.
- vii. This approval of scheme of mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under TNMMCR Rules, 1959.
- viii. The lessee should obtain environmental clearance from the appropriate authority.
- ix. The earlier instances of irregular/illegal quarrying, if any shall not be regularized through the approval of this document.
- x. The lessee shall remit the penalty/ cost of mineral/ other dues if any as arrived by the District Collector/ Deputy Director of Geology and Mining, Krishnagiri District.
- xi. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.

*S. G. V.*  
*31.08.23*  
Deputy Director,  
Dept of Geology and Mining,  
Krishnagiri.



**TAMILNADU POLLUTION CONTROL BOARD**

CONSENT ORDER NO. 1808112744818

DATED: 05/04/2018.

PROCEEDINGS NO.F.1372HSR/RS/DEE/TNPCB/HSR/W/2018 DATED: 05/04/2018

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT - M/s. R RAJAPPA ROUGH STONE QUARRY , S.F.No. 1266, KAMANDHODDI village, Shoolagiri Taluk and Krishnagiri District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) - Issued- Reg.

**REF:** 1. CTO Proc. No: F.1372HSR/RS/DEE/TNPCB/HSR/W/2017 Dated 24/08/2017.  
2. Unit's application for Renewal of consent Id No: 12744818 Dated 28/03/2018.  
3. IR.No : F.1372HSR/RS/AE/HSR/2018 Dated 04/04/2018.

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor  
M/s.R RAJAPPA ROUGH STONE QUARRY ,  
S.F.No. 1266,  
KAMANDHODDI Village ,  
Shoolagiri Taluk ,  
Krishnagiri District .

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

**This RENEWAL OF CONSENT is valid for the period ending March 31, 2022.**

S. PALANISAMY  
Digitally signed by S. PALANISAMY  
Date: 2018.04.05 04:23:45 +05'30'  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
HOSUR



# TAMILNADU POLLUTION CONTROL BOARD

## SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	Rough Stone Quarrying in an Extent of 4.04.5 Hec located at S.F.No:1266, Kamandoddi Village, Shoolagiri Taluk (Previously Hosur Taluk), Krishnagiri District.	359910	Cu.M/Five Years
2.	Top Soli	31600	Cu.M/Five Years

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
<b>Effluent Type : Sewage</b>			
1.	Sewage	0.25	On Industrys own land
<b>Effluent Type : Trade Effluent</b>			



## TAMILNADU POLLUTION CONTROL BOARD

### Additional Conditions:

1. The unit shall not generate trade effluent from its manufacturing process.
2. The unit shall treat and dispose the sewage through septic tank and Soak pit arrangement.
3. The reject of the mining activities shall be collected, stored within the unit's area.
4. The unit shall comply with the provisions as laid down in the Tamil Nadu Prevention of illegal mining, transportation and storage of mineral and mineral dealers Rules, 2011.
5. The operation of the unit shall not evoke complaint from neighbours.
6. The unit shall comply with the conditions stipulated in the Environmental Clearance accorded to the unit by the SEIAA, dated. 31/05/2017.
7. The unit shall comply the conditions stipulated in the Quarry lease made with the District collector, Krishnagiri Dated. 13/10/2017.
8. The consents issued are subject to the final outcome of NGT(SZ)-165/2013.
9. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.

**S. PALANISAMY** Digital Signature  
Date: 2018.04.09 04:24:14 +0530  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
HOSUR

To  
The Proprietor,  
M/s.R RAJAPPA ROUGH STONE QUARRY,  
S.F.No:1266, Kammondoodi Village, Hosur Taluk, Krishnagiri District.,  
Pin: 635109

### Copy to:

1. The Commissioner, SHOOLAGIRI-Panchayat Union, Shoolagiri Taluk, Krishnagiri District.
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore for favour of kind information.
4. File



**TAMILNADU POLLUTION CONTROL BOARD**

CONSENT ORDER NO. 1808212744818

DATED: 05/04/2018.

**PROCEEDINGS NO.F.1372HSR/RS/DEE/TNPCB/HSR/A/2018 DATED: 05/04/2018**

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT -M/s. R RAJAPPA ROUGH STONE QUARRY , S.F.No. 1266, KAMANDHODDI village, Shoolagiri Taluk and Krishnagiri District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) -Issued- Reg.

**REF:** 1. CTO Proc. No: F.1372HSR/RS/DEE/TNPCB/HSR/W/2017 Dated 24/08/2017.  
2. Unit's application for Renewal of consent Id No: 12744818 Dated 28/03/2018.  
3. IR.No : F.1372HSR/RS/AE/HSR/2018 Dated 04/04/2018.

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor  
M/s.R RAJAPPA ROUGH STONE QUARRY ,  
S.F.No. 1266,  
KAMANDHODDI village,  
Shoolagiri Taluk,  
Krishnagiri District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

**This RENEWAL OF CONSENT is valid for the period ending March 31, 2022**

**S. PALANISAMY**  
Date: 2018.04.05 04:25:11 +05'30'  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
HOSUR



## TAMILNADU POLLUTION CONTROL BOARD

### SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	Rough Stone Quarrying in an Extent of 4.04.5 Hec located at S.F.No:1266, Kamandoddi Village, Shoolagiri Taluk (Previously Hosur Taluk), Krishnagiri District.	359910	Cu.M/Five Years
2.	Top Soil	31600	Cu.M/Five Years

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I Point source emission with stack :				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm <sup>3</sup> /hr
<b>II Fugitive/Noise emission :</b>				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	
1.	Vehicle movement	Fugitive	Water sprinkler system	
2.	Drilling and Blasting	Fugitive	Water sprinkler system	





## TAMILNADU POLLUTION CONTROL BOARD

### Additional Conditions:

1. The unit shall operate and maintain the Air Pollution Control measures efficiently so as to achieve the Ambient Air Quality emission / Ambient Noise level standards prescribed by the Board.
2. The unit shall comply with the provisions as laid down in the Tamil Nadu Prevention of illegal mining, transportation and storage of mineral and mineral dealers Rules, 2011.
3. The operation of the unit shall not evoke complaint from neighbours.
4. The unit shall comply with the conditions stipulated in the Environmental Clearance accorded to the unit by the SEIAA, dated. 31/05/2017.
5. The unit shall comply the conditions stipulated in the Quarry lease made with the District collector, Krishnagiri Dated. 13/10/2017.
6. The consents issued are subject to the final outcome of NGT(SZ)-165/2013.
7. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.

S. PALANISAMY Digitally signed by S. PALANISAMY

Date: 2018.04.09 04:25:34 +05'30'

District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
HOSUR

To

The Proprietor,

M/s.R RAJAPPA ROUGH STONE QUARRY ,

S.F.No:1266, Kammondoodi Village, Hosur Taluk, Krishnagiri District.,

Pin: 635109

Copy to:

- 1.The Commissioner, SHOOLAGIRI-Panchayat Union, Shoolagiri Taluk, Krishnagiri District .
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore for favour of kind information.
4. File



Dr. H. Malleshappa, I.F.S  
Member Secretary

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL NADU  
3<sup>rd</sup> Floor, Panagal Maaligai,  
No.1 Jeenis Road, Saidapet, Chennai-15  
Phone No.044-24359973  
Fax No. 044-24359975

**ENVIRONMENTAL CLEARANCE**

Lr. No. SEIAA-TN/F.No.5827/1(a)/ EC.No: 3856 /2016 dated: 31.05.2017

To  
Thiru. R. Rajappa  
S/o. V. Ramappa  
No. 3/883, Pillayakothoor Village  
Koneripalli Post  
Hosur Taluk  
Krishnagiri - 635109

Sir,

Sub: SEIAA-TN – Proposed Rough Stone quarry located at S.F.No 1266, Kammondoodi Village, Hosur Taluk, Krishnagiri District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 11.10.2016  
2. Minutes of the 82<sup>nd</sup> SEAC held on 21.10.2016 & 22.10.2016  
3. Minutes of the 213<sup>rd</sup> SEIAA meeting held on 31.05.2017

**Details of Minor Mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. R. Rajappa No. 3/883, Pillayakothoor Village Koneripalli Post Hosur Taluk Krishnagiri - 635109
2	Location of the Proposed Activity	
	Survey Number	1266
	Latitude and Longitude	12°39'42.27"N to 12°39'49.21"N 77°57'34.14"E to 77°57'43.82"E
	Village	Kammondoodi
	Taluk	Hosur

MEMBER SECRETARY  
SEIAA-TN

	District	Krishnagiri
3	Proposed Activity	
	i. Minor mineral	Rough Stone
	ii. Mining Lease Area	4.04.5 Ha
	iii. Approved quantity	359910 cu.m of Rough Stone & 31600 cu.m of Top soil
	iv. Depth of Mining	16m (11m above ground level + 5m below ground level)
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Rc.No. 102/2016/Mines dated 29.02.2016
	viii. Mining plan approval	Deputy Director Rc.No. 102/2016/Mines-1 dated 05.10.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished
5	Man Power requirement per day:	13 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	293206 Litres of HSD
7	Cost	
	i. Project Cost	Rs.178.02 Lakhs
	ii. EMP Cost	Rs.7.10 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by SEAC:- Agenda No:	21.10.2016 & 22.10.2016 82-17
10	Date of Review/Discussion by SEIAA and the Remarks:- The proposal was placed before the SEIAA in its 213 <sup>th</sup> Meeting held on 31.05.2017 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	Validity: This Environmental Clearance is granted to Mining of Rough Stone for the production quantity of 359910 cu.m of Rough stone & 31600 cu.m of Top Soil for the period of 5 Years from the date of execution of the Mining Lease period.	

MEMBER SECRETARY  
SEIAA-TN

**Conditions to be Complied before commencing mining operations:-**


1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

MEMBER SECRETARY  
SEIAA-TN

15. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
16. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
17. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
18. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
19. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
20. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
21. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
22. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, Gol on 16.11.2009.
23. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
  - i. Roads shall be graded to mitigate the dust emission,
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
24. The following measures are to be implemented to reduce Noise Pollution
  - i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
25. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, Gol to control noise to the prescribed levels.
26. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
27. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
28. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
29. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention/ toe walls shall be provided at the foot of the dumps.

MEMBER SECRETARY  
SEIAA-TN

- ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
  31. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
  32. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
  33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
  34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
  35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
  36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
  37. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
  38. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
  39. Ground water quality monitoring should be conducted once in 3 Months
  40. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
  41. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
  42. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
  43. Bunds to be provided at the boundary of the project site.

  
MEMBER SECRETARY  
SEIAA-TN

44. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
45. At least 10 Neem trees should be planted around the boundary of the quarry site.
46. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
47. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
48. The CSR funds should be channelized for planting programme, nature conservation support, tribal development and activities that support forest and environment.
49. The Project Proponent shall provide solar lighting system to the nearby villages
50. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
51. Rainwater shall be pumped out Via Settling Tank only
52. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
53. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
54. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
55. Safety equipments to be provided to all the employees.
56. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
57. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
58. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
59. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
60. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
61. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
62. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
63. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
64. The Project Proponent is also directed to strictly adhere to the Sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
65. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 1m height.
66. The quarrying activity in no way should disturb the Wildlife habitat, free migratory movement of the wildlife nor disturb the wildlife in any way.

MEMBER SECRETARY  
SEIAA-TN

General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.

MEMBER SECRETARY  
SEIAA-TN



16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA,TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

MEMBER SECRETARY  
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Krishnagiri District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. E1 Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



## National Accreditation Board for Education and Training



### Certificate of Accreditation

#### Geo Technical Mining Solutions

1/213B, Natesan Complex, Dharmapuri Salem Main Road, Oddapatti, Collectorate post office,  
Dharmapuri, Tamil Nadu-636705

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/ underground mining	1	1 (a) (i)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated September 13, 2022 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/23/2641 dated January 19, 2023. The accreditation needs to be renewed before the expiry date by Geo Technical Mining Solutions following due process of assessment.

Sr. Director, NABET  
Dated: January 19, 2023

Certificate No.  
NABET/EIA/2124/SA 0184

Valid up to  
Dec 31, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

