

**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 = 26.03.7 hectares

ROUGHSTONE AND GRAVEL QUARRY

At

Anjur Village, Pugalur Taluk, Karur District,

Tamil Nadu State

ToR Letter No. SEIAA-TN/F.No.9905/SEAC/ToR-1440/2023 Dated:10.05.2023.

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F.No.
Mr.S.Kuppusamy S/o. Samiappagounder, Door.No.95, Saliankattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur – 638 105.	4.82.7 ha & 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1, 767/2A

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS

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

Oddapatti, Collectorate Post office,

Dharmapuri-636705. Tamil Nadu.

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

Website: www.gtmsind.com

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

Valid till: Dec 31, 2023



ENVIRONMENTAL LAB

ACCURACY ANALABS AND

ENVIRO FARMERS LABS & TECHNOLOGIES

Baseline Study Period – March through May 2023



TERMS OF REFERENCE (ToR) COMPLIANCE

ToR issued vide Lr.No.SEIAA-TN/F.NO.9905/SEAC/ToR-1440/2023 Dated:10.05.2023

for S. Kuppusamy Rough stone & Gravel Quarry

SPECIFIC CONDITIONS		
1	As per Metalliferous Mines Regulation 1961, under Chapter XI, 106(2) (a) "...the face shall be benched and the sides shall be sloped at an angle of not more than 60 degrees from the horizontal. The height of any bench shall not exceed six meters and the breadth thereof shall not be less than the height," Hence, the project proponent shall furnish the revised mining plan approved by the competent authority, incorporating the slopes stability action plan by maintaining benches on both sides with appropriate bench geometry in accordance with the provisions of Reg.106 of MMR 1961 and by maintaining the depth of 50m BGL.	The modified production and development plan is attached in the Annexure III. And discussed in Section 2.5 under Chapter II, pp-19. The details regarding slope stability will be given in the final EIA report.
2	Restricting the maximum depth of mining from 62m to 50m considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and consequently the revised quantity is spelt out in the 'modified production and development Plan' to be submitted during the EIA appraisal.	The modified production and development plan is attached in the Annexure III. And discussed in Section 2.5 under Chapter II, pp-19.
3	Also, the original letter of approval obtained for the revised mining plan prepared for the mine shall be furnished during the EIA appraisal.	The letter for the approval is attached in the Annexure II.
4	The structures within the radius of (i)50 m, (ii)100 m, (iii)200 m, (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it	The report about the structures within the radius of 50 m, 100 m, 200 m, 300 m will be attached with final EIA report.

	belongs to the owner or not, places of worship, industries, factories, sheds, etc.	
5	The Proponent shall carry out Bio-diversity study through reputed Institution and the same shall be included in EIA Report.	The details of Bio diversity have been provided in Section 3.5 under Chapter III, pp.72-92.
6	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Photographs of adequate fencing, green belt of the project area will be included in final EIA report.
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining plan, the project proponent (PP) shall 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 and mining during the time of appraisal for obtaining the EC.	Slope stability report will be included in final EIA report.
8	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	The affidavit for blasting will be submitted in the final EIA report.
9	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	A conceptual design of blasting has been given in Section 2.6 under Chapter II, pp.22-30.
10	The EIA Coordinators shall obtain and furnish	Photographic evidences and video showing

	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.	mining activities of the project proponent will be attached with final EIA report.
11	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?	All the documents will be attached with final EIA report.
	b. Quantity of minerals mined out.	
	c. Highest production achieved in any one year	
	d. Detail of approved depth of mining.	
	e. Actual depth of the mining achieved earlier.	
	f. Name of the person already mined in that leases area.	
	g. If EC and CTO already obtained, the copy of the same shall be submitted.	
	h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	
12	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).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4, p.14 under Chapter II.
13	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	Drone video and photographs showing fencing and greenbelt development will be

		included in the final EIA report. The drone video will be submitted during the final EIA report appraisal.
14	The PP shall furnish the revised manpower including the statutory & competent persons as required under-the provisions of the MMR 1961 for the prosed quarry based on the volume of rock handled & area of excavation.	Details of manpower required for this project have been given in Table 2.14 under Chapter II, p.31.
15.	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 photographs of water bodies will be attached in the final EIA report.
16	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-19. The anticipated impact of mining on land, air, noise, water, soil, biology, and socio economy is discussed under Chapter IV, pp.103-131.
17	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.	Details of manpower required for this project have been given in Table 2.14 under Chapter II, p.31.
18	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	Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.44-56.

	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.	
19	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. 32-102.
20	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Results of cumulative impact study due to mining operations are given in Section 7.4 under Chapter VII, pp.145-151.
21	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The rainwater harvesting management plan will be submitted along with the final EIA report.
22	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 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

	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.	in Section 3.1, pp.33-43 under Chapter III. The details of surrounding sensitive ecological features have been provided in Table 3.39 under Chapter III, p.100. 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.25.
23	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease. such as extent of land area, distance from mine lease' its land use, R&R issues. If any, should be provided.	This condition is not applicable to this project because no dumps have been proposed outside the lease area.
24	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.	This condition is not applicable to this project because this project is not located in proximity to the areas of areas declared as 'Critically Polluted' (or) the project areas which attracts the court restrictions for mining operations.
25	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.	Details about rainwater harvesting structures will be included in the final EIA report.
26	Impact on local transport infrastructure due to the Project should be indicated.	Details regarding the impact of the project on traffic are given in Section 3.7 under Chapter III, pp.97-99.
27	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	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.72-92.

	activity.	
28	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.9 under Chapter II, p.25.
29	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.	The comments made in public hearing meeting will be updated in the final EIA report after public hearing meeting.
30	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Details of advertisement will be updated in the final EIA report.
31	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 EIA report, executive summary and other related information will be incorporated in this report.
32	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The EIA coordinator and the FAE for ecology and biodiversity visited the study area and educated the local students about the importance of protecting the biological environment.
33	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	A detailed greenbelt development plan has been provided in Section 4.6 under Chapter IV, pp.121-127.

	<p>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.</p>	
34	<p>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/Horticulture 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.</p>	<p>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.</p>
35	<p>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.</p>	<p>A disaster management plan for the project has been provided in Section 7.3 under Chapter VII, pp.141-144.</p>
36	<p>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.</p>	<p>A risk assessment plan for the project has been provided in Section 7.2 under Chapter VII, pp.138-140.</p>
37	<p>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</p>	<p>Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.8 under Chapter IV, pp.128 & 129.</p>

	the mining area may be detailed.	
38	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.156-157.
39	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 29 people directly as discussed in Section 8.1 under Chapter VIII, p.155.
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	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.155-157.
42	If any quarrying operation 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.	CCR will be submitted during appraisal of final EIA.
43	The PP Shall prepare the EMP for the entire life of mine and also Furnish the sworn affidavit	A detailed environment management plan has been prepared following the suggestion made

	starting to Abide the EMP for the entire life of mine.	by SEAC, as shown in Chapter X, pp.159-176.The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted along with final EIA....
44	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 proposal was placed in the 616th Authority meeting held on 10.05.2023. the authority noted that this proposal was placed for appraisal in the 369th meeting of SEAC held on 20.04.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with public Hearing under cluster for undertaking the combined Environment Impact Assessment study and preparation of separate Environment Management plan subject to the conditions as recommended by SEAC & normal conditions in addition to the condition to the conditions in ‘Annexure B’ of this minute.</p>		
In addition to that the PP shall study about the following,		
1.	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	
	b) Soil health	Soil health have been discussed in Section 3.1, under Chapter III, pp.33-43.
	c) Climate Change	Climatic condition of the proposed project area has been discussed in Section 3.3 under Chapter III, pp.56-68.
	d) Rise in Temperature	The information will be updated in the final EIA report.
	e) Water Table and Drainage Pattern	The details regarding drainage pattern and the water table is discussed in the Section 3.1.4 and Section 3.2 under Chapter III, p-36.

		& pp. 44-54.
	f) Agriculture	The result has been discussed in Section 3.5.1 under Chapter III, pp.74-75.
2.	The PP shall obtain a letter from the Concerned Director of Agriculture stating that proposed mining activity has no impact on the surrounding Agriculture.	The letter will be attached in the final EIA report.
Annexure '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.22-31.
5	The committee shall deliberate on risk management plan pertaining to the cluster in a	It will be informed to the committee.

	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.141-144.
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.	The study is under process. The results will be updated in the final EIA report.
	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.	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.121-127
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.72-92. 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, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details of vegetation in the lease area have been provided in Section 3.5 under Chapter III, pp.72-92. Details about transplantation of plants have been provided in Section 4.6 under Chapter IV, pp.127-127.
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.72-92 and measures have been provided in Section 4.6 under Chapter IV, pp.121-127.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV, pp.103-131.
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, p.104.
	Forests	
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.121-127.
21	The Environmental Impact Assessment should study impact on standing trees and the existing	The impacts of the project on standing trees and the existing trees have been discussed in

	trees should be numbered and action suggested for protection.	Section 4.6 under Chapter IV, pp.121-127.
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.100.
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.	Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.44-56.
24	Erosion control measures.	Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.3 under Chapter IV, pp.105-107.
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, waterbodies/rivers & any ecological fragile areas.	The matter has been discussed under Chapter IV, pp.103-131.
26	The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and Reservoir.	An analysis for food chain in aquatic ecosystem is under process and report will be added to the final EIA report.

27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The impacts of the proposed project on the surrounding environment have discussed in Chapter IV, pp.103-131.
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.	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.121-127.
29.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in Section 4.2 under Chapter IV, pp.104-105.
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.105-107.
Energy		
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.103-131.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission and the measures to mitigate carbon emission have been discussed in Section 4.6 under Chapter IV, pp.121-127.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The information will be included in the final EIA report.

Mine Closure Plan		
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.25.
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.	A detailed Environment Management plan has been given under Chapter X, pp.159-176.
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.170-176.
Risk Assessment		
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 7.2 under Chapter VII, pp.138-140.
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.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII, pp.141-144.
Others		
39.	The project proponent shall furnish VAO	The VAO certificate of 300 m radius will be

	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.	attached with Annexure IV.
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.	The concerns raised during the public consultation and all the activities proposed will be updated in the 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, p.151-152.
STANDARD TERMS OF REFERENCE		
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 category.
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,	All the documents related to mining plan, EIA

	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.	and public hearing are compatible to each other and have been provided in the annexure part.
4.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.4, p.14 under Chapter II.
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.
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 proponent has framed Environmental Policy and the same has been discussed in Section 10.1 under Chapter X, p.159-160.

	<p>the environmental or forest norms/conditions?</p> <p>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.</p>	
8.	<p>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.</p>	<p>It is an open cast semi mechanized 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 90⁰ 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.</p>
9.	<p>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.</p>	<p>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.</p>
10.	<p>Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of</p>	<p>Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of</p>

	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.	fauna, water bodies, human settlements and other ecological features has been discussed in Section 3.1, pp.33-43 under Chapter III. The details of surrounding sensitive ecological features have been provided in Table 3.39 under Chapter III, p.100. 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.25.
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, p.100.
13.	Status of forestry clearance for the broken-up area and virgin forest land involved in the Project including deposition of net present value (NPV) and compensatory afforestation	It is not applicable as the proposed project area does not involve any forest land.

	(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.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest is found within the study area. The matter has been discussed Table 3.39 under Chapter III, pp.100.
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, p.100.
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	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, p.100.

	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.	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.72-92.
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.	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.

	(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.	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.
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	Baseline data were collected for the period of March-May 2023 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.8 under Chapter III, pp. 33-102.

	<p>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.</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.107-116.</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.29.</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. 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</p>

		sourced from the approved water vendors.
26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV, pp. 105-107.
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 65-70 m below ground level. The ultimate depth of quarry is 50 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.44-56.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated.

30.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation of the project area is 190 m AMSL. Ultimate depth of the mine is 50 m BGL. Depth to the water level in the area is 65-70 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.121-127.
32.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Traffic density survey was carried out to 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 provided in Section 3.7 under Chapter III, p.97 & 99.

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 2.6.6.1 under Chapter II, p.29.
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 2.6.4 under Chapter II, p.25.
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.128-129.
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.156 & 157.
37.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 29 people directly as discussed in Section 8.1 under Chapter VIII, p.155.
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	A detailed Environment Management Plan has been prepared and provided in Tables 10.9 & 10.10 under Chapter X, pp.170-176.

	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.	The outcome of public hearing will be updated in the final EIA/EMP 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. 1,13,87,000/- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs.7714818 as capital cost and recurring cost as Rs.3484988 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. 27135695 as shown in Tables 10.9 & 10.10 under Chapter X, pp.170-176.
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.141-144.
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.155-157.
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 included 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 Ministry shall also be filled and submitted.	The questionnaire will be enclosed along with final EIA/EMP report.
g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should 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	No changes are made in the basic scope and the project parameters.

	(other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	
i)	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	The certified report of the status of compliance of the conditions will be submitted along with 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 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, all the mining projects are broadly classified into two categories, i.e., category A and category B, based on the spatial extent of the projects. The category B projects are further divided in to B1 and B2 on the basis of the guidelines issued of the Ministry of Environment and Forests. All mining projects included in category B1 require an EIA report for obtaining environmental clearance from the State Environment Impact Assessment Authority (SEIAA). As the proposed project falls within the cluster of quarries of overall extent of greater than 5 ha and less than 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 Lr No.SEIAA-TN/F.No.9905/SEAC/ToR-1440/2023 Dated:10.05.2023, this EIA report has been prepared for the project proponent, Mr.S.Kuppusamy applied for rough stone and gravel quarry lease in the Patta land falling in S.F.No.764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A over an extent of 4.82.70 ha in Anjur Village, Pugalur Taluk, Karur District and Tamil Nadu. This EIA report takes into account the rough stone quarries within the cluster of 500 m radius from the periphery of the proposed project site. The cluster contains three proposed projects known as P1, P2 and P3 and four Expired project EX1, EX2, EX3 and EX4. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 (E) Dated 1st July 2016. The total extent of all the quarries is 26.03.7 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

Proposed Quarries					
Code	Name of the Owner	S.F. No	Village	Extent (ha)	Status
P1	Thiru.S.Kuppusamy	764/3, 765/3, 766/1, 766/2, 766/3A, 767/1, 767/2A	Anjur	4.82.70	Proposed Area
P2	Thiru.P.Sampathkumar	759/2(P), 761/2(P), 761/3(P), 762/2, 762/3, 763/2, 763/3	Anjur	4.81.50	Applied Area
P3	Thiru.V.Arunprashath	767/3	Anjur	1.24.0	Applied Area
Existing Quarry					
--Nil--					
Expired Quarries					
EX1	Thiru.P.Duraisamy	762/4, 763/4, 764/1, 765/1	Anjur	1.59.5	07.08.2017 to 06.08.2022
EX2	Tvl.Kowsick & Co Blue Metals	770/2B(P), 778/3B2, 778/3B1(P)	Anjur	4.98.0	07.08.2017 to 06.08.2022
EX3	Thiru.P.Ravi	759/3, 759/4, 763/5, 764/2, 765/2	Anjur	4.18.0	07.08.2017 to 06.08.2022
EX4	Thiru.P.Ravi	775/1E (P), 776/3, 777/1, 778/1A, 807/2B, 807/2C2	Anjur	4.40.0	21.02.2018 to 20.02.2023
Total Cluster Extent				26.03.7	---

Source:

DD Letter - Rc.No.300/Mines/2022, Dated:09.03.2023.

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 **March-May 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/ 421900/2023, dated 13.03.2023) 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 16.03.2023.

Scoping

The proposal was placed in the 369th meeting of SEAC on 20.04.2023. 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.

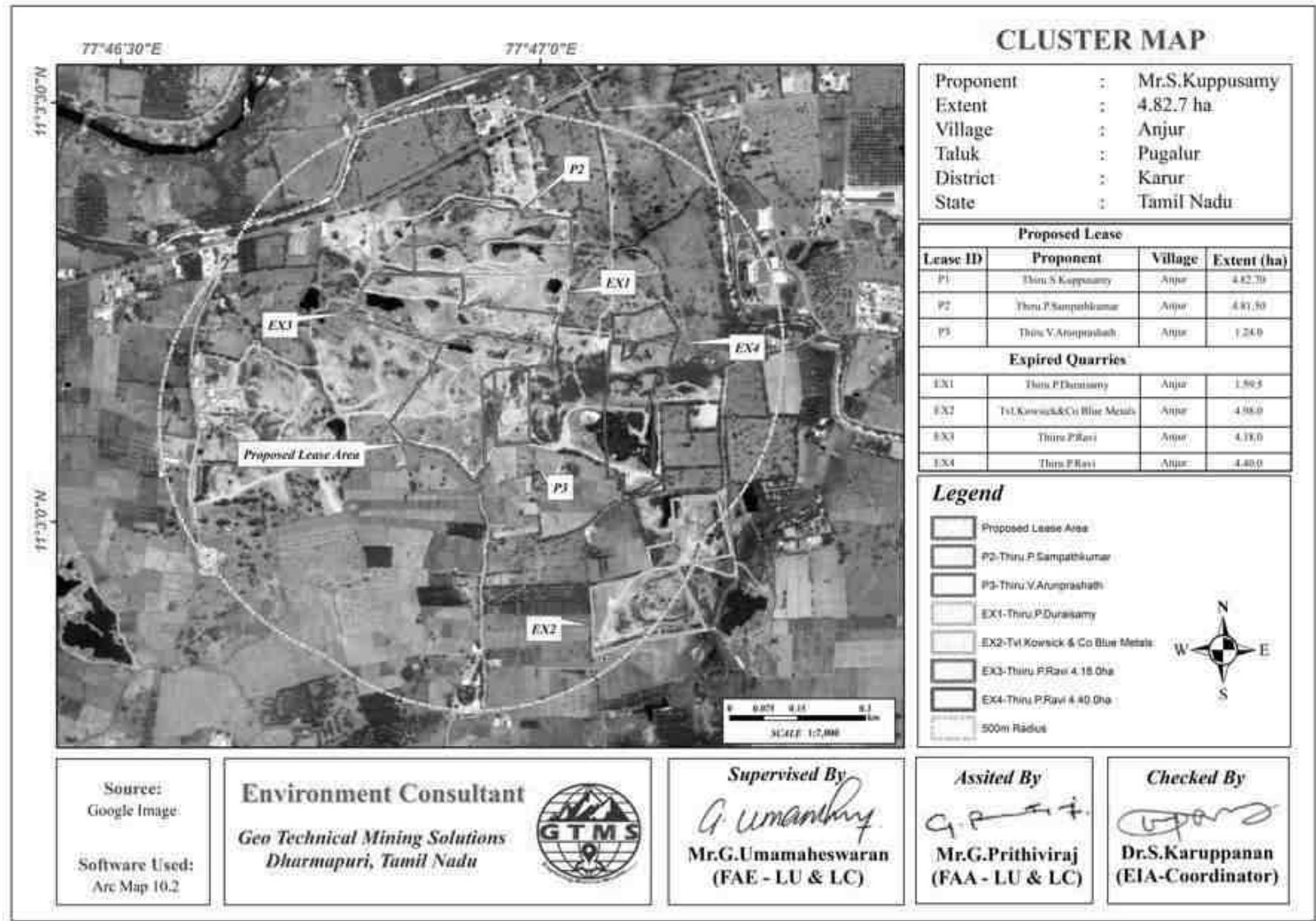


Figure 1.1 Location of the proposed and existing rough stone quarries in the cluster of 500m radius

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.9905/SEAC/ToR-1440/2023 Dated:10.05.2023.**

1.4 POST ENVIRONMENT CLEARANCE MONITORING

For category B projects, irrespective of its clearance by MoEF/SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and the details of MoEF website where it is displayed.

After obtaining EC, the project proponent will submit a half-yearly compliance report of stipulated environmental clearance terms and conditions to MoEF & CC Regional Office & SEIAA on 1st June and 1st December of every year.

1.5 TRANSFERABILITY OF ENVIRONMENTAL CLEARANCE

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor or the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period (EIA Guidance Manual for Mining of Minerals, 20).

1.6 GENERIC STRUCTURE OF EIA DOCUMENT

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC. The generic structure of the EIA document should be as under:

- ❖ Introduction
- ❖ Project Description
- ❖ Description of the Environment
- ❖ Anticipated Environmental Impact & Mitigation Measures
- ❖ Analysis of Alternatives (Technology & Site)
- ❖ Environmental Monitoring Program
- ❖ Additional Studies
- ❖ Project Benefits
- ❖ Environmental Cost Benefit Analysis
- ❖ Environmental Management Plan (EMP)

- ❖ Summary & Conclusion
- ❖ Disclosure of Consultants engaged.

1.7 IDENTIFICATION OF THE PROJECT PROPONENT

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

Table 1.2 Details of Project Proponent

Name of the Project Proponent	Mr. S. Kuppusamy
Address	S/o. Samiappagounder, Door.No.95, Saliankattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur – 638 105.
Status	Proprietor

1.8 BRIEF DESCRIPTION OF THE PROJECT

The proposed project deals with excavation of rough stone and gravel which is primarily used in construction projects. The method adopted for rough stone and gravel excavation is Open Cast Semi Mechanized mining method involving formation of benches with 5 m height and 5 m width. The proposed project site is located in Anjur Village, Pugalur Taluk, Karur District, and Tamilnadu State. Some of the important features of the proposed project have been provided in Table 1.3.

Table 1.3 Salient Features of the Proposed Project

Name of the Quarry	Mr. S. Kuppusamy Rough Stone and Gravel Quarry
Type of Land	Patta Land
Extent	4.82.7 Ha
S.F.No	764/3, 765/3, 766/1, 766/2, 766/3A, 767/1, 767/2A
Toposheet No	58-E/16
Location of Project Site	11° 3'2.77"N to 11° 3'13.51"N 77°46'49.20"E to 77°47'0.88"E
Highest Elevation	190 m AMSL

Existing Pit Dimensions	Pit Level	Length (m)	Width (m)	Depth (m)
	1	53	22	3
	2	20	45	4
	3	8	60	6
	4	15	95	7
	5	25	20	10
	6	71	61	12
	7	48	140	13
	8	82	58	15
	9	62	76	16
Ultimate depth of Mining	50 m BGL			
Geological Resources	Rough Stone in m ³		Gravel in m ³	
	2616836		37692	
Mineable Reserves	Rough Stone in m ³		Gravel in m ³	
	799894		31276	
Proposed reserves for five years	Rough Stone in m ³		Gravel in m ³ /1 year	
	747425		31276	
Method of Mining	Open-Cast Semi Mechanized mining			
Topography	Flat Topography			
Machinery proposed	Jack Hammer		5	
	Compressor		3	
	Tipper		10	
	Excavator		2	
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	29 Nos			
Project Cost	Rs.1,13,87,000/-			
CER Cost @ 2% of Project Cost	Rs. 5,00,000/-			
Proposed Water Requirement	8.0 KLD			

1.9 SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. A detailed account of the emission sources, emissions control equipment, background air quality levels, meteorological measurements, dispersion model and all other aspects of pollution like effluent discharge, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of **March-May 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.

1.10 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, 14th 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, **Mr. S. Kuppusamy** 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 and gravel. Therefore, the proponent had applied for quarry lease on 28.06.2022 to extract rough stone. The precise area communication letter was issued by Department of Geology and Mining, Karur vide Rc.No.300/Mines/2022 Dated:14.02.2023. 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, Karur Rc.No.300/Mines/2022, dated:01.03.2023. The overall view of the project site is shown in Figure 2.1.



Figure 2.1 Overall View of Proposed Project Site

2.2 LOCATION AND ACCESSIBILITY

The proposed quarry project is located in Anjur Village, Pugalur Taluk, Karur District, as shown in Figure 2.2 & 2.3. The area lies between Latitudes from $11^{\circ}3'2.77''\text{N}$ to $11^{\circ}3'13.51''\text{N}$ and Longitudes from $77^{\circ}46'49.20''\text{E}$ to $77^{\circ}47'0.88''\text{E}$. The maximum altitude of the project area is 190 m AMSL. Accessibility details to the proposed project site have been given in Table 2.1.

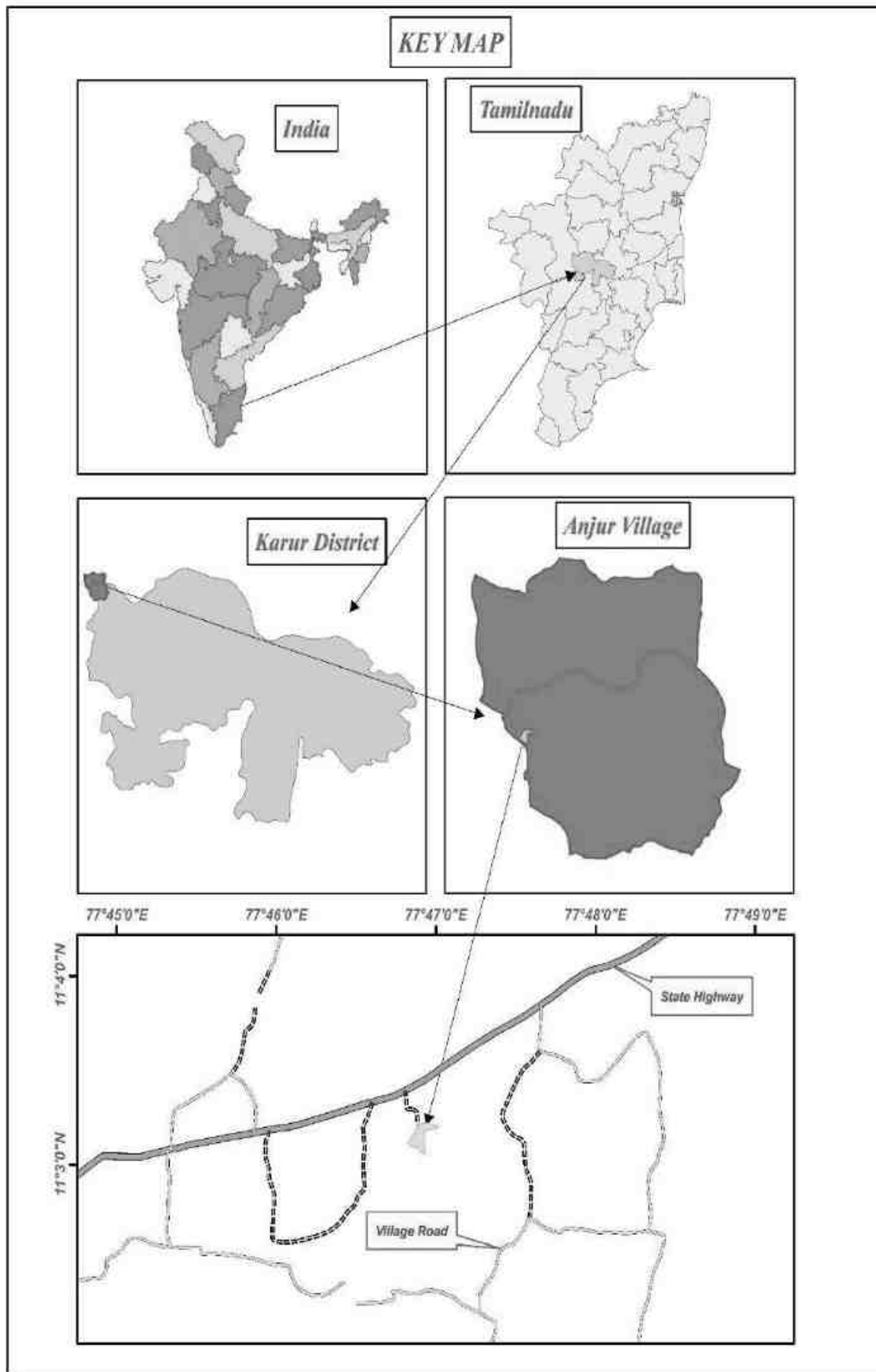


Figure 2.2 Key Map Showing Location of the Project Site

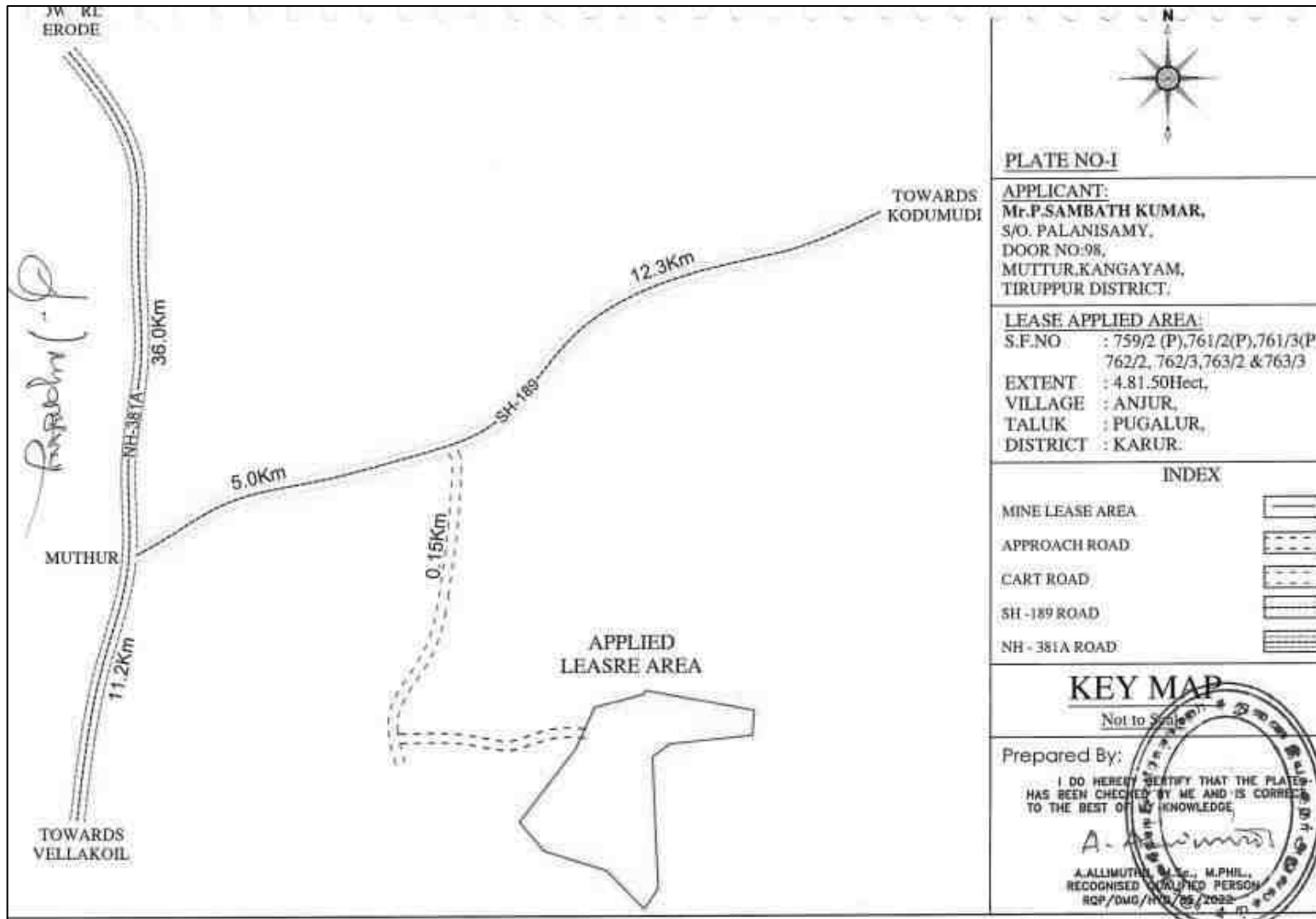


Figure 2.3 Site Connectivity to the Project Area

Table 2.1 Site Connectivity to the Project Area

Nearest Roadways	(SH-189) Kangayam - Kodumudi	0.33 km N
	(NH – 381A) Kangayam - Kodumudi	4.55km W
Nearest Town	Muthur	4.72 km W
Nearest Railway Station	Kodumudi	11.58 km NE
Nearest Airport	Coimbatore	84.4 km W
Nearest Seaport	Tuticorin	254.0 km S
Nearest Villages	Karattan kattupudur	1.61 km N
	Kolantapalaiyam	0.68 km E
	Pillapalayam	1.3km SE
	Thottipalaiyam	1.36 km W

2.3 LEASEHOLD AREA

- ❖ The extent of the proposed project site is 4.82.70 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 2.4 & 2.5.

Table 2.2 Corner Coordinates of Proposed Project

Pillar ID	Latitude	Longitude	Pillar ID	Latitude	Longitude
1	11°3'12.47''N	77°47'0.88''E	8	11°3'5.67''N	77°46'50.44''E
2	11°3'11.23''N	77°47'0.78''E	9	11°3'7.10''N	77°46'49.20''E
3	11°3'10.88''N	77°46'56.70''E	10	11°3'10.66''N	77°46'52.00''E
4	11°3'10.25''N	77°46'55.81''E	11	11°3'12.70''N	77°46'52.97''E
5	11°3'3.77''N	77°46'56.05''E	12	11°3'13.32''N	77°46'55.42''E
6	11°3'2.77''N	77°46'55.36''E	13	11°3'13.51''N	77°46'55.49''E
7	11°3'4.69''N	77°46'53.49''E	--	--	--

2.4 GEOLOGY

The lease area geologically occurs Hornblende–Biotite Gneiss. The Charnockite, commercially called as Roughstone occurs within the migmatite rock. Also, the lease area geomorphologically occurs pediment pediplain complex.

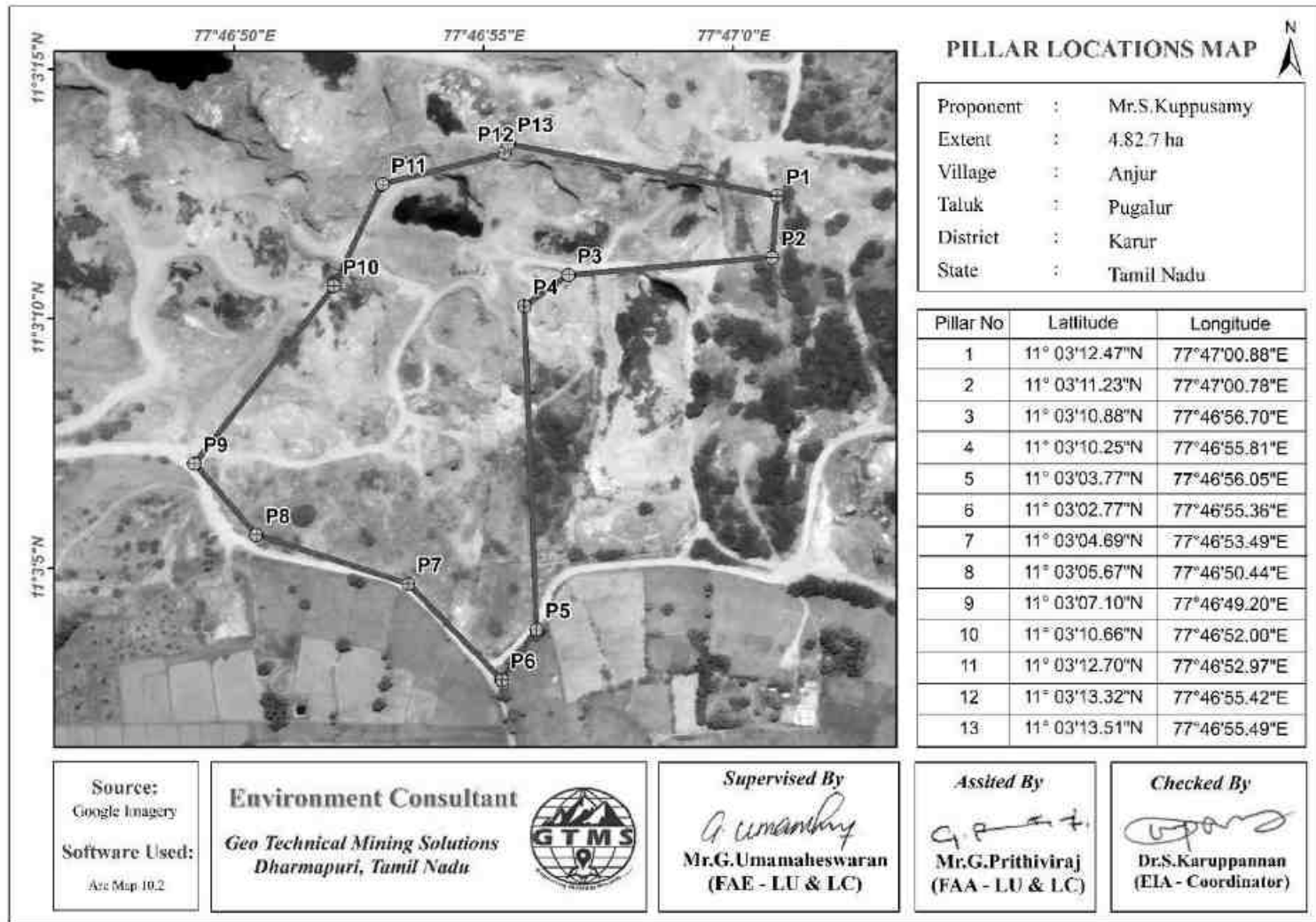


Figure 2.4 Google Earth Image Showing Lease Area with Pillars

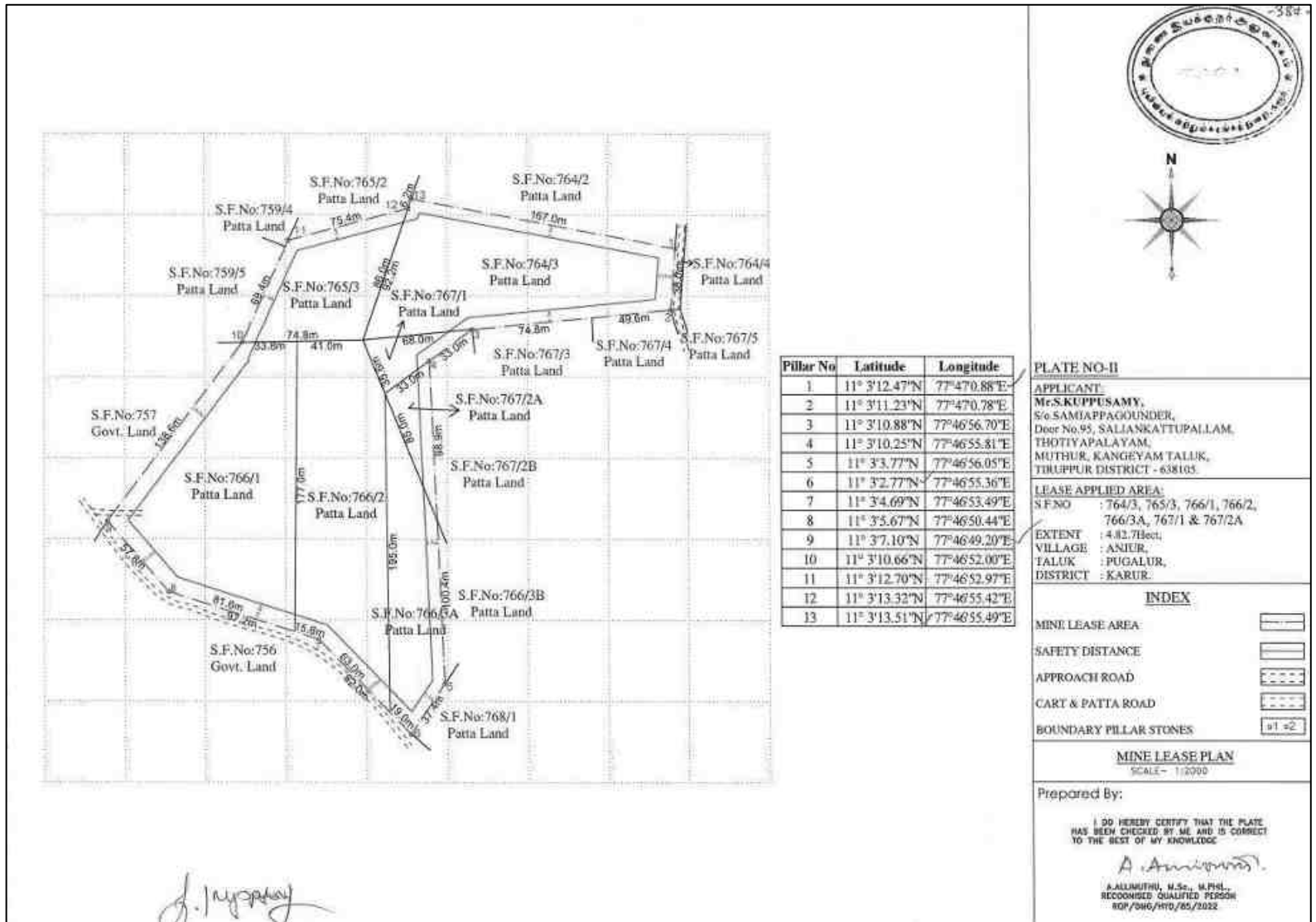


Figure 2.5 Mine Lease Plan

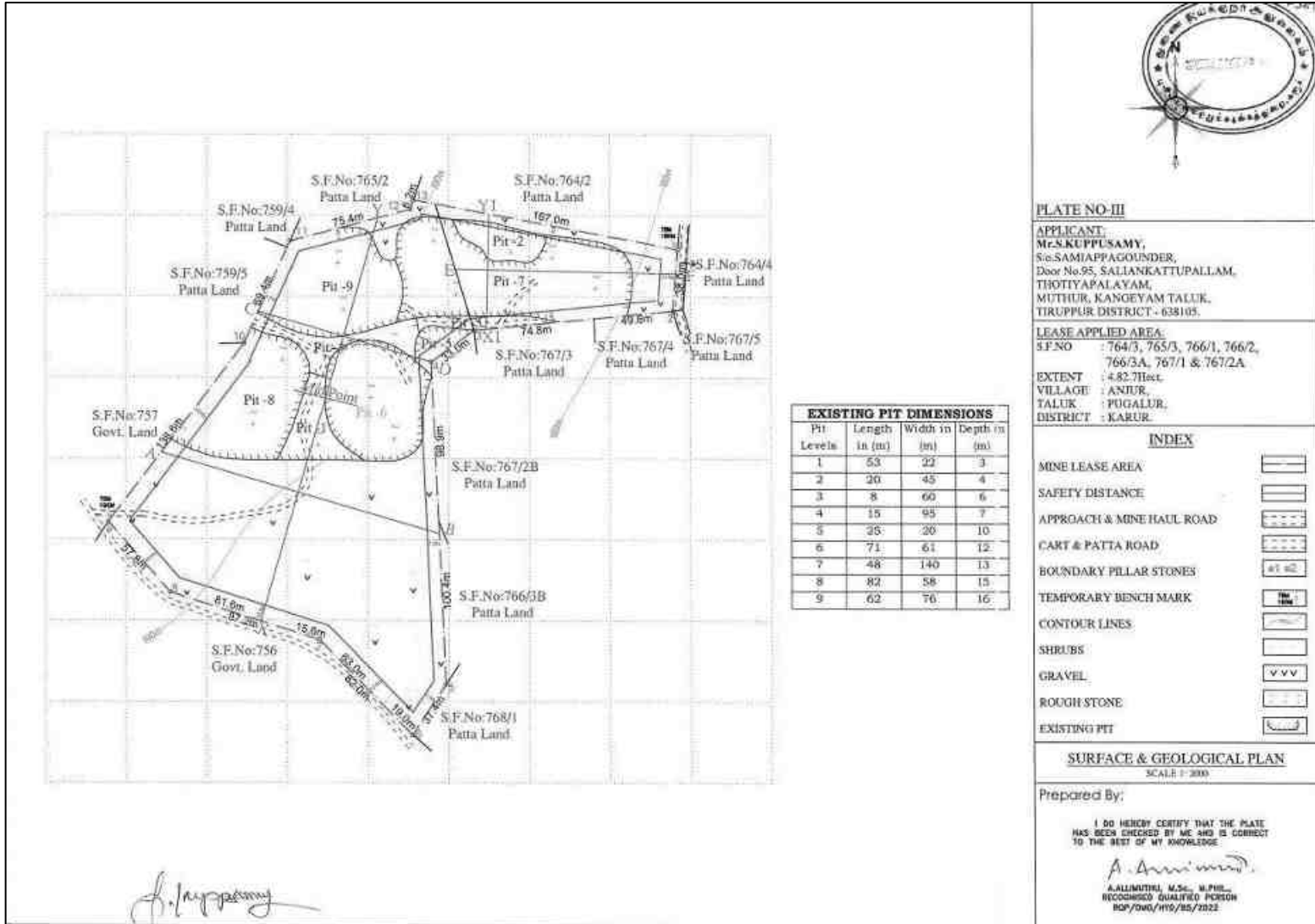


Figure 2.6 Surface and Geological Plan

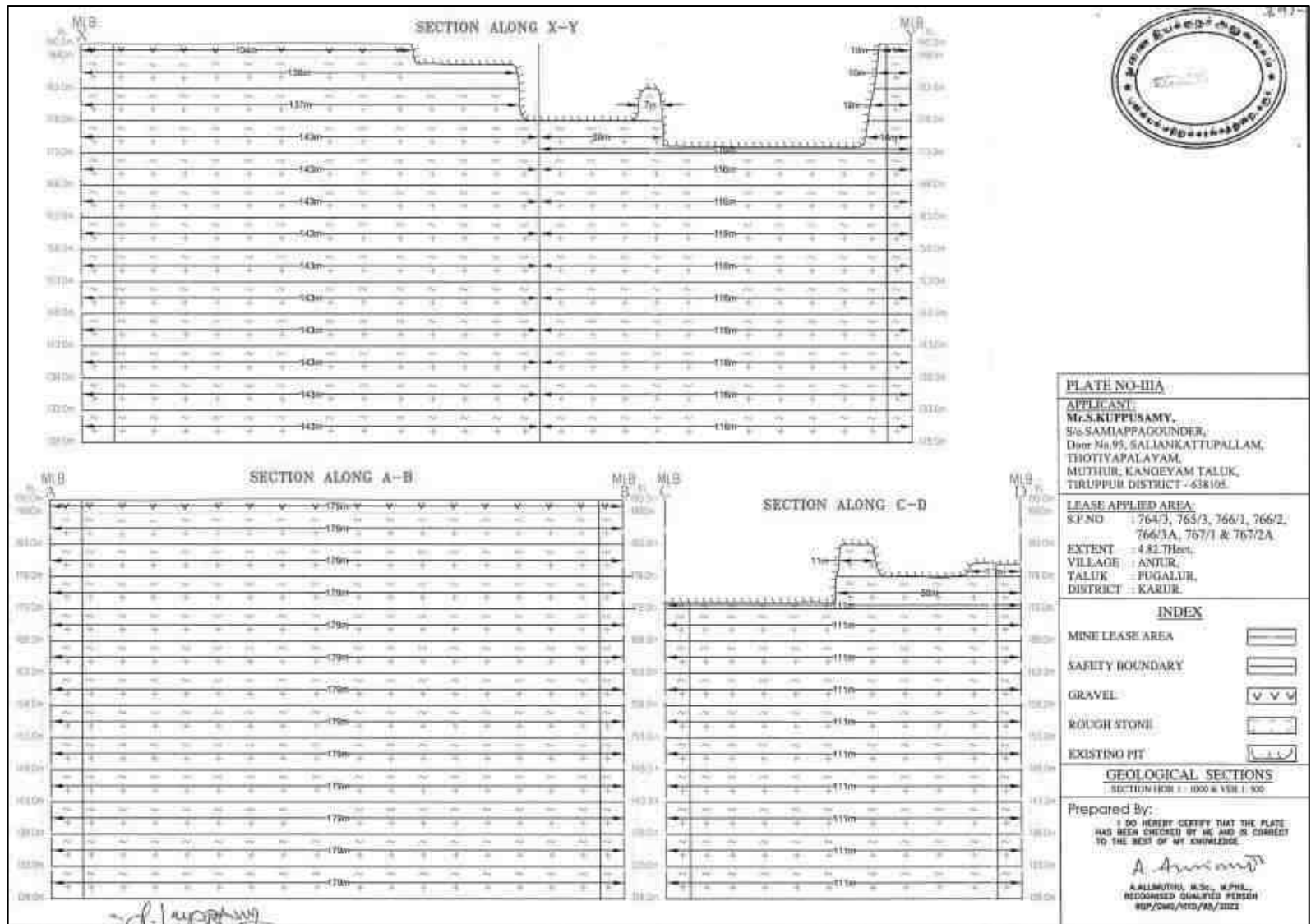


Figure 2.6a Geological Sections

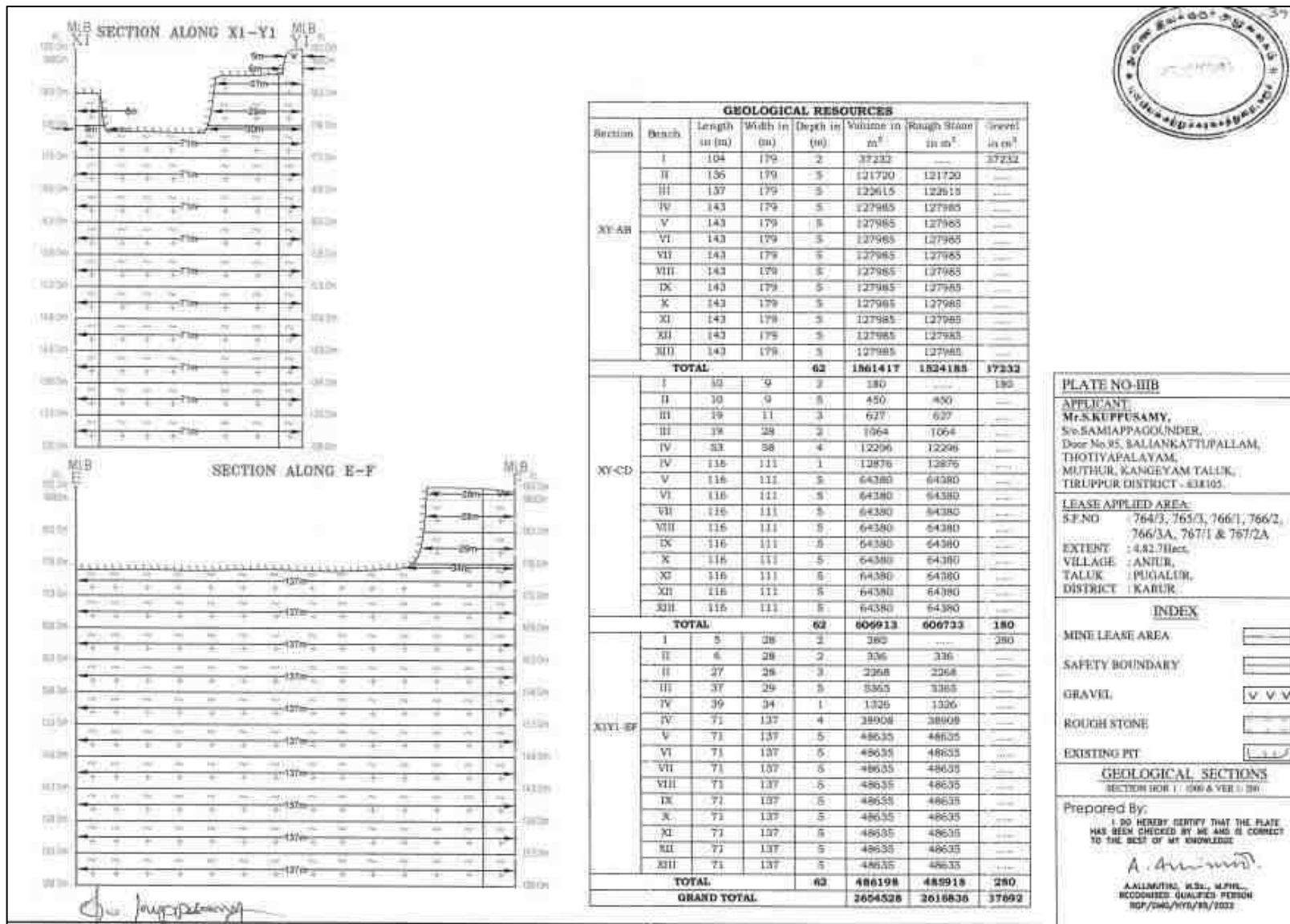


Figure 2.6b Geological Sections

2.5 QUANTITY OF RESERVES

The Resources and Reserves of Rough Stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. Based on the availability of geological resources, the mineable reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5m and 10m safety distance as per precise area communication letter and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 50m considering there is no waste / overburden / side burden (100% Recovery anticipated) for the proposed project. The plate used for reserve estimation has been shown in Figure 2.6, 2.6a and 2.6b 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 ³	Gravel in m ³
Geological Resource in m ³	2616836	37692
Mineable Reserves in m ³	799894	31276
Proposed production for 5 years m ³	747425	31276

Based on the year wise development and production plan and sections, the year wise production results have been given in Table 2.4 & Figure 2.7 and Figure 2.7a.

Table 2.4 Year-Wise Production Details

Year	Rough Stone in (m ³)	Gravel in (m ³) / 1 year
I	150230	31276
II	147804	--
III	159995	--
IV	156505	--
V	132891	--
Total	747425	31276

Source: Approved Mining Plan & Tord

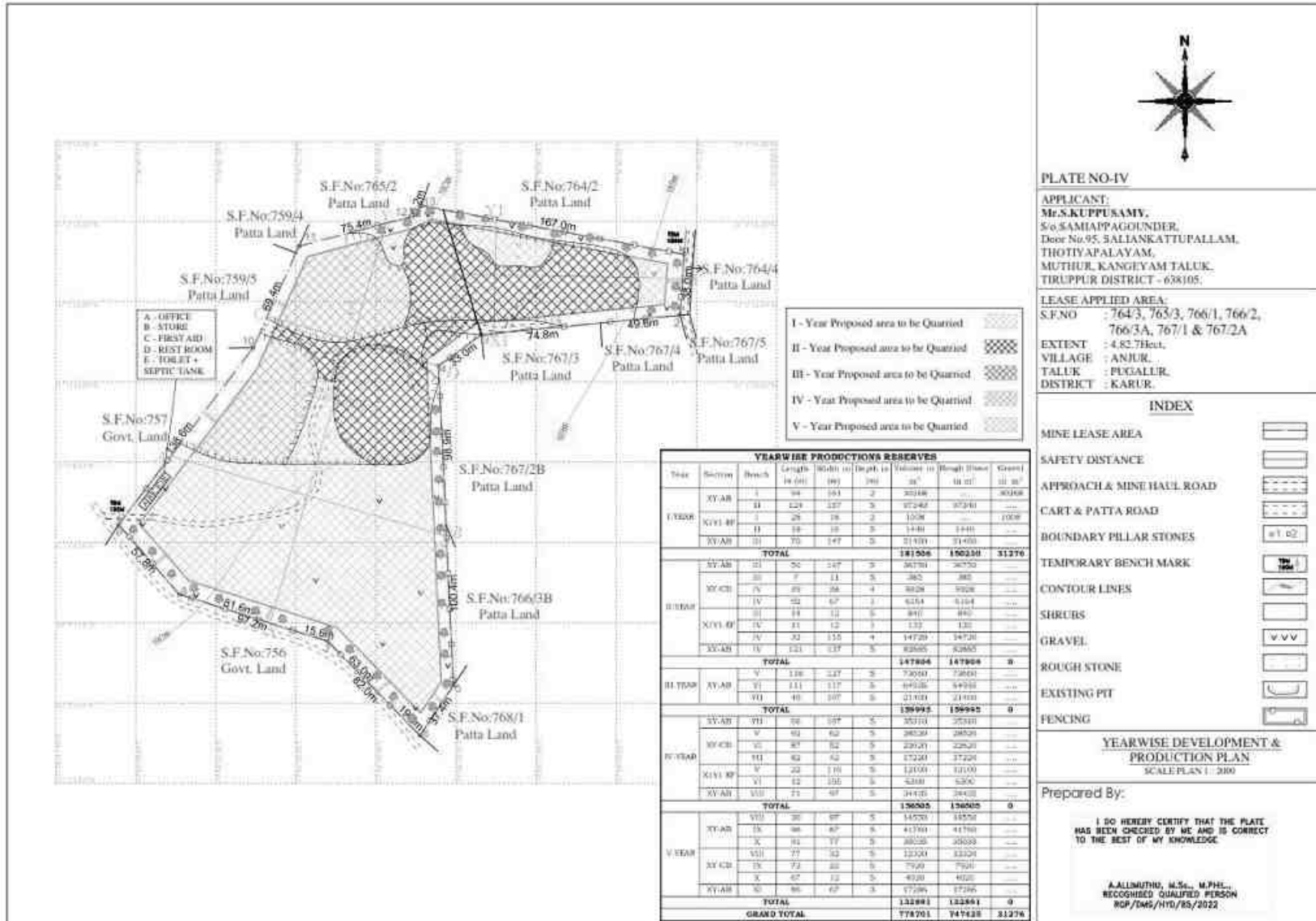


Figure 2.7 Yearwise Development & Production Plan

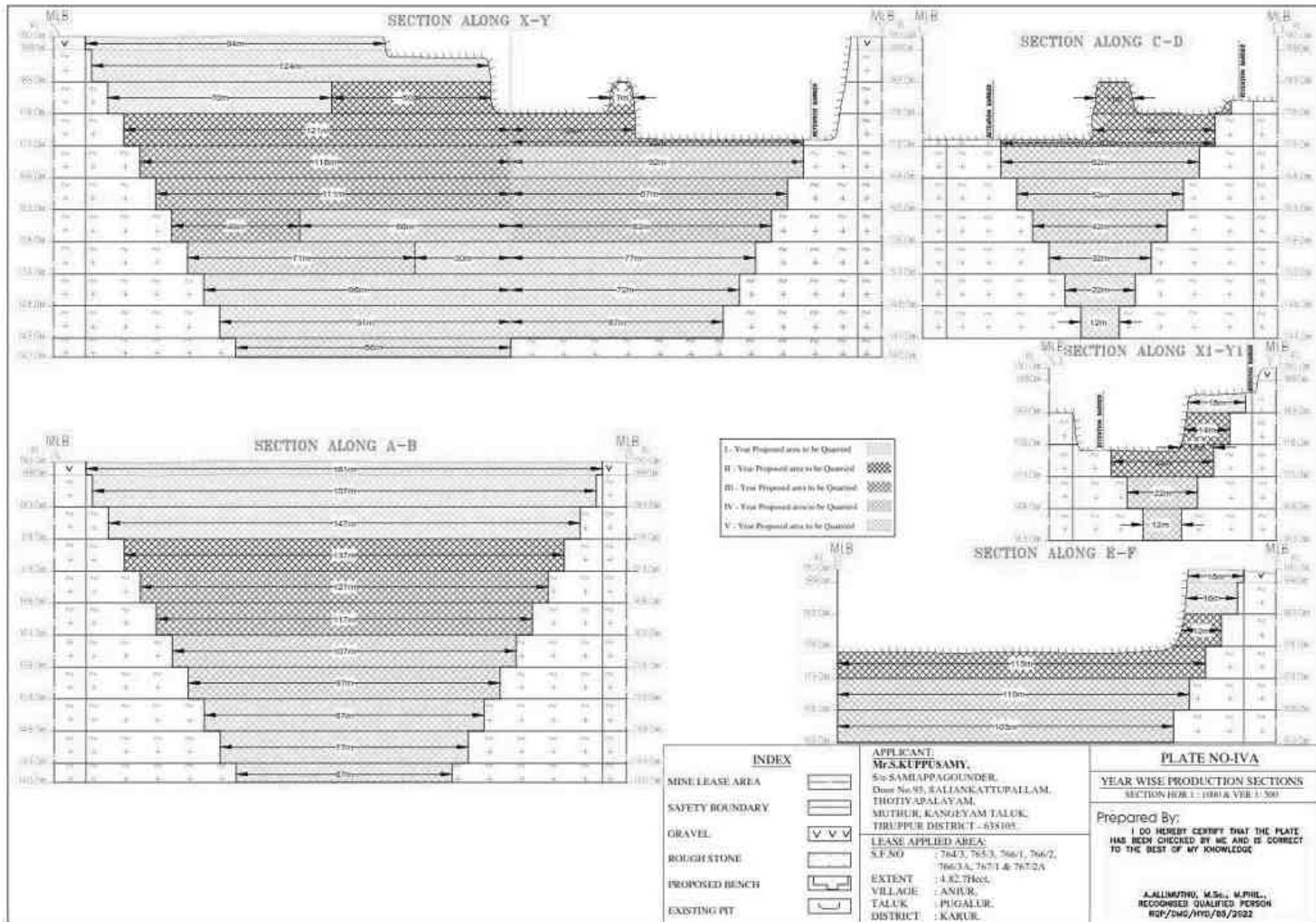


Figure 2.7a Year wise Production Sections

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 and gravel. 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.

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 ³	4.16
Production of rough stone/day in m ³	554
Number of blastholes/day	133
Blasthole pattern	Staggered
Mass of explosive /day in kg	53.27
Powder factor in kg/m ³	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

2.6.1 Magnitude of Operation

Based on the results of estimated production for the 5 years, details about the size of operation have been provided in Table 2.6.

Table 2.6 Operational Details for Proposed Project

	Rough Stone in m³	Gravel in m³
	5 years	1 year
Proposed production for 5 years	747425	31276
Number of Working Days /Annum	270	270
Production of /Day (m ³)	554	116
No. of Lorry Loads	92	19

2.6.2 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	Motive Power
1	Jack Hammers	5	Hand held	--	Diesel Drive
2	Compressor	3	Air	--	Diesel Drive
3	Hydraulic Excavator	2	2.9-4.5 m ³	--	Diesel Drive
4	Tipper	10	--	--	Diesel Drive

2.6.3 Progressive Quarry Closure Plan

The progressive quarry closure plan (Figure 2.8) of the proposed project shows past, present, and future land use statistics. According to the land use results, as shown in Table 2.8 At Present about 2.40.7 ha of land is used for quarrying, 2.38.0 ha of land is unutilized, Whereas, at the end of the mine life, about 0.10.7 ha of land is unutilized; about 0.60.5 ha of land is used for green belt and 0.15.0 will be used for roads and 0.02.0 is used for infrastructure.

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	2.40.7	3.94.5
Infrastructure	Nil	0.02.0
Roads	0.04.0	0.15.0
Green Belt & Dump	Nil	0.60.5
Drainage & Settling Tank	Nil	Nil
Unutilized area	2.38.0	0.10.7
Total	4.82.7	4.82.7

2.6.4 Progressive Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, mine closure plan is not proposed for now. Based on the progressive mine closure plan for the scheme period, the mine closure cost is given in Table 2.9.

Table 2.9 Mine Closure Budget

Activity	Capital Cost	Recurring Cost/Annum
965 plants inside the lease area	193080	28962
1448 plants outside the lease area	434430	43443
Wire Fencing (4.82.7 ha)	965400	48270
Renovation of Garland Drain (4.82.7 ha)	48270	24135
Total	16,41,180	1,44,810

Source: Environment Management Plan

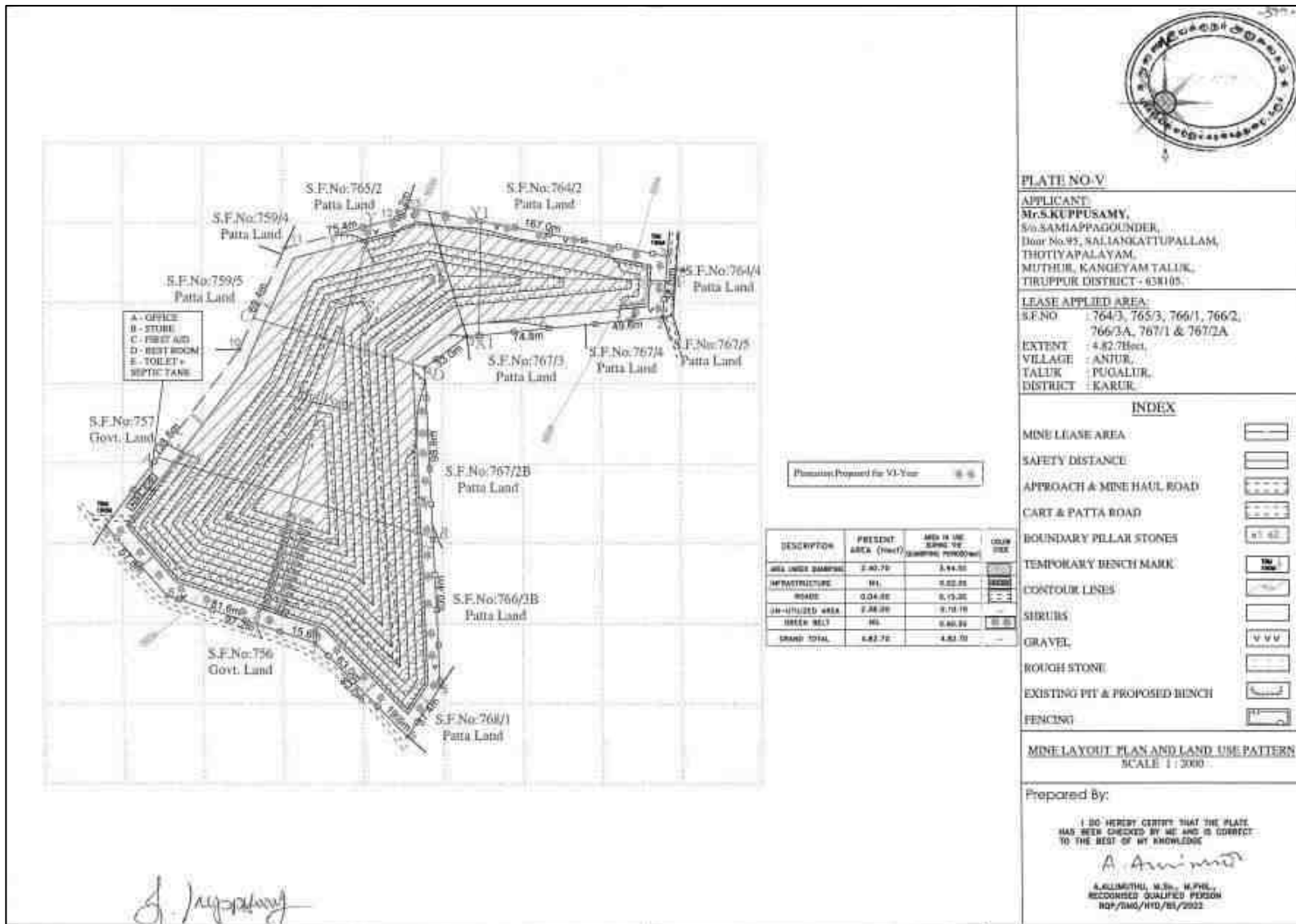


Figure 2.8 Mine Layout Plan and Land Use Pattern

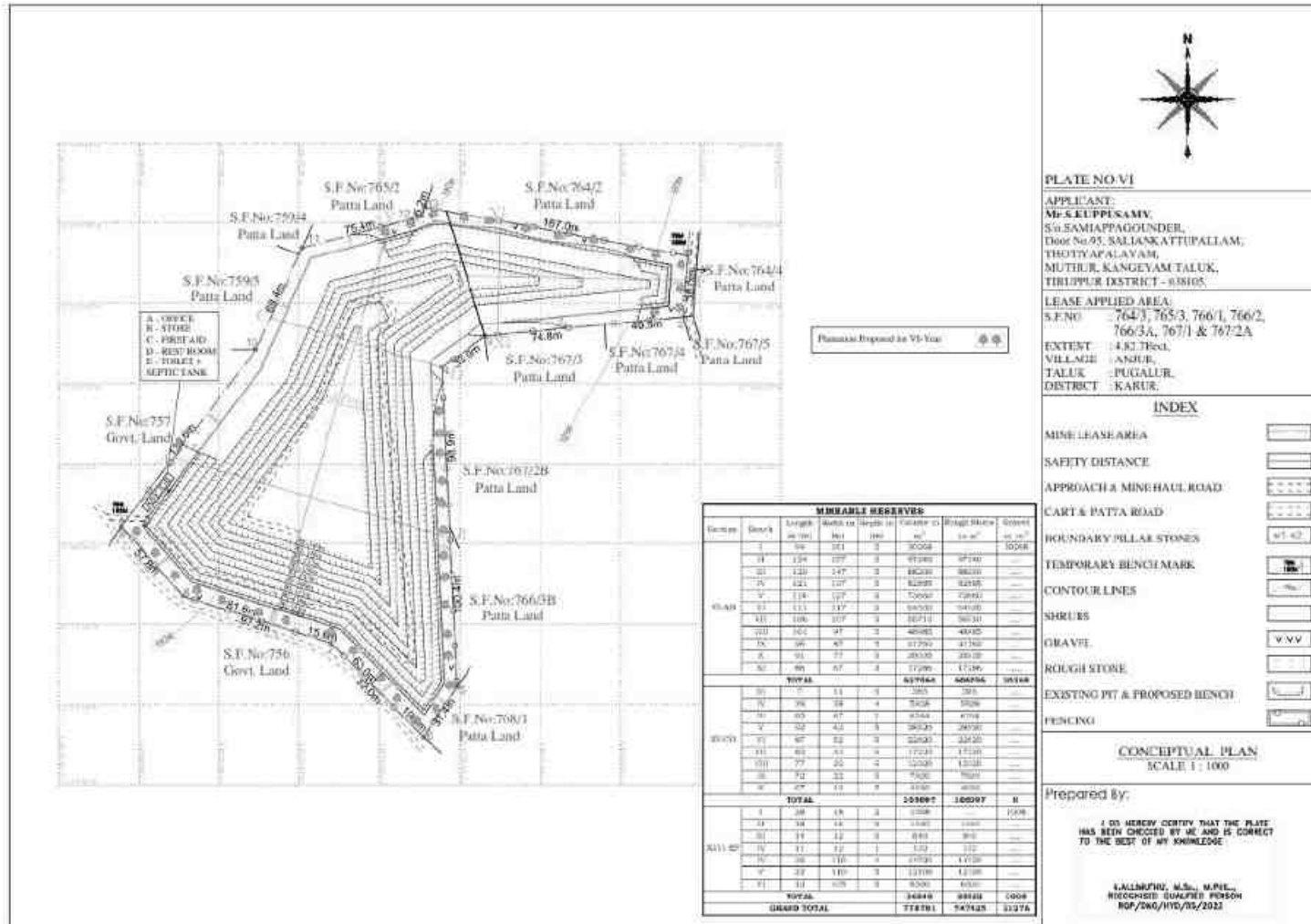


Figure 2.9 Conceptual Plan

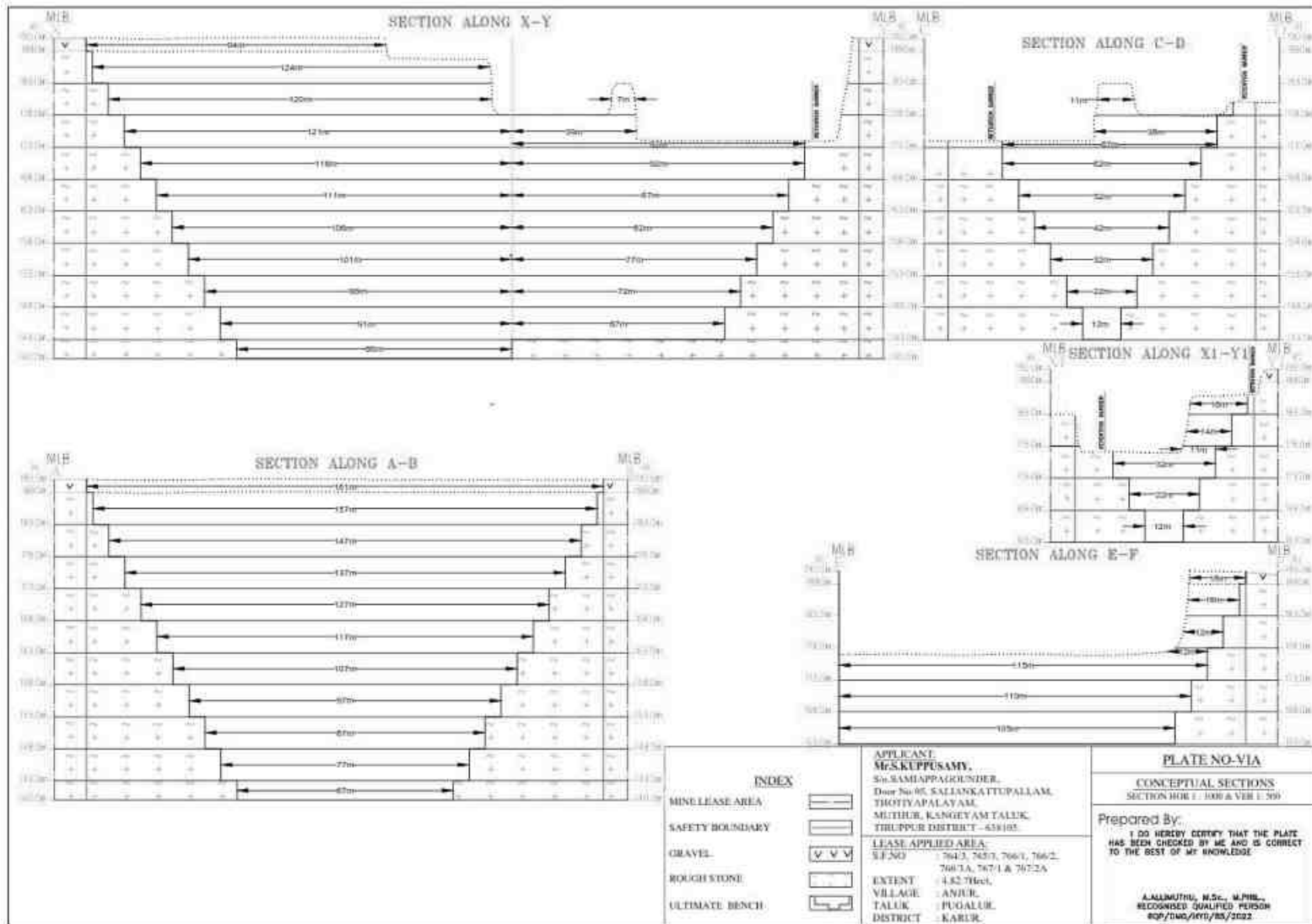


Figure 2.9a Conceptual Sections

2.6.5 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. Details of ultimate pit dimensions have been derived from given in Table 2.10, Figure 2.9 & 2.9a.

Table 2.10 Ultimate Pit Dimension

Pit	Length (m)	Width (m) (Max)	Depth (m)
I	124	161	50

Source: Approved Mining Plan & ToR

2.6.6 Infrastructures

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

2.6.6.1 Other Infrastructure Requirement

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

2.6.7 Water Requirement

Detail of water requirement in KLD is given in Table 2.11.

Table 2.11 Water Requirement for the Project

Purpose	Quantity	Source
Dust Suppression	2.0 KLD	Existing bore wells nearby the lease area
Green Belt development	2.5 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	3.5 KLD	Existing bore wells and approved water vendors
Total	8.0 KLD	

Source: Prefeasibility Report

2.6.8 Energy Requirement

High speed Diesel (HSD) will be used for quarrying machineries. As per the data shown in Table 2.12, Around 32,70,643 litres of HSD will be used for rough stone and gravel 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

Fuel Requirement for Excavator			
Details	Rough Stone (747425 m³)	Gravel (31276 m³)	Total Diesel (litre)
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m ³ /hr)	20	60	---
Time Required (hours)	37371	521	---
Total Diesel Consumption for 5 years (litre)	597940	5213	603153
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drillholes/day	133	---	---
Total Diesel Consumption for 5 years (litre)	71820	---	71820
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	20	---
Carrying Capacity in m ³	6	6	---
Number of Trips / days	92	4*	---
Number of Trips / 5 years	124571	5213	---
Total Diesel Consumption for 5 years (litre)	2491417	104253	2595670
Total Diesel Consumption by Excavator, Compressor and Tipper			3270643

* Number of truck loads for gravel has been normalized for 5 years.

2.6.9 Capital Requirement

The project proponent will invest **Rs. 1,13,87,000/-** to the project. The breakup summary of the investment has been given in Table 2.13.

Table 2.13 Capital Requirement Details

S. No.	Description	Cost (Rs.)
1	Fixed Asset Cost	38,60,000/-
2	Machinery cost	30,00,000/-
3	EMP Cost	45,27,000/-
Total Project Cost		1,13,87,000/-

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	Mine manager	1
		Mine Engineer	1
		Mine Geologist	1
		Blaster	1
2.	Unskilled	Musdoor/ Labours	25
Total			29

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 st	2 nd	3 rd	4 th	5 th	
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 **March through May 2023** with CPCB guidelines. Environmental baseline data were collected by an NABL accredited and MoEF notified **Enviro Farmers Labs & Technologies and Accuracy Analabs**, 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

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land Use/ Land Cover	Land-use Pattern within 5 km radius of the study area	Once during the study period	Study Area	Satellite Imagery & Primary Survey
*Soil	Physico- Chemical characteristics	Once during the study period	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	10 (4 surface water & 6 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 ₁₀ PM _{2.5} SO ₂ NO _x Fugitive dust	24 hours, twice a week	9 (1 core & 8 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient noise	Hourly observation for 24 hours per location	12 (1 core & 11 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 hornblende-biotite genesis and phroxene granulite, as shown in Figure 3.1. The lease area occurs in migmatite terrain.

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

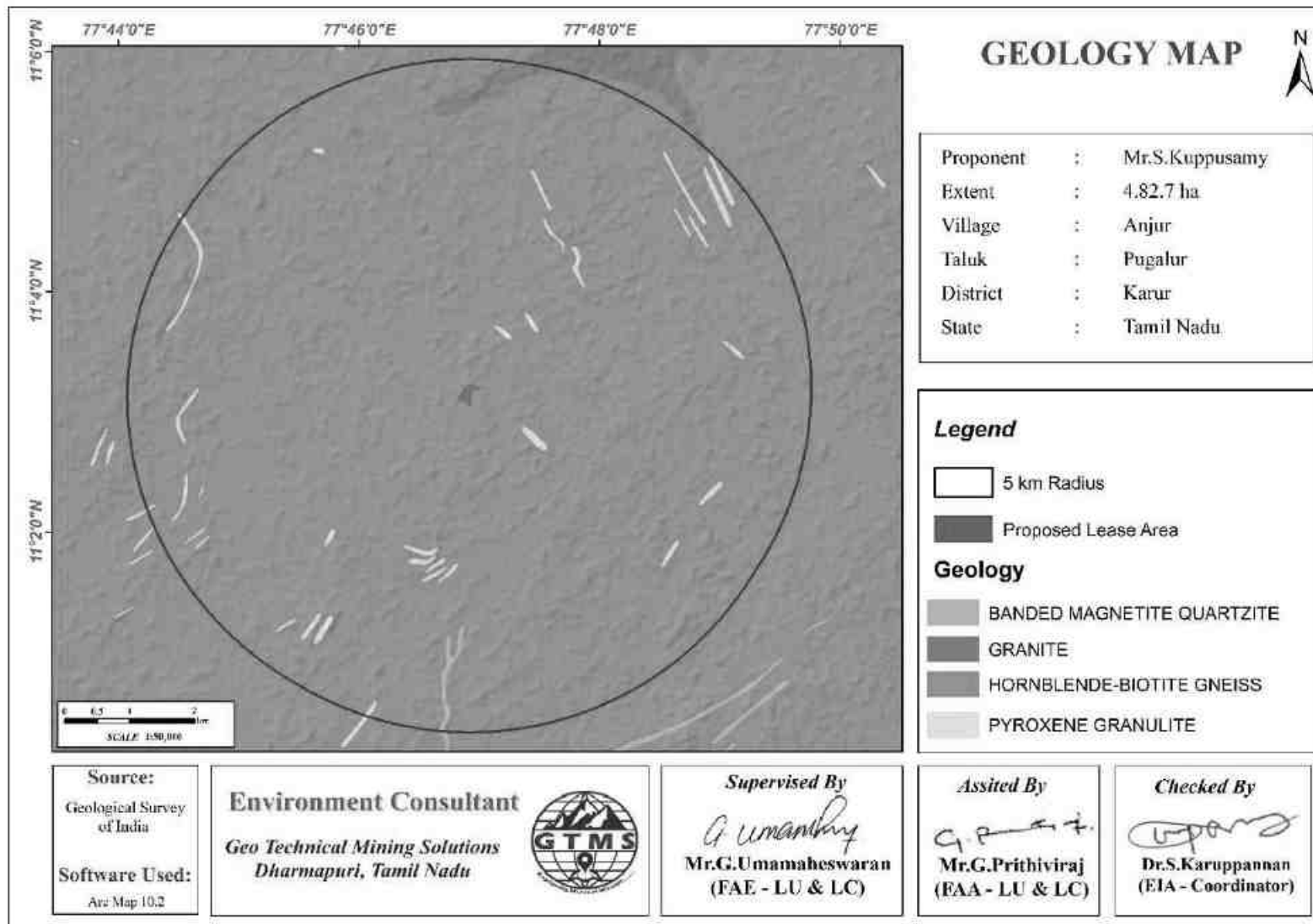


Figure 3.1 Geology Map of 5 km Radius from Proposed Project Site

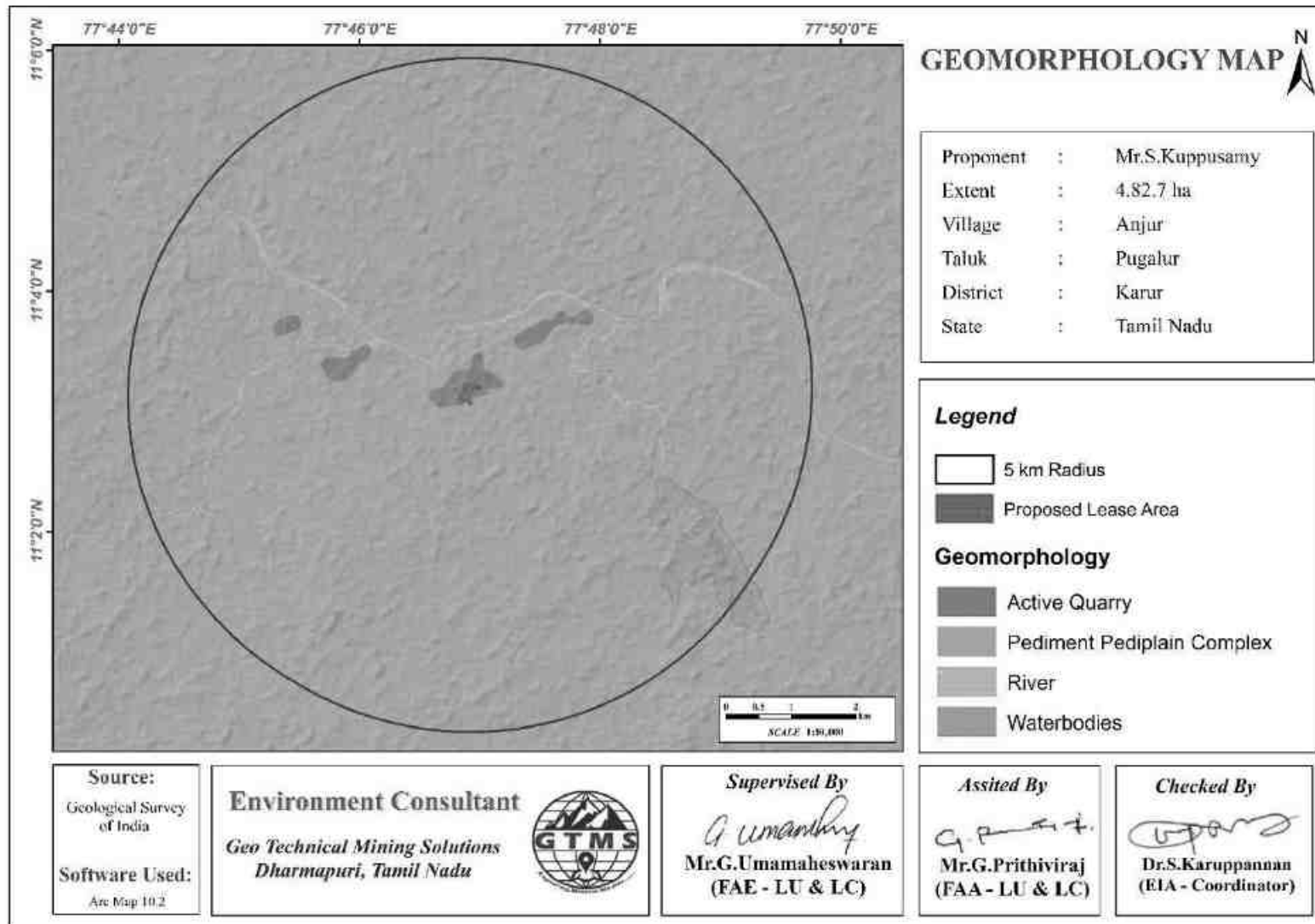


Figure 3.2 Geomorphology Map of 5 km Radius from Proposed Project Site

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, 7 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 82.95 ha accounting for 1.05 %, of which lease area of 4.82.7 ha contributes only about 0.057 %. 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	Crop Land	4767.28	60.57
2	Dense Forest	12.27	0.16
3	Fallow Land	770.21	9.79
4	Mining/Industrial lands	82.95	1.05
5	Plantations	1983.74	25.20
6	Settlements	65.47	0.83
7	Water Bodies	189.29	2.40
Total		7871.21	100.0

Source: Sentinel II Satellite Imagery

3.1.3 Topography

The proposed lease area is located in a flat terrain with an altitude range of 190 m AMSL.

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.

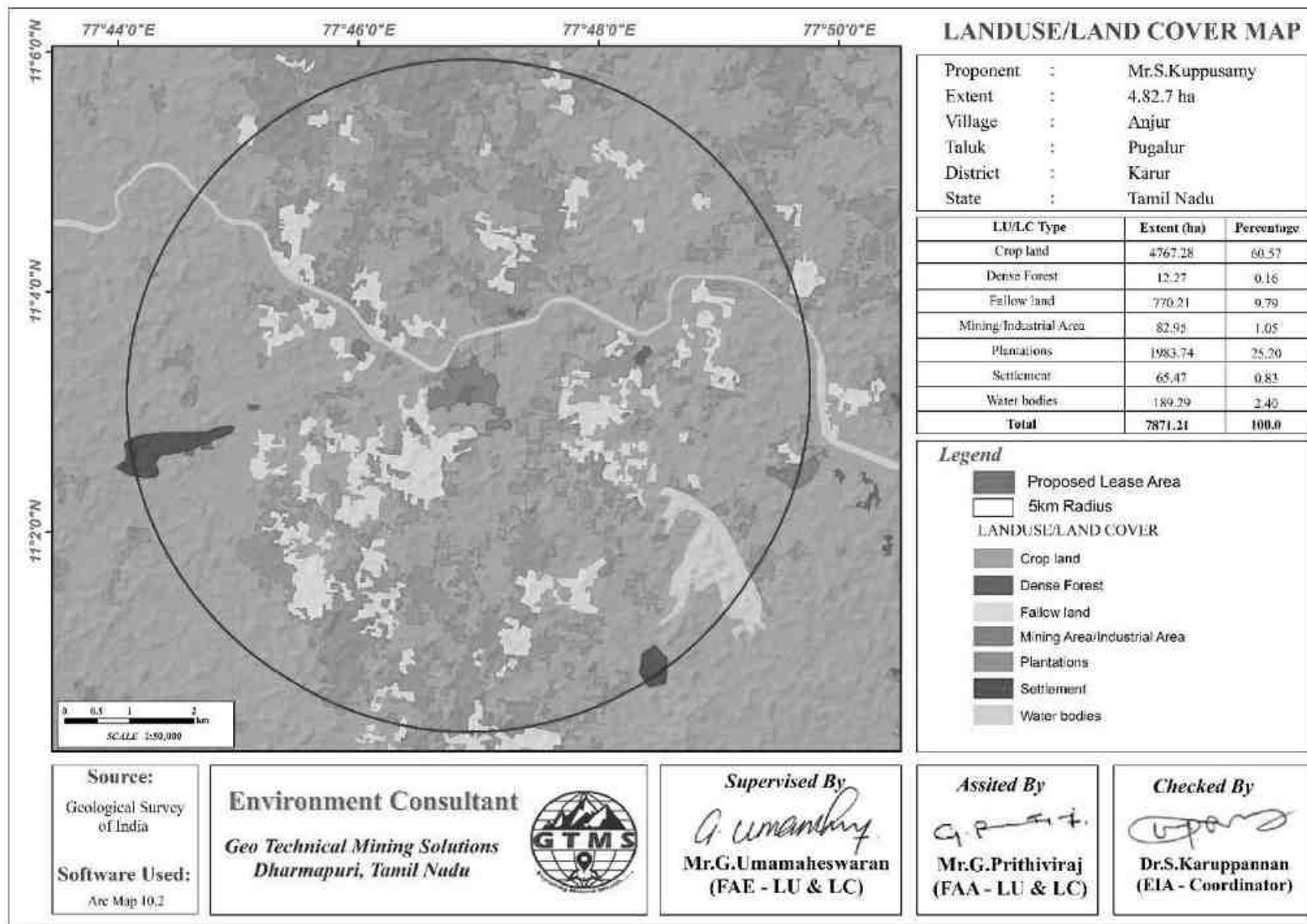


Figure 3.3 LULC Map of 5 km Radius from Proposed Project Site

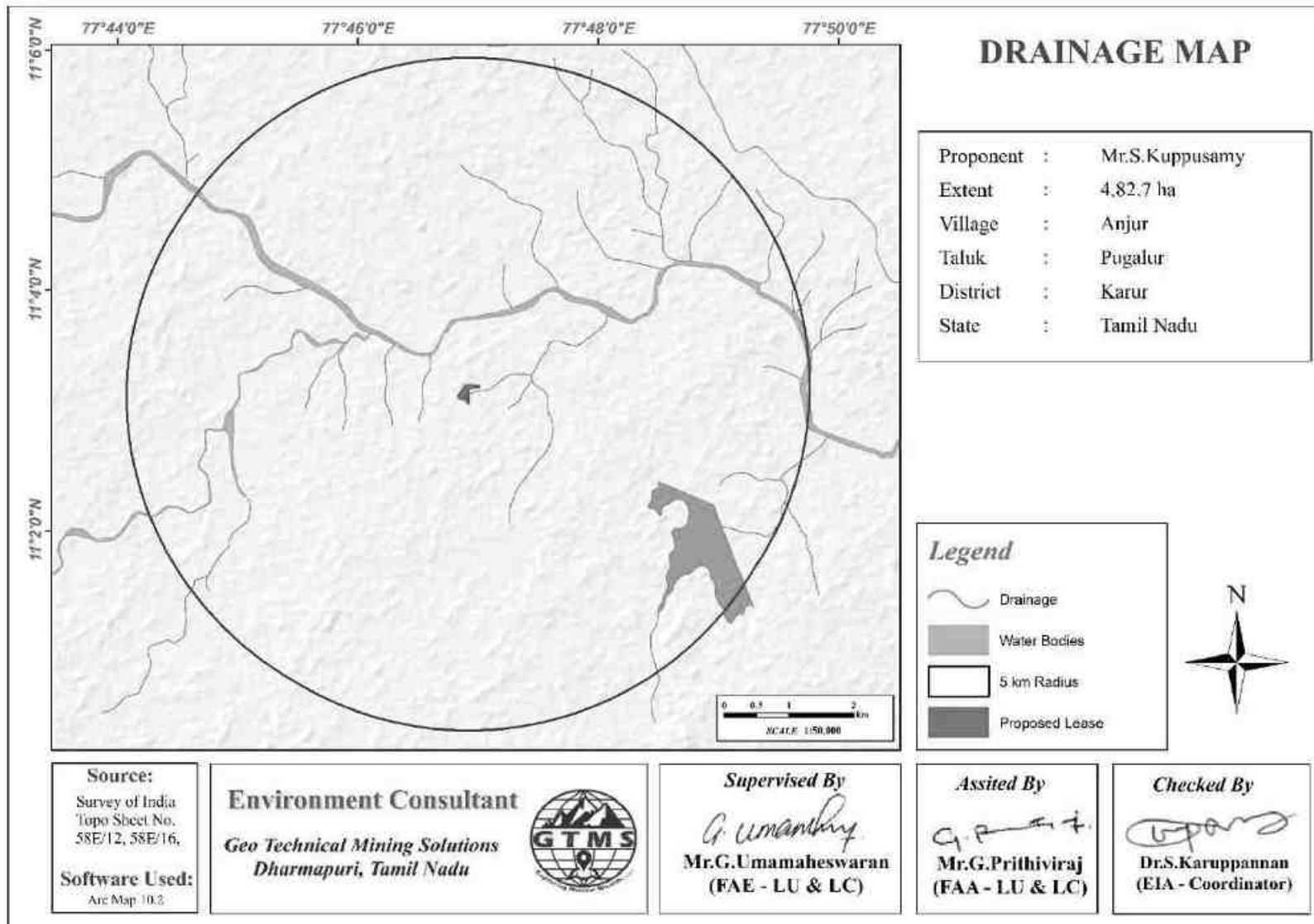


Figure 3.4 Drainage Map of 5 km Radius from Proposed Project Site

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 3.5. 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	S01	Core	--	--	11° 3'4.84"N 77°46'55.22"E
2	S02	Sambathkumar Lease	0.130	S	11° 3'21.43"N 77°46'59.51"E
3	S03	Valayapalayam	3.17	E	11° 3'15.90"N 77°48'41.23"E
4	S04	Aathupalayam Dam	3.90	SE	11° 2'5.39"N, 77°48'49.62"E
5	S05	Muthur	3.07	SW	11° 2'2.13"N 77°45'45.79"E
6	S06	Siluvampalayam	2.75	NE	11° 4'46.51"N 77°47'26.65"E
7	S07	Poolavalasu	4.0	NW	11° 4'41.32"N 77°45'15.53"E

Source: On-site monitoring/sampling *Enviro Farmers Labs & Technologies*, Accuracy Analabs 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 6.94 to 8.2 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 3.91 to 4.8 dsm^{-1} . Bulk density ranges between 0.79 and 0.95 g/cm^3 .

Chemical Characteristics

Nitrogen ranges between 0.96 and 2.4 %. Potassium ranges between 1.69 and 5.22 %. Calcium ranges between 3.13 and 6.23 mg/kg. Organic matter content ranges between 20. and 30.2 %. Manganese ranges between 1553 and 2653 mg/kg.

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, and BD were taken into account. The soil quality score for each sample has been provided in Table 3.4.

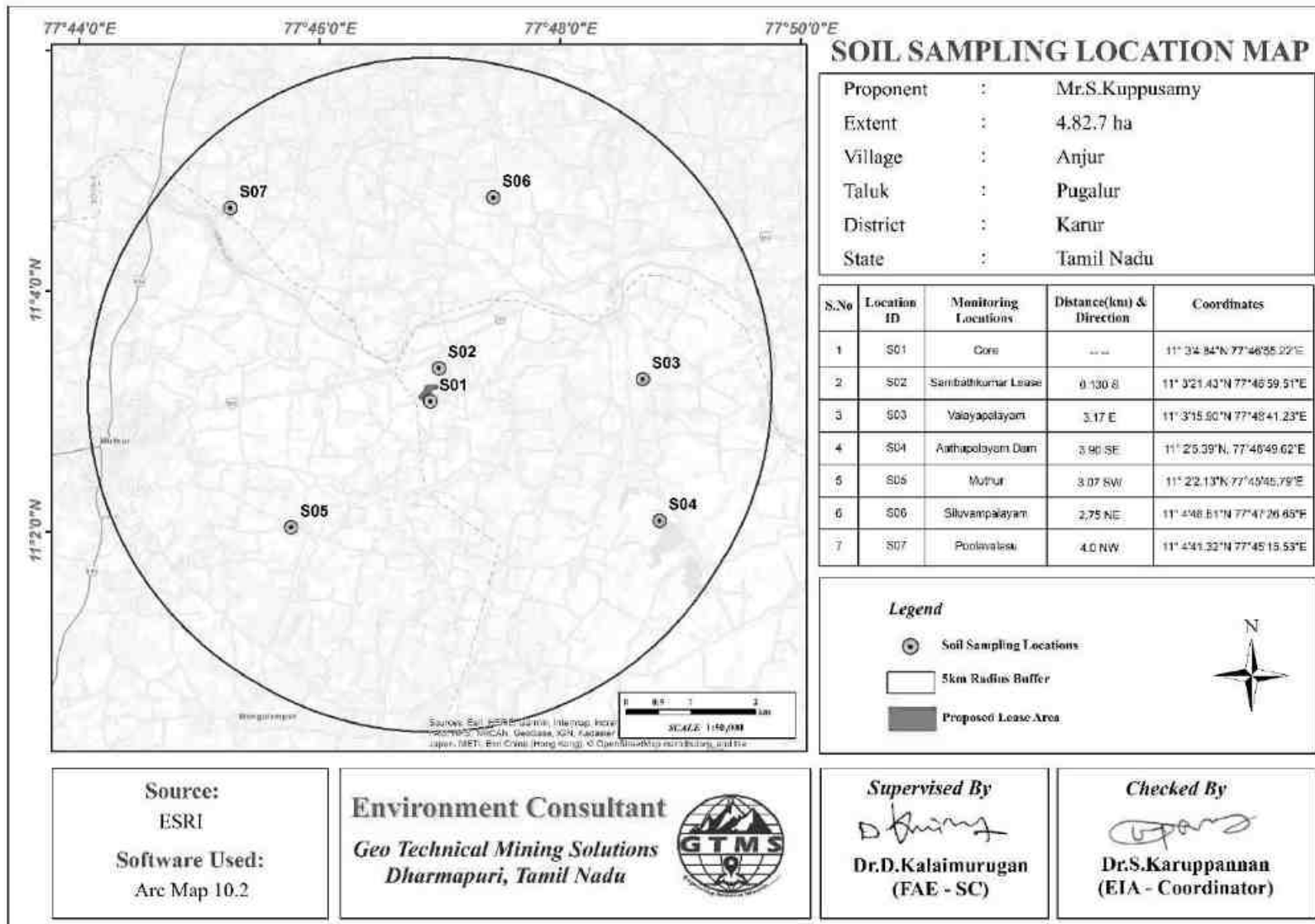


Figure 3.5 Toposheet Showing Soil Sampling Locations within 5 km Radius around Proposed Project Site

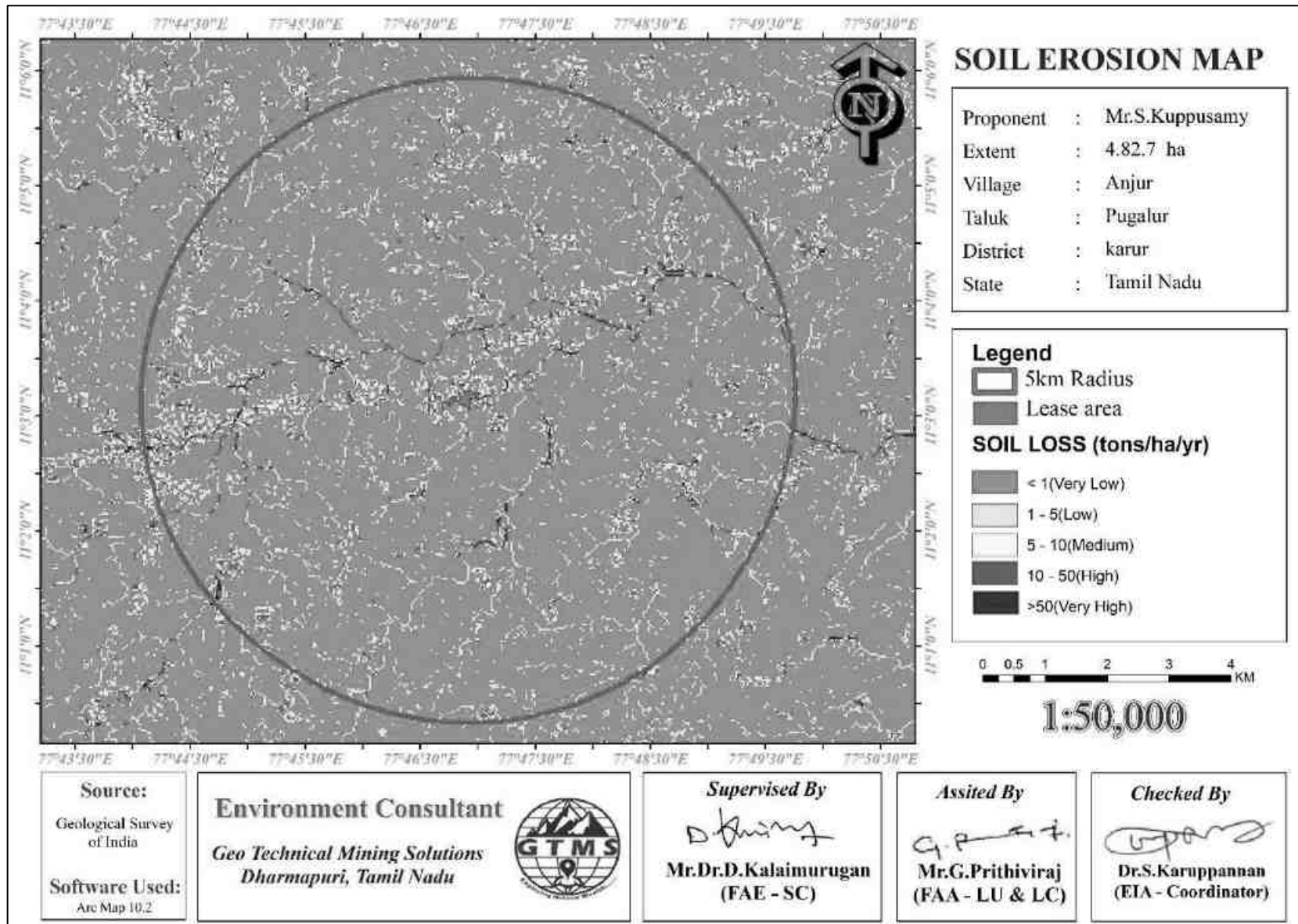


Figure 3.6 Soil Erosion map within 5 km Radius around the Proposed Project Site

Table 3.4 Soil Quality of the Study Area

S. No	Parameters	Unit	S01 Core zone	Minimum	Maximum	Average
1	Colour	-	Brown colour	Brown colour	Brown colour	Brown colour
2	Odour		No foul odour	No foul odour	No foul odour	No foul odour
3	Moisture @ 105 ⁰ C	%	31.2	18.3	20.3	19.23
4	Bulk Density	g/cm ³	0.79	0.79	0.95	0.90
5	pH @ 25 ⁰ C in 5% Solution	-	6.93	6.94	8.2	7.44
6	Specific EC @ 25 ⁰ C	dsm ⁻¹	4.29	3.91	4.8	4.16
7	Total Nitrogen (N)	%	1.92	0.96	2.4	1.96
8	Total phosphorus (P)	%	3.33	2.05	3.62	2.98
9	Potassium (K)	%	4.03	1.69	5.22	4.07
10	Total Organic carbon	%	23.6	20.6	30.2	27.00
11	C: N Ratio	-	23.613.2:1	12.2:1	18.4:1	15.12:1
12	Arsenic (As)	mg/kg	BDL [DL 0.1]	BDL [DL 0.1]	BDL [DL 0.1]	BDL [DL 0.1]
13	Mercury (Hg)	mg/kg	BDL [DL 0.001]	BDL [DL 0.001]	BDL [DL 0.001]	BDL [DL 0.001]
14	Lead (Pb)	mg/kg	33.1	23.5	39.1	31.47
15	Cadmium (Cd)	mg/kg	0.45	0.39	0.63	0.54
16	Chromium (Cr)	mg/kg	16.1	22.7	30.2	25.77
17	Copper (Cu)	mg/kg	29.15	64.2	75.6	71.95
18	Zinc (Zn)	mg/kg	356.1	196.1	327.9	292.12

19	Nickel (Ni)	mg/kg	BDL [DL 0.1]	BDL [DL 0.1]	BDL [DL 0.1]	BDL [DL 0.1]
20	Calcium (Cr)	mg/kg	2351.0	2056	3956	3075.50
21	Manganese (Mn)	mg/kg	1759.0	1553	2653	2056.67
22	Porosity	%	1.11	0.85	3.34	2.49
23	Water retention	Inch of water/foot of soil	1.32	1.36	2.42	2.05
24	Salinity	PPT	9.55	6.27	14.2	9.34
25	SAR Value	-	2.90	2.6	4.5	3.40
26	Texture	-	Clay Lom	Clay Lom, sandy clay Lom		
27	Sand	%	43.31	12.56	44.31	31.00
28	Clay	%	32.25	27.42	66.2	40.83
29	silt	%	24.44	18.9	42.29	27.13

Source: Sampling Results by *Enviro Farmers Labs & Technologies and Accuracy Analabs*, in association with GTMS.

Table 3.4a Assigning Scores to Soil Quality Indicators

Soil Quality Score						
S. No.	OM	BD	PH	EC	Total Score	Recommendation
S01	33	13	13	11	71	The Soil Requires Major and Immediate Treatment
S02	56	13	13	2	84	The Soil Requires Moderate Treatment
S03	56	13	13	2	84	
S04	56	13	13	2	84	
S05	33	13	13	11	71	The Soil Requires Major and Immediate Treatment
S06	33	13	13	11	71	
S07	33	13	20	11	78	

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

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	SW01	Noyyal River, Anjur	0.59	NW	11° 3'25.94"N 77°46'32.39"E
2	SW02	Noyyal River, Korakkattupudur,	3.82	NE	11° 4'12.99"N 77°48'54.85"E
3	SW03	Noyyal River, Muthur	4.35	NW	11° 4'40.73"N 77°44'52.65"E
4	SW04	Aathupalayam Dam	4.72	SE	11° 1'44.40"N 77°49'5.42"E
5	OW01	Siluvampalayam	2.66	NE	11° 4'45.46"N 77°47'14.21"E
6	OW02	Nagapalayam	2.69	SE	11° 1'52.43"N 77°47'19.26"E
7	OW03	Athupalayam	4.43	SW	11° 1'35.61"N, 77°48'51.55"E
8	BW01	Poondipalayam	4.77	SSE	11° 0'30.59"N, 77°47'26.56"E
9	BW02	Salliyankattupalayam	0.53	W	11° 3'9.46"N 77°46'35.52"E
10	BW03	Mangalapatti	3.18	SW	11° 1'53.88"N 77°45'48.30"E

Source: On-site monitoring/sampling by *Enviro Farmers Labs & Technologies*, in association with GTMS.

3.2.1 Surface Water Resources and Quality

Noyyal River is the prominent surface water resources present in the study area. This river was ephemeral in nature, which convey water only after rainfall events. The proposed project area is located 0.59 km NW of Noyyal River, as shown in Table 3.5 and Figure 3.7. Four surface water sample, known as SW01 were collected from the Noyyal River (Anjur, 0.59 km NW), SW02 were collected from the Noyyal River (Korakkattupudur, 3.82 NE), SW03 were collected from the Noyyal River (Muthur, 4.35 NW), to assess the baseline water quality. Table 3.6a summarizes surface water quality data of the collected sample.

Result for surface water sample in the Table 3.6a indicate that the physical, chemical and biological parameters, and heavy metals 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.

Six groundwater samples, known as OW01, OW02, OW03, BW01, BW02 and BW03, were collected from bore wells and open wells were analysed for physico-chemical conditions, heavy metals 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 nine samples.

Results for ground water samples in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals 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 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 2022, (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 20.6 to 23.5 m BGL in pre monsoon and 11.5 to 16.3 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 (Post-Monsoon Season) vary from 62.3 to 65.8 m and from 63.8 to 67.6 m for the period of March through May, (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.

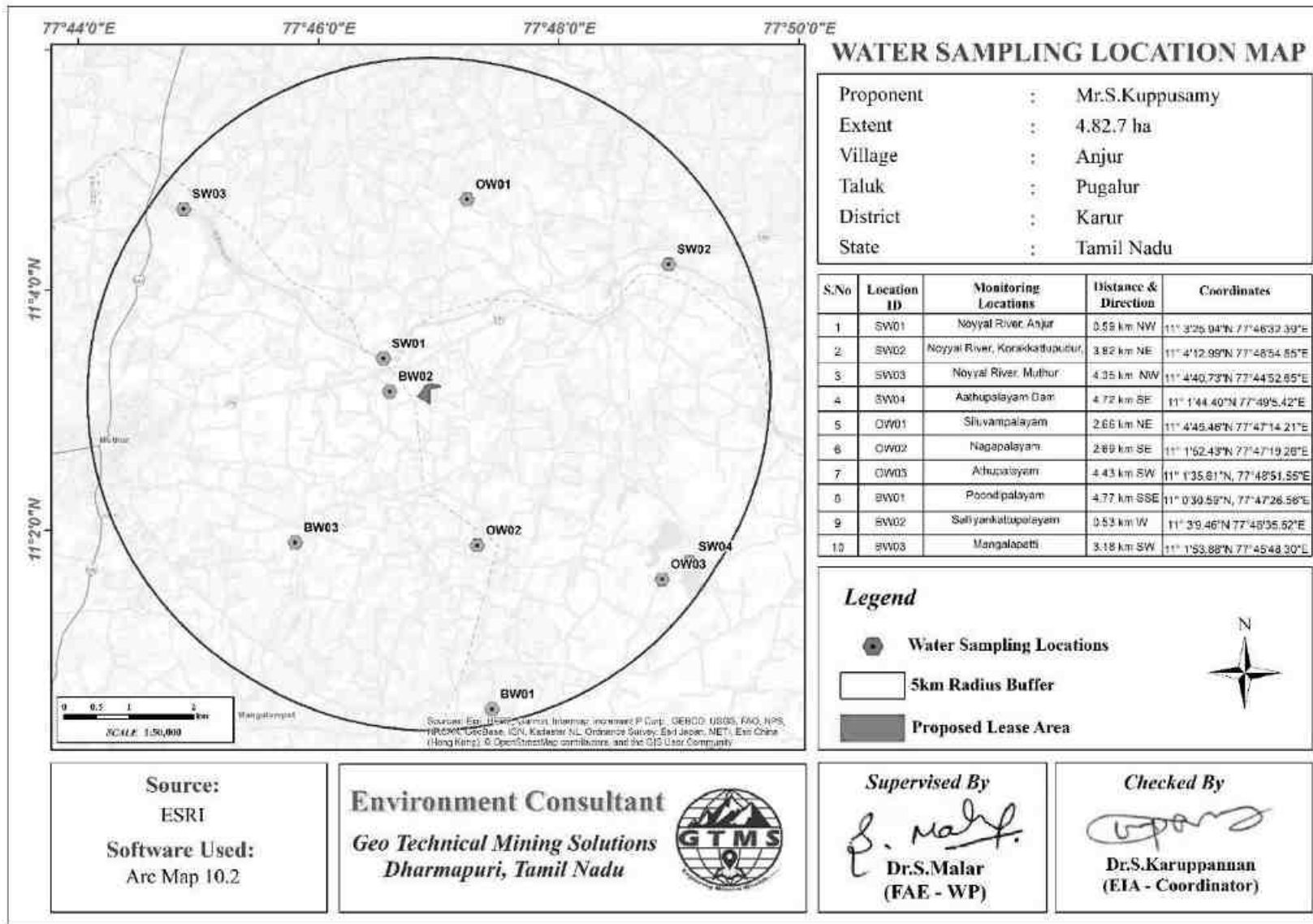


Figure 3.7 Toposheet Showing Water Sampling Locations within 5 km Radius around Proposed Project Site

Table 3.6 Ground Water Quality Result

S.No.	Parameters	Units	Result of Ground Water			Acceptable Limits As per IS10500:2012	Permissible Limits As Per IS 10500:2012
			Minimum	Maximum	Average		
1	Colour	Hazen	<0	6	3	5	15
2	Odour	Odourless	Odourless	Odourless	Odourless	Agreeable	Agreeable
3	pH@ 25°C	-	7.46	7.9	7.73	6.5 – 8.5	No relaxation
4	TDS @ 180 ⁰ C	mg/l	403	1717	1381.3	500	2000
5	Total Hardness (as CaCO ₃)	mg/l	192	392	334.66	200	600
6	Calcium Hardness	mg/l	140	260	221.3	-	-
7	Magnesium Hardness	mg/l	52	132	113.3	-	-
8	Calcium (as Ca)	mg/l	56	104	88.6	75	200
9	Magnesium (as Mg)	mg/l	13	32.1	27.51	30	100
10	Chloride (as Cl)	mg/l	86	516	387	250	1000
11	Total Alkalinity (as CaCO ₃)	mg/l	120	310	245.6	200	600
12	Sulphate (as SO ₄)	mg/l	43	180	142	200	400
13	Turbidity	NTU	<1.0	<1.0	<1.0	1.0	5
BIOLOGICAL REPORT							
14	E. coli	MPN/100ml	7	17	11.8	-	1600
15	Coliform	MPN/100ml	9	16	16	-	1600

Source: Sampling Results by Accuracy Analabs, in association with GTMS

Table 3.6a Surface Water Quality Result

S.No.	Parameters	Units	Result of Surface Water			Acceptable Limits As per IS10500:2012	Permissible Limits As Per IS 10500:2012
			Minimum	Maximum	Average		
1	Colour	Hazen	10	10	10	5	15
2	Odour	Odourless	Odourless	Odourless	Odourless	Agreeable	Agreeable
3	pH@ 25°C	-	7.31	8.12	7.69	6.5 – 8.5	No relaxation
4	TDS @ 180° C	mg/l	1300	1322	1293	500	2000
5	Total Hardness (as CaCO ₃)	mg/l	344	360	351	200	600
6	Calcium Hardness	mg/l	226	240	231.5	-	-
7	Magnesium Hardness	mg/l	115	122	119	-	-
8	Calcium (as Ca)	mg/l	83	96	89.5	75	200
9	Magnesium(as Mg)	mg/l	21	31	26	30	100
10	Chloride (as Cl)	mg/l	425	454	438.5	250	1000
11	Total Alkalinity (as CaCO ₃)	mg/l	306	325	312.7	200	600
12	Sulphate (as SO ₄)	mg/l	108	140	123	200	400
13	Turbidity	NTU	1	5	2.7	1.0	5
BIOLOGICAL REPORT							
14	E. coli	MPN/100ml	8	14	11.25	-	1600
15	Coliform	MPN/100ml	13	14	13.75	-	1600

Source: Sampling Results by *Accuracy Analabs*, in association with *GTMS*

From the maps of open well groundwater flow direction shown in Figures 3.7-3.8, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 2 located in northeastern direction of the proposed project site. The groundwater flow maps in Figures 3.9-3.10 show that most of the bore well groundwater for the post- and pre-monsoon seasons flow towards the bore well number 5 and 1. It is located in northeastern direction of the proposed project site. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

Table 3.7 Pre-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL (m)				Latitude	Longitude
	Mar-2022	Apr-2022	May-2022	Average		
DW01	21.5	22.7	23.0	22.4	11° 0'32.45"N	77°56'15.88"E
DW02	22.0	23.5	24.6	23.3	11° 0'6.43"N	77°56'3.20"E
DW03	21.0	22.5	23.5	22.3	11° 1'5.46"N	77°56'31.22"E
DW04	20.5	21.0	22.5	21.3	11° 1'20.56"N	77°56'38.90"E
DW05	22.5	23.7	24.5	23.5	11° 1'9.31"N	77°55'54.57"E
DW06	20.5	21.7	22.5	21.5	11° 0'32.94"N	77°56'57.09"E
DW07	22.0	23.5	24.7	23.4	11° 0'39.89"N	77°57'14.82"E
DW08	19.5	20.5	21.8	20.6	11° 0'6.95"N	77°56'55.96"E
DW09	21.5	22.7	23.5	22.5	11° 0'34.82"N	77°55'44.25"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-2022	Nov- 2022	Dec-2022	Average		
DW01	10.4	11.9	12.5	11.6	11° 0'32.45"N	77°56'15.88"E
DW02	11.0	12.5	13.4	12.3	11° 0'6.43"N	77°56'3.20"E
DW03	10.5	11.5	12.7	11.5	11° 1'5.46"N	77°56'31.22"E
DW04	12.0	13.5	14.5	13.3	11° 1'20.56"N	77°56'38.90"E
DW05	11.5	12.4	13.7	12.5	11° 1'9.31"N	77°55'54.57"E
DW06	13.0	14.5	15.5	14.3	11° 0'32.94"N	77°56'57.09"E
DW07	14.0	15.5	16.5	15.3	11° 0'39.89"N	77°57'14.82"E
DW08	15.0	16.5	17.5	16.3	11° 0'6.95"N	77°56'55.96"E
DW09	14.0	15.5	16.5	15.3	11° 0'34.82"N	77°55'44.25"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				Latitude	Longitude
	BGL(m)					
	Mar-2022	Apr-2022	May- 2022	Average		
BW01	62.0	63.5	64.5	63.3	11° 0'37.43"N	77°56'47.13"E
BW02	61.0	62.5	63.5	62.3	11° 0'24.89"N	77°57'24.02"E
BW03	63.0	64.0	65.5	64.1	11° 0'37.83"N	77°56'16.07"E
BW04	64.5	66.0	67.0	65.8	11° 0'7.10"N	77°55'42.38"E
BW05	64.0	64.5	66.5	65	11° 0'28.51"N	77°55'47.14"E
BW06	63.0	64.5	66.0	64.5	11° 0'50.33"N	77°56'2.82"E
BW07	61.0	62.5	63.5	62.3	11° 1'24.10"N	77°56'11.59"E
BW08	62.0	63.5	66.0	63.8	11° 0'0.72"N	77°56'48.56"E
BW09	62.5	64.0	65.5	64	11° 1'14.53"N	77°56'48.43"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				Latitude	Longitude
	BGL(m)					
	Oct-2022	Nov-2022	Dec-2022	Average		
BW01	64.0	65.5	66.5	65.3	11° 0'37.43"N	77°56'47.13"E
BW02	63.5	64.0	65.5	64.3	11° 0'24.89"N	77°57'24.02"E
BW03	65.0	66.5	67.5	66.3	11° 0'37.83"N	77°56'16.07"E
BW04	66.5	67.5	69.0	67.6	11° 0'7.10"N	77°55'42.38"E
BW05	66.0	67.5	68.5	67.3	11° 0'28.51"N	77°55'47.14"E
BW06	64.0	65.5	66.5	65.3	11° 0'50.33"N	77°56'2.82"E
BW07	62.0	63.5	66.0	63.8	11° 1'24.10"N	77°56'11.59"E
BW08	65.0	66.5	67.5	66.3	11° 0'0.72"N	77°56'48.56"E
BW09	63.5	65.0	67.5	65.3	11° 1'14.53"N	77°56'48.43"E

Source: Onsite monitoring data

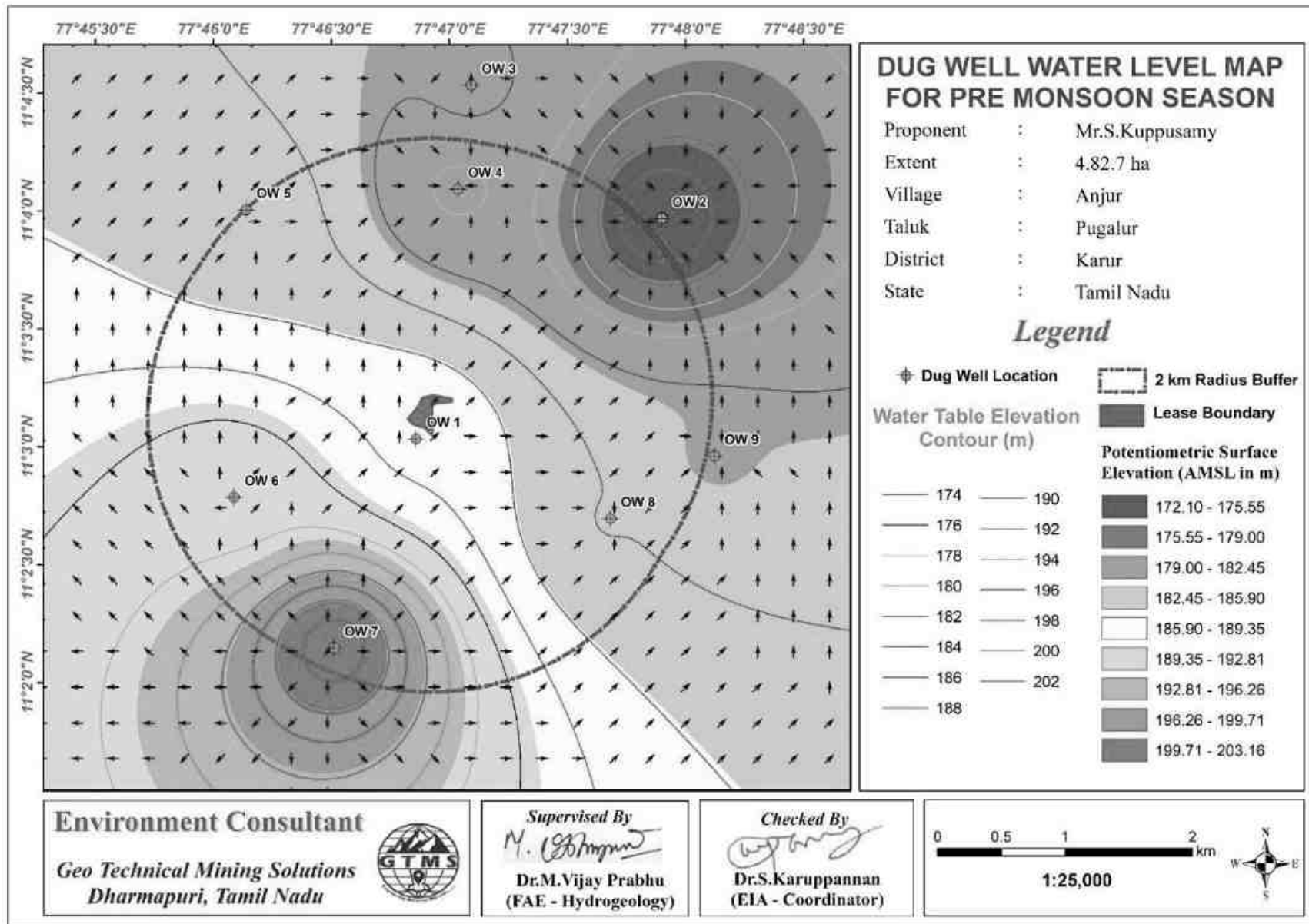


Figure 3.8 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

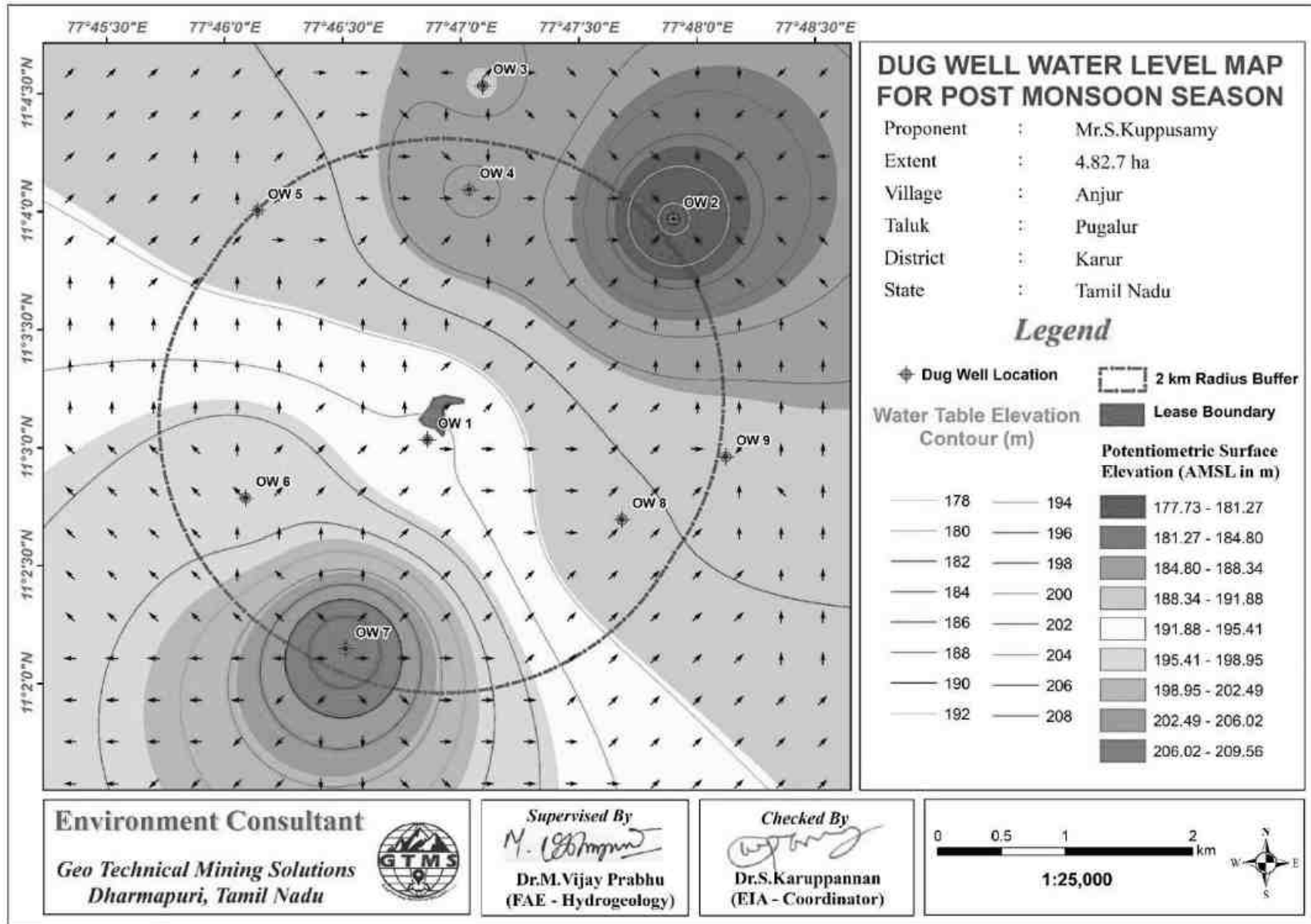


Figure 3.9 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

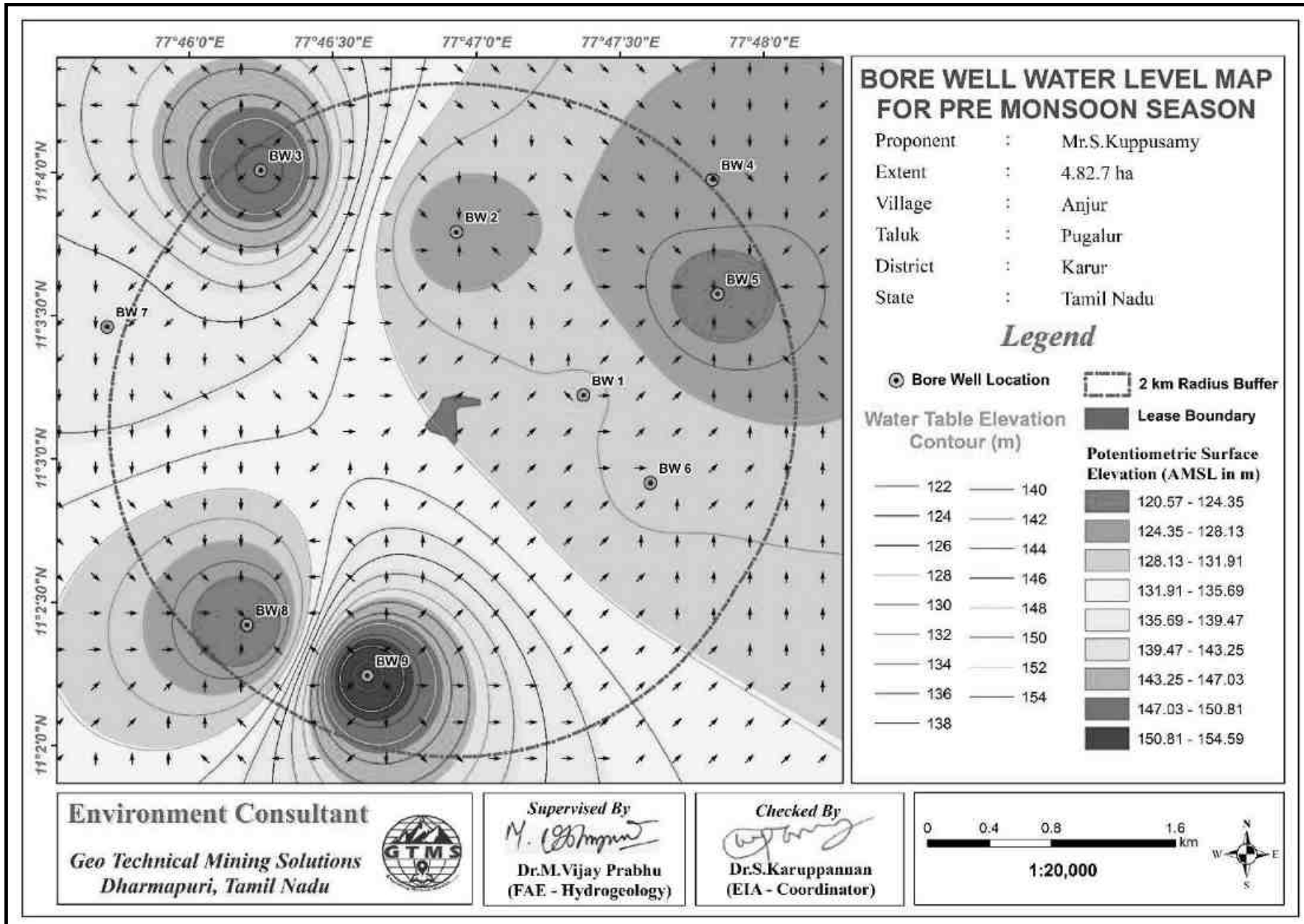


Figure 3.10 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

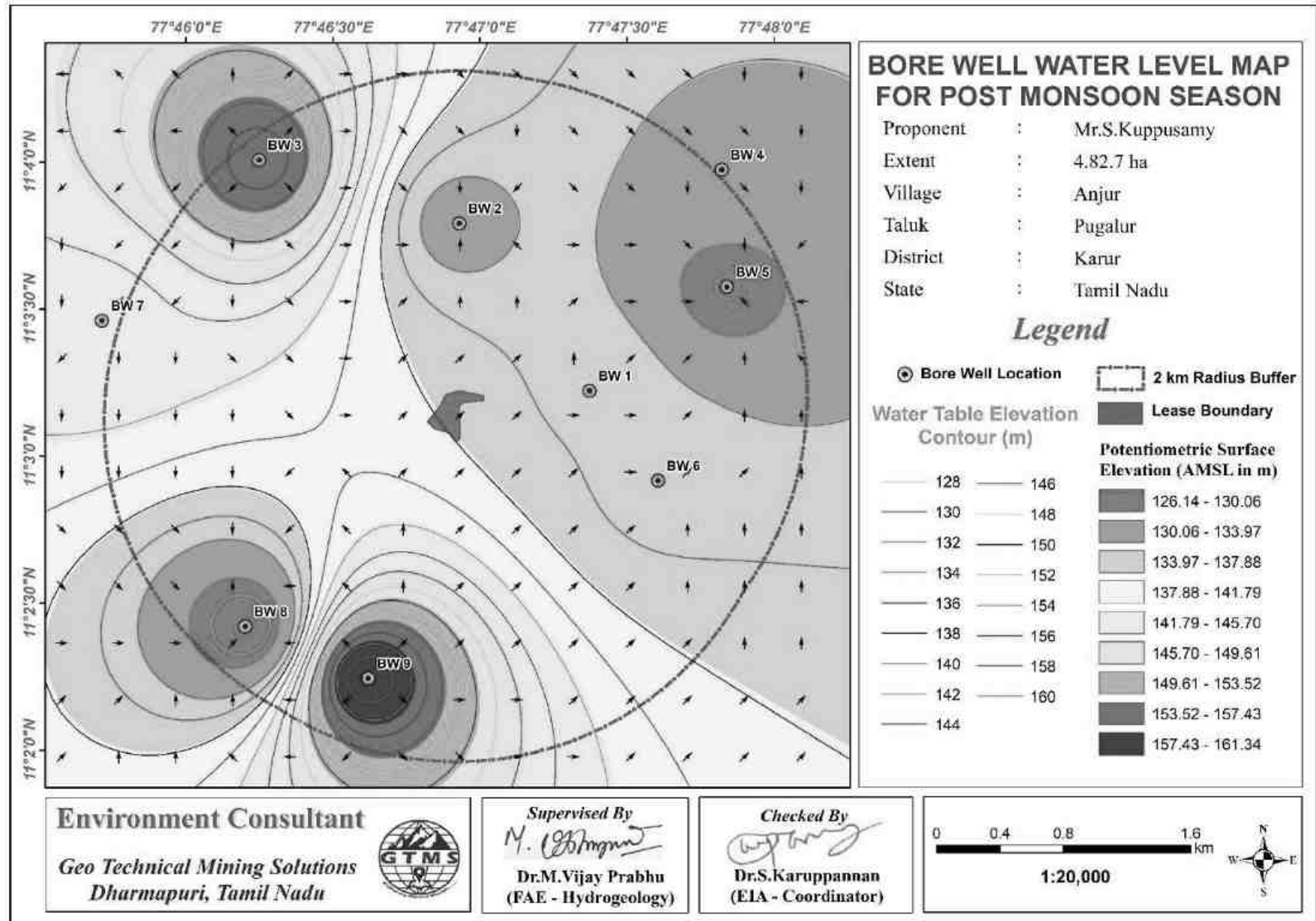


Figure 3.11 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

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 3.12.

Table 3.11 Vertical Electrical Sounding Data

Location Coordinates - 11° 0'44.46"N 77°56'40.43"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometrical Factor (G)	Resistance in Ω	Apparent Resistivity in Ωm
1	2	2	11.78	13.248	156.06
2	4	2	49.46	6.127	303.04
3	6	5	112.26	3.937	441.97
4	8	5	200.18	2.798	560.10
5	10	5	75.36	8.997	678.01
6	15	10	173.49	5.188	900.07
7	20	10	310.86	3.558	1106.04
8	25	10	487.49	2.603	1268.94
9	30	10	274.75	5.001	1374.02
10	35	10	376.8	3.883	1463.11
11	40	10	494.55	3.16	1562.78
12	45	10	628	2.683	1684.92
13	50	10	777.15	1.943	1510.00
14	65	20	453.6	2.213	1003.82
15	70	20	989.1	2.651	2622.10
16	80	20	1256	2.196	2758.18
17	90	20	1554.3	1.846	2869.24
18	100	20	1653.6	2.213	3659.42

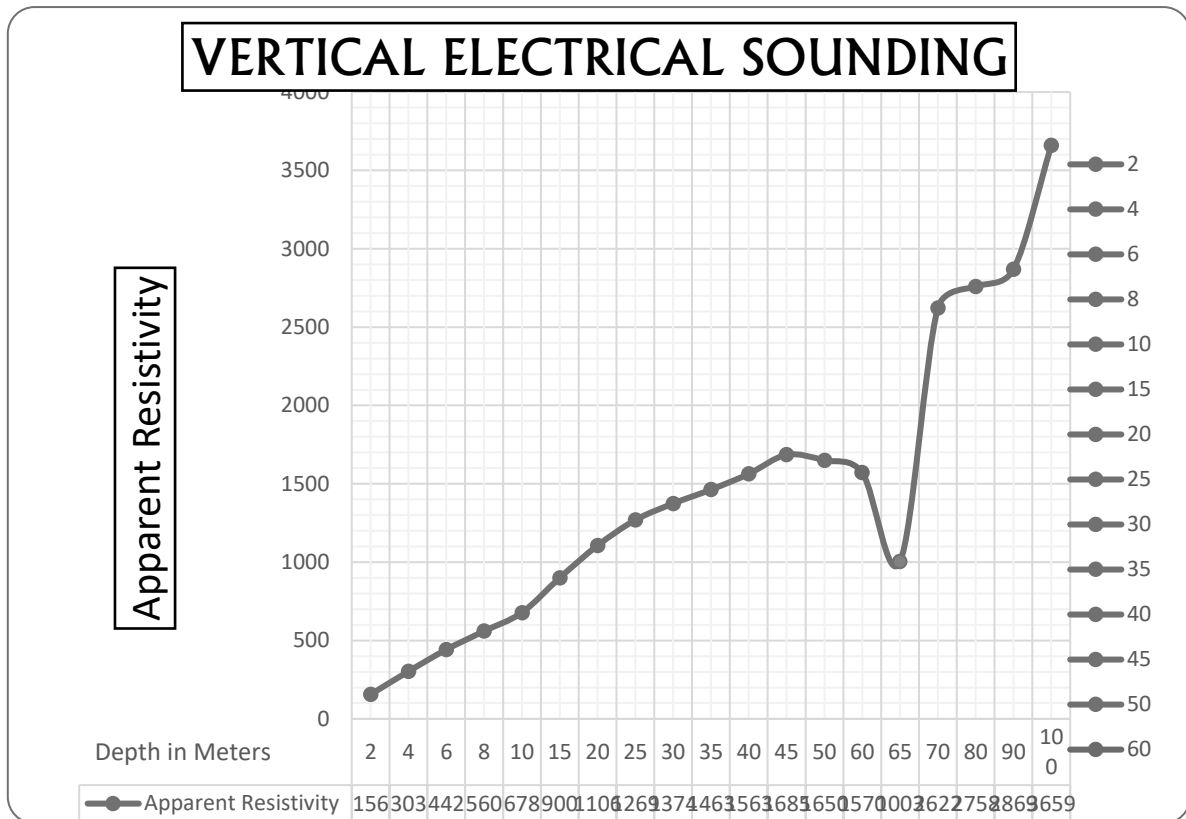


Figure 3.12 Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 65 m Below Ground Level in Proposed Project

The rock formation of low resistivity values indicates occurrence of water at the depth of about 65-70 m below ground level. The maximum depth proposed for the proposed project is 50 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 March,2023 varied from 16.70 to 39.93⁰C with the average of 28.46⁰C; in April, 2023 from 23.18 to 41.15⁰C with the average of 31.32⁰C; and in May,2023 from 22.62 to 36.18⁰C with the average of 27.99⁰C. In March,2023, relative humidity ranged from 15.06 to 95.56 % with the average of 53.56%; in April, 2023, from 12.50 to 89.94 % with the average of 47.23 %; and in May,2023, from 37.50 to 97.38 % with the average of 75.95 %. The wind speed in March,2023 varied from 0.18 to 6.42 m/s with the average of 2.64 m/s; in April, 2023 from 0.05 to 7.07 m/s with the average of 2.70 m/s; and in May,2023 from 0.044 to 6.64 m/s with the average of 3.42 m/s. In March,2023, wind direction varied from 0.00 to 359.03⁰ with the average of 42.05⁰; in April, 2023, from 4.19 to 358.19⁰ with the average of 158.66⁰; and in May,2023, 0.00 to 343.10⁰ with the average of 245.49⁰. In March,2023, surface pressure varied 95.38 to 96.74 kPa with the average of 96.16 kPa; in April, 2023, from 95.24 to 96.68 kPa with the average of 96.20 kPa; and in May,2023, from 96.12 to 97.03 kPa with the average of 96.57 kPa

Table 3.12 Onsite Meteorological Data

S. No.	Parameters		MARCH,2021	APRIL,2022	MAY,2022
1	Temperature (⁰ C)	Min	16.70	23.18	22.62
		Max	39.93	41.15	36.18
		Avg	28.46	31.32	27.99
2	Relative Humidity (%)	Min	15.06	12.50	37.50
		Max	95.56	89.94	97.38
		Avg	53.56	47.23	75.95
3	Wind Speed (m/s)	Min	0.18	0.05	0.44
		Max	6.42	7.07	6.64
		Avg	2.64	2.70	3.42
4	Wind Direction (degree)	Min	0.00	4.19	0.00
		Max	359.03	358.19	343.10
		Avg	142.05	158.66	245.49
5	Surface Pressure(kPa)	Min	95.38	95.24	96.12
		Max	96.74	96.68	97.03
		Avg	96.16	96.20	96.57

Source: On-site monitoring/sampling by *Accuracy Analabs* in association with GTMS

Rainfall

Rainfall data for the study area were collected for the period of 1981-2021 (POWER | Data Access Viewer (nasa.gov)). Long term monthly average rainfall was estimated from the data of 1981-2021 and compared with the monthly rainfall for the year 2021, shown in Figure 3.10. The Figure 3.13 shows that rainfall is generally high in the months of September through November in every year. Particularly, rainfall in September through November of 2021 is higher than the previous years.

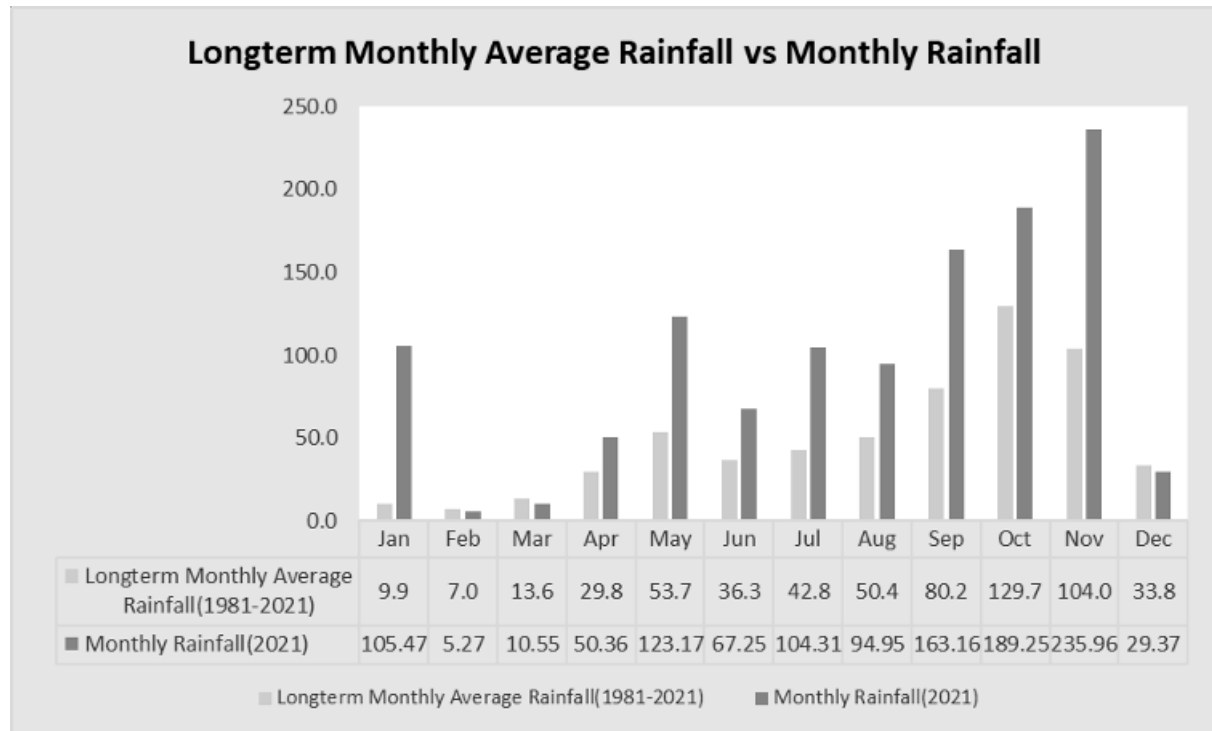


Figure 3.13 Long-Term Monthly Average Rainfall Vs Monthly Rainfall

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 March through May of the years from 2019 to 2022 and the seasonal wind rose for the study period of March through May 2023. The wind rose diagrams thus produced are shown in Figures 3.14-3.14a. Figure 3.15 reveals that:

- ❖ The measured average wind velocity during the study period is 2.97 m/s.
- ❖ Predominant wind was dominant in the directions ranging from Southwest to Northeast.

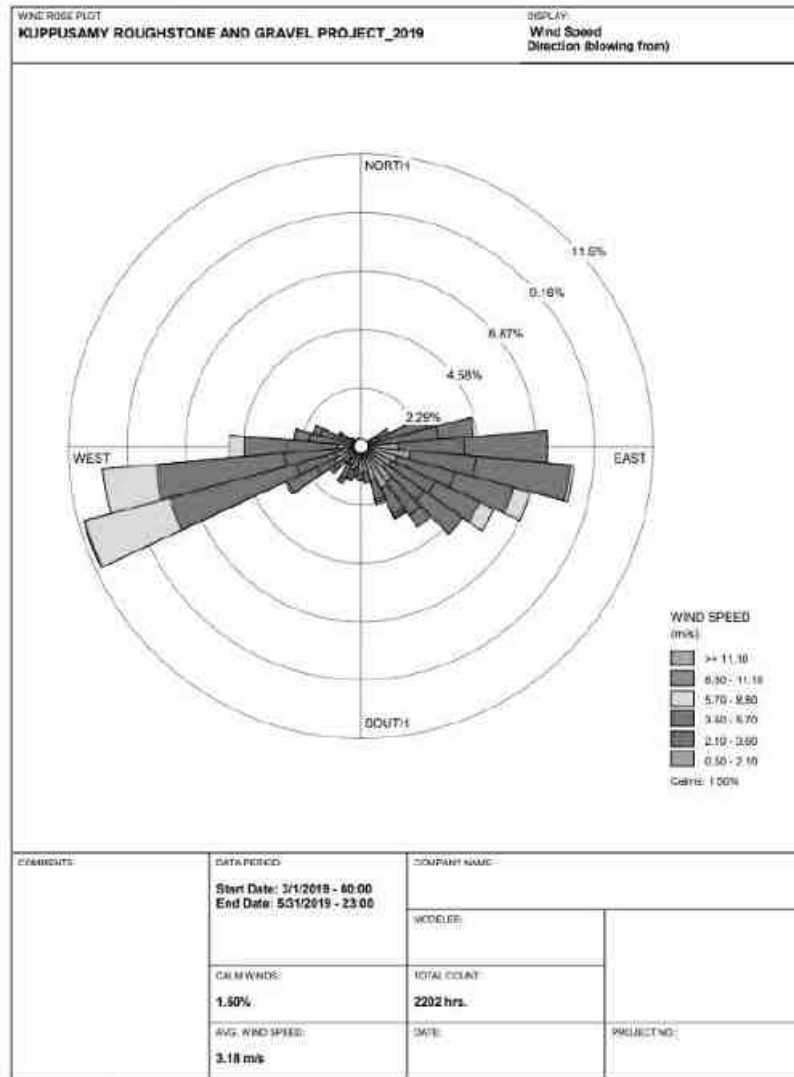


Figure 3.14 Windrose Diagram for 2019 and 2020 (March to May)

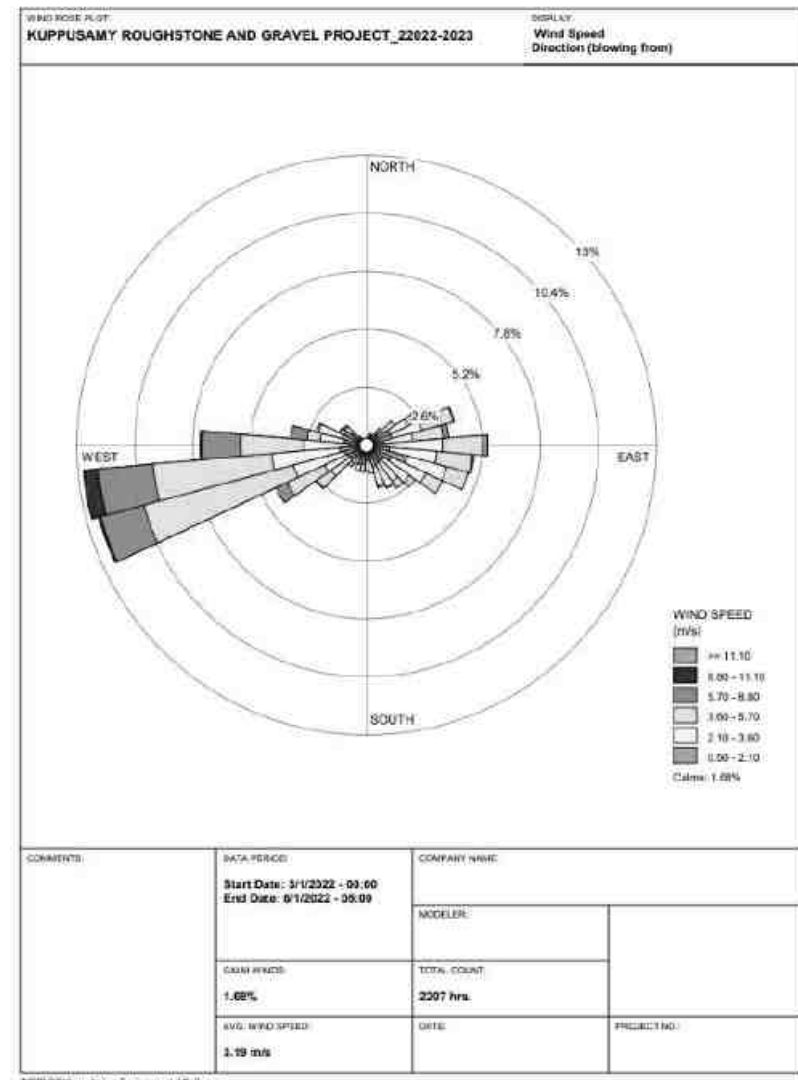
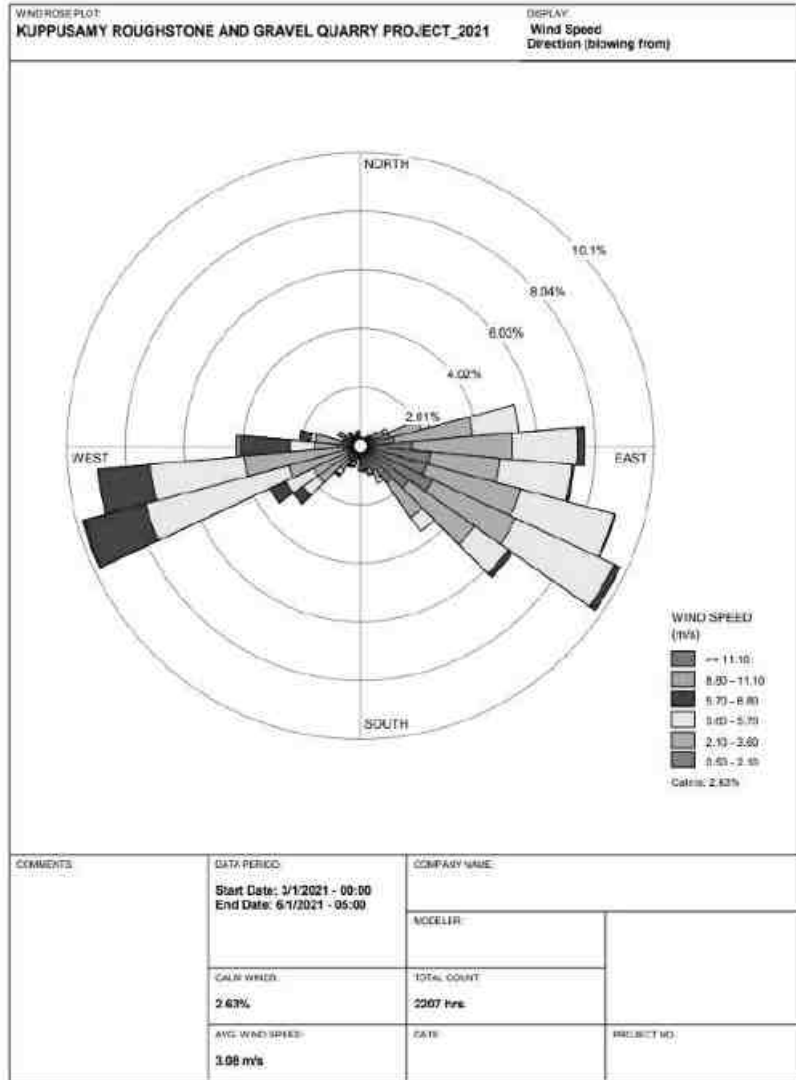
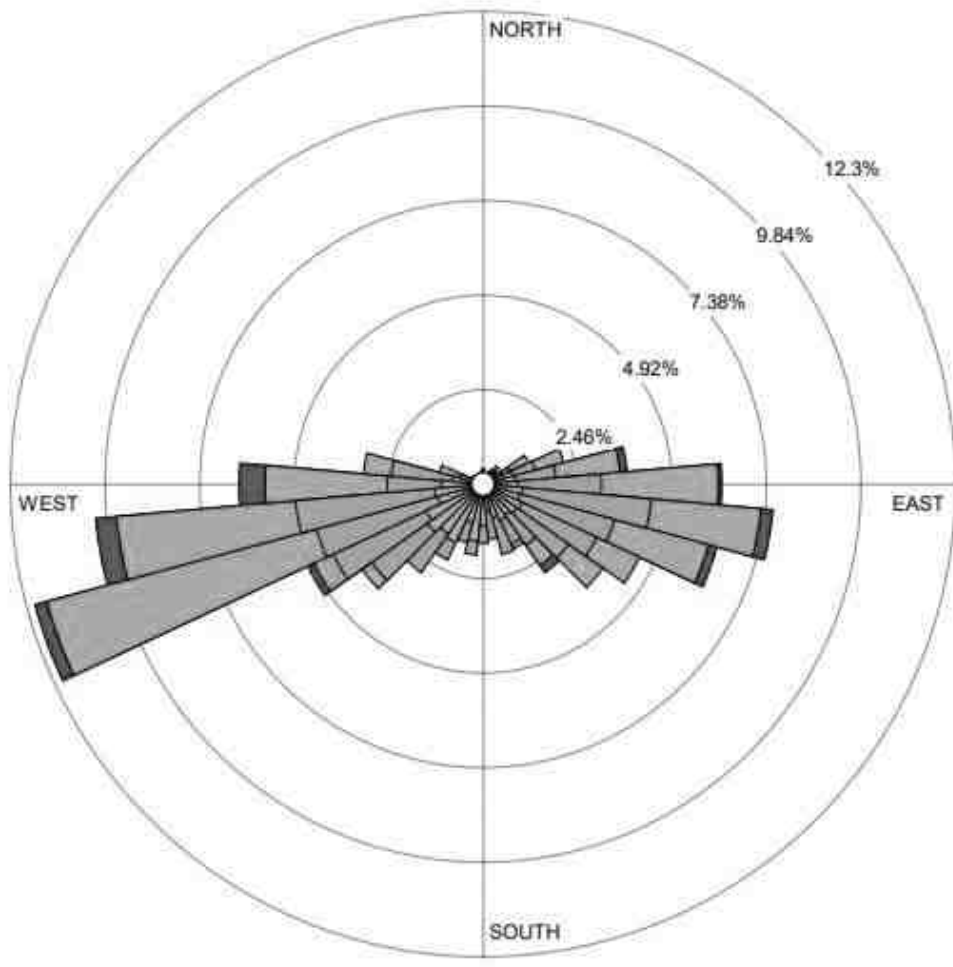


Figure 3.14a Windrose Diagram for 2021 and 2022 (March to May)

WIND ROSE PLOT:
KUPPUSAMY ROUGHSTONE AND GRAVEL PROJECT_2023

DISPLAY:
**Wind Speed
 Direction (blowing from)**



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 3/1/2023 - 00:00 End Date: 6/1/2023 - 05:00	MODELER:	
	CALM WINDS:	TOTAL COUNT:	
	0.82%	2207 hrs.	
	AVG. WIND SPEED:	DATE:	PROJECT NO.:
	2.97 m/s		

WRPLOT View - Lakes Environmental Software

Figure 3.15 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 _{2.5}	Gravimetric method Beta attenuation method	Fine Particulate Sampler
PM ₁₀	Gravimetric method Beta attenuation method	Respirable Dust Sampler
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hoch heiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology based Accuracy Analabs & 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 ₂ (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	NO _x (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 10°.0	60.0 10°.0
4	PM _{2.5} (µg/m ³)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

Methodology

Ambient air quality monitoring was carried out with a frequency of two samples per week at nine (09) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March-May, 2023 as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5 m above the ground level at each monitoring station for negating the effects of wind-blown ground dust. The equipment was placed at space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. The baseline data of ambient air were generated for PM_{2.5}, PM₁₀, sulphur dioxide (SO₂) and nitrogen dioxide (NO_x). The sampling locations are shown in Figure 3.16 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
1	AAQ1	Near Core	0.31	N	11° 3'23.73"N 77°46'55.97"E
2	AAQ2	Ramanathapuram	1.68	NNW	11° 4'3.84"N 77°46'33.73"E
3	AAQ3	Pillapalayam	1.20	SE	11° 2'53.39"N 77°47'35.80"E
4	AAQ4	Poolavalasu	4.15	NNW	11° 4'58.88"N 77°45'28.10"E
5	AAQ5	Nallasellipalayam	3.93	NE	11° 4'36.66"N 77°48'38.35"E
6	AAQ6	Thottiyapalayam	1.42	W	11° 3'9.32"N 77°46'2.55"E
7	AAQ7	Muthur	4.46	W	11° 2'48.78"N 77°44'23.53"E
8	AAQ8	Oodayam	2.69	S	11° 1'35.50"N 77°47'1.12"E
9	AAQ9	Nadupalayam	2.82	NNE	11° 4'32.47"N 77°47'46.37"E

Source: On-site monitoring/sampling by *Accuracy Analabs* in association with *GTMS*

Results

As per the monitoring data, PM_{2.5} ranges from 18.1 µg/m³ to 22.7 µg/m³; PM₁₀ from 36.7 µg/m³ to 41.6 µg/m³; SO₂ from 6.0 µg/m³ to 8.9µg/m³; NO_x from 17.8µg/m³ to 23.2g/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

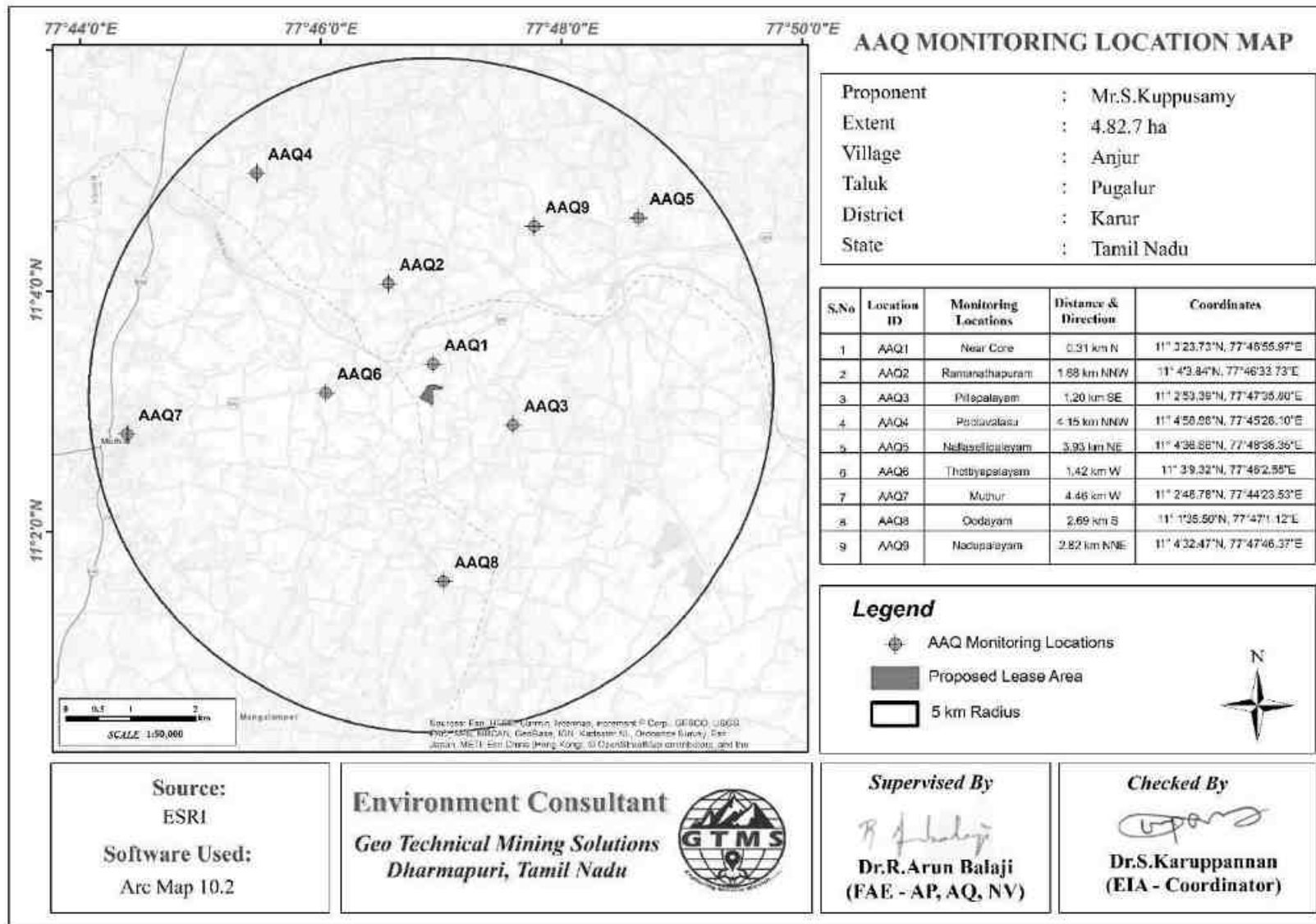


Figure 3.16 Toposheet Showing Ambient Air Quality Monitoring Station Locations Around 5 km Radius from Proposed Project Site

Table 3.16 Summary of AAQ Result

PM _{2.5}					PM ₁₀			
Station ID	Max	Min	Mean	98 th Percentile	Max	Min	Mean	98 th Percentile
AAQ1	26.6	23.5	25.0	26.6	47.9	43.1	45.2	47.9
AAQ2	24.8	18.0	21.6	24.8	39.9	34.7	37.5	39.9
AAQ3	23.1	14.2	18.8	21.9	38.1	28.9	33.1	38.1
AAQ4	21.5	14.9	16.9	21.4	37.1	30.3	33.4	36.8
AAQ5	21.9	18.0	19.3	21.3	39.4	35.8	37.4	39.3
AAQ6	22.4	19.3	21.0	22.2	43.9	40.1	42.2	43.7
AAQ7	24.3	22.1	23.0	24.1	45.9	43.2	45.1	45.9
AAQ8	18.9	16.8	17.9	18.9	39.7	36.9	38.3	39.6
AAQ9	20.6	15.9	18.5	20.2	42.7	37.1	39.6	42.7
SO ₂					NO _x			
AAQ1	9.9	7.5	8.6	9.8	26.9	24.2	25.9	26.9
AAQ2	11.0	6.6	8.4	10.8	26.8	8.9	17.8	25.8
AAQ3	10.4	6.3	8.2	9.3	18.4	12.5	15.4	18.2
AAQ4	8.2	5.0	6.6	8.2	17.6	10.5	13.9	17.6
AAQ5	7.1	5.5	6.5	7.0	22.5	20.1	21.2	22.2
AAQ6	8.3	5.2	6.6	8.1	24.9	21.5	23.2	24.9
AAQ7	10.9	7.7	9.2	10.6	26.4	23.1	24.7	25.5
AAQ8	6.9	5.1	5.9	6.8	20.5	18.2	19.1	20.4
AAQ9	7.8	5.4	6.4	7.6	24.9	21.4	23.5	24.9

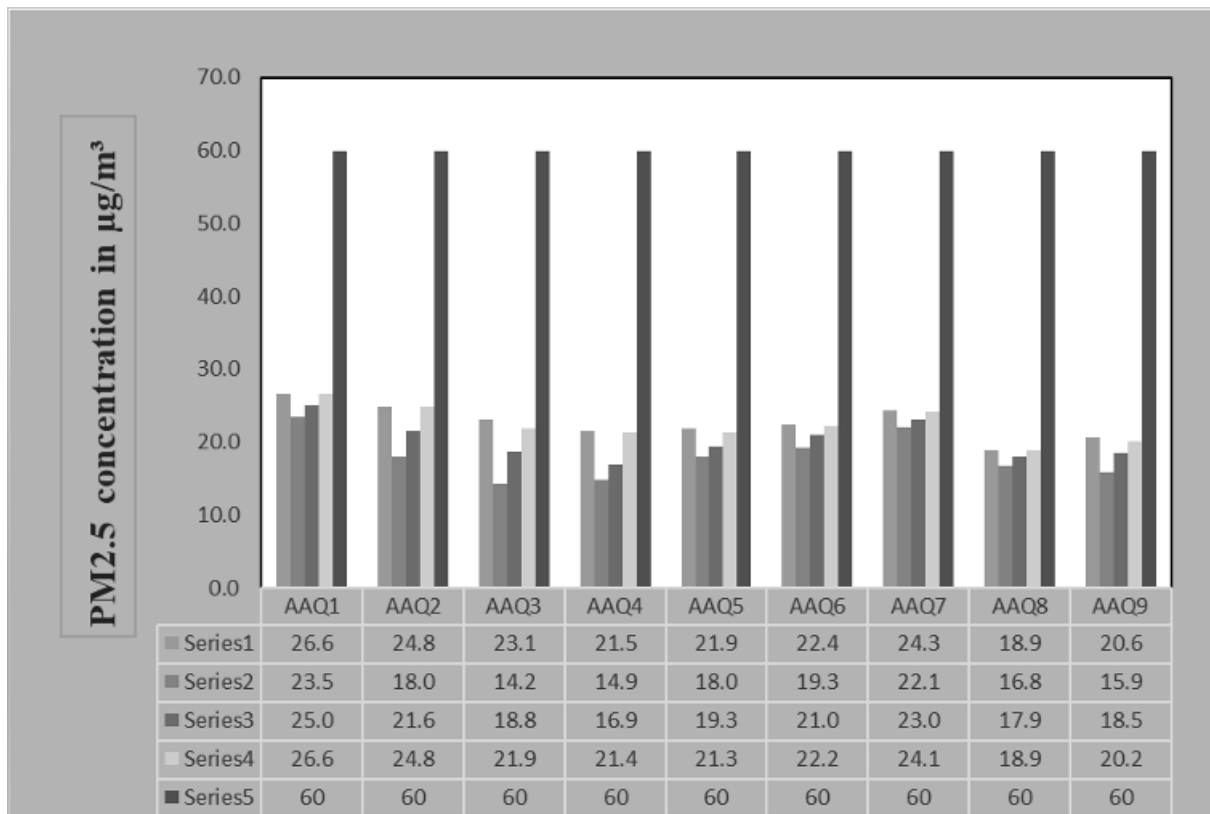


Figure 3.17 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{2.5} Measured from 9 Air Quality Monitoring Stations within 5 km Radius

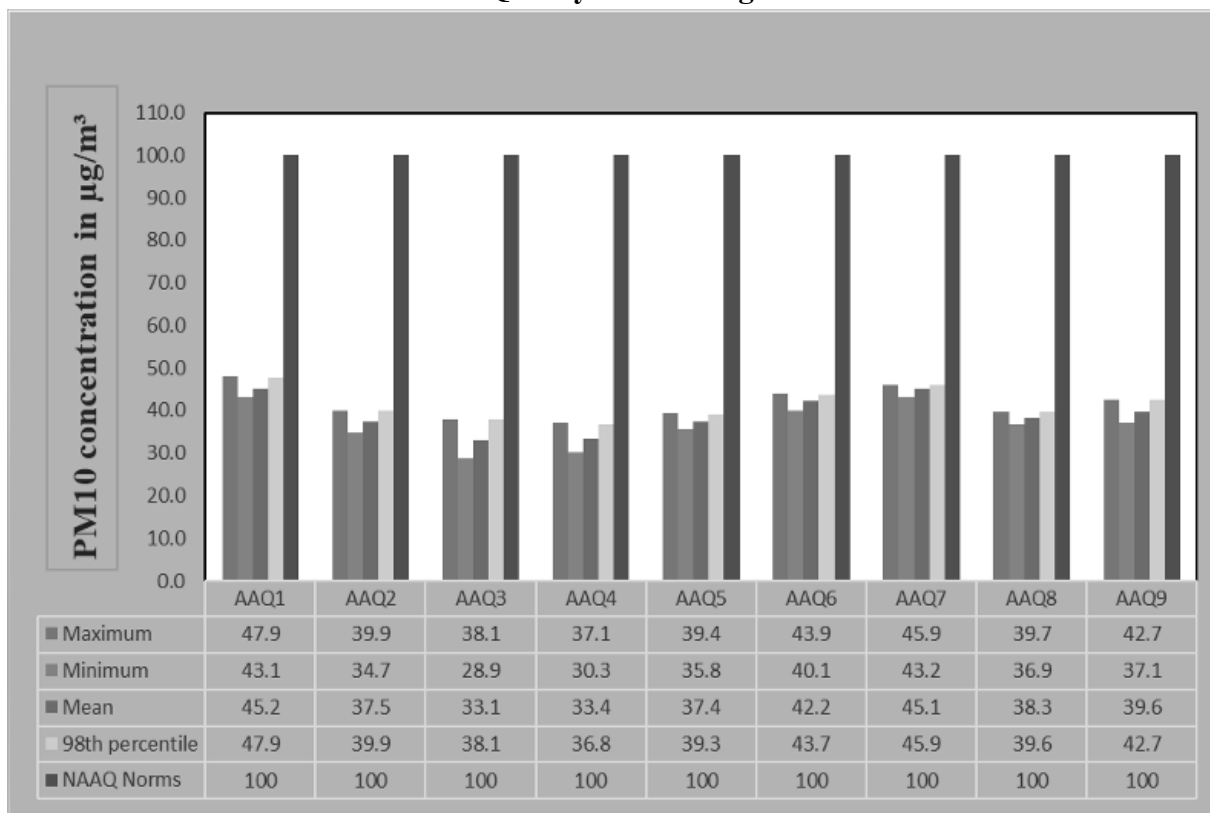


Figure 3.18 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM₁₀ Measured from 9 Air Quality Monitoring Stations within 5 km Radius

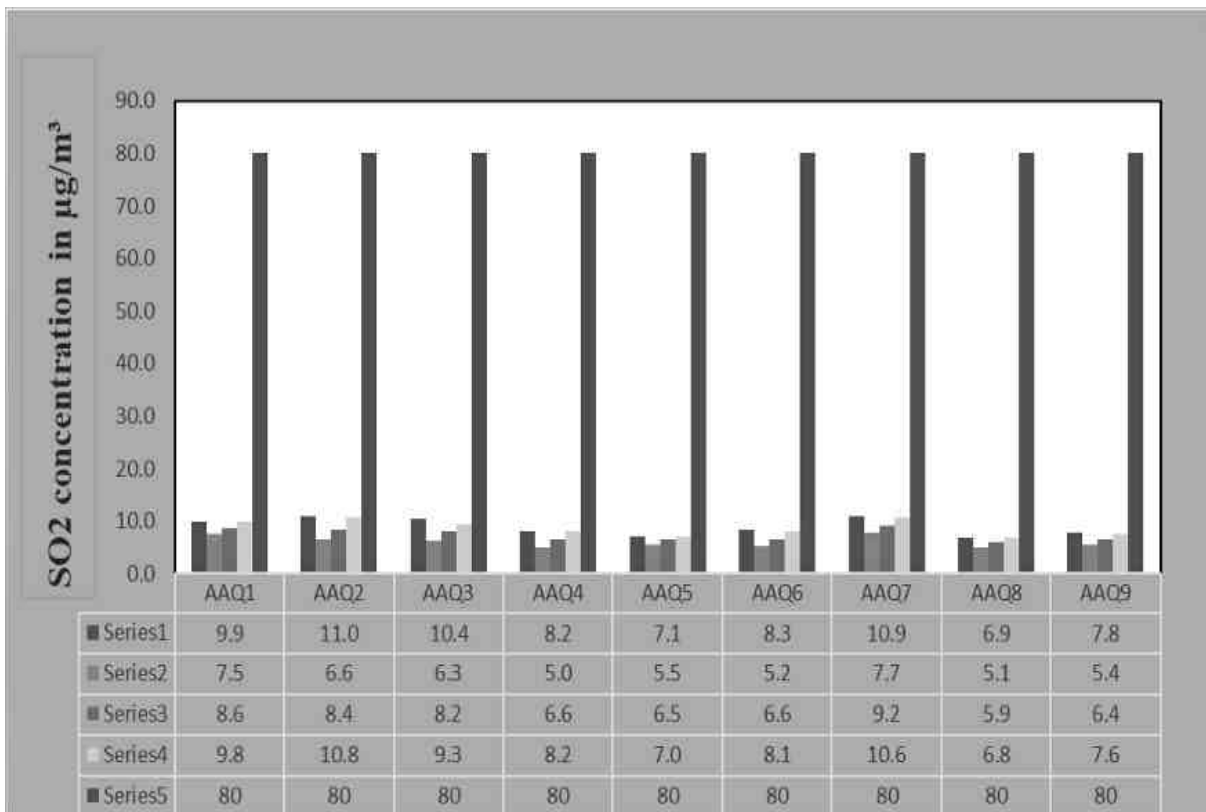


Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO₂ Measured from 9 Air Quality Monitoring Stations within 5 km Radius

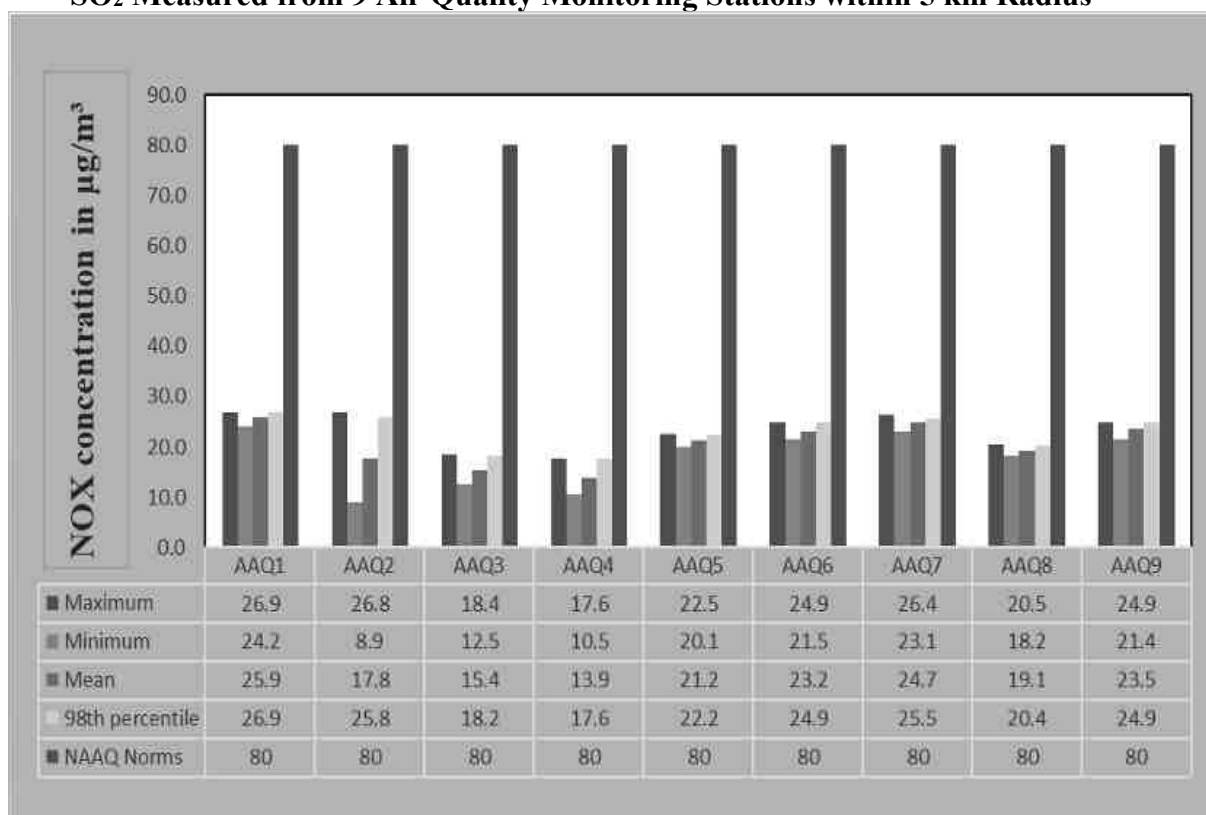


Figure 3.20 Bar Chart Showing Maximum, Minimum, and Average Concentrations of NO_x Measured from 9 Air Quality Monitoring Stations within 5km Radius

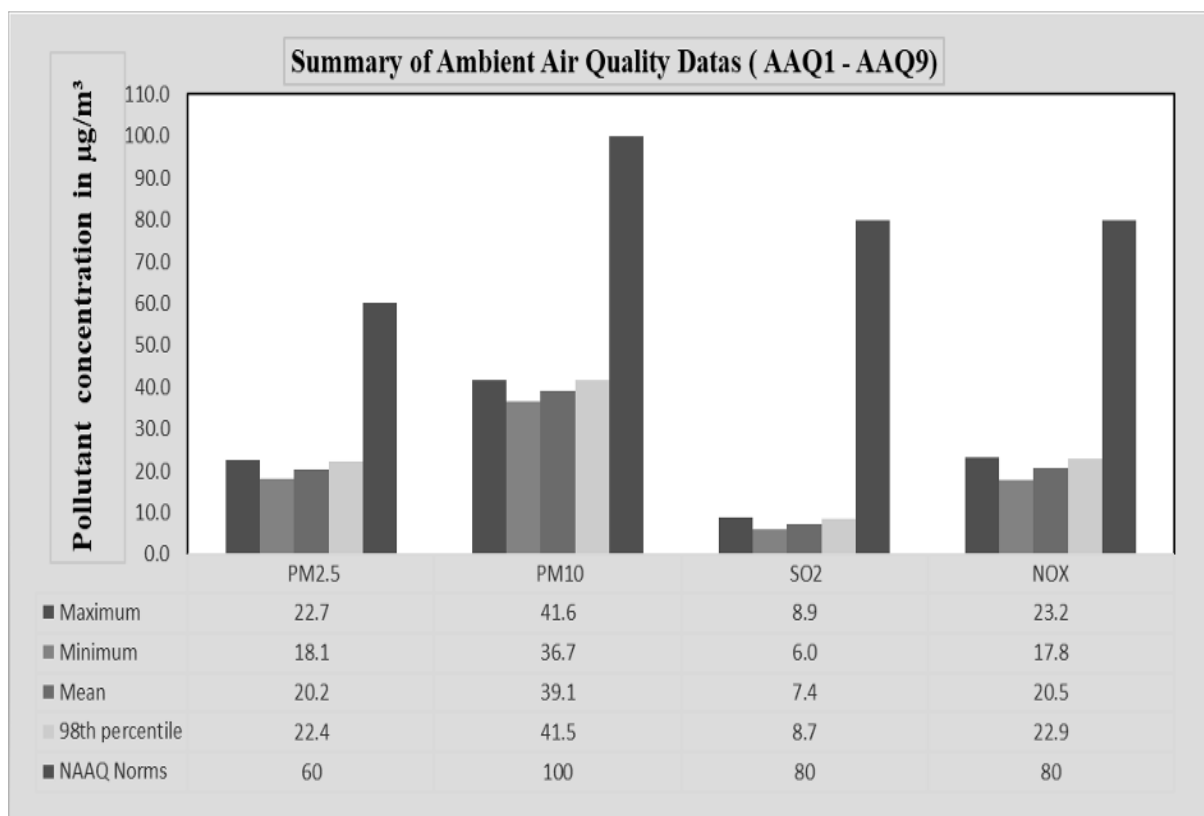


Figure 3.21 Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius

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 twelve (12) 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 3.22.

Table 3.17 Noise Monitoring Locations

S. No	Location Code	Monitoring Locations	Distance in km	Direction	Coordinates
1	N1	Sampathkumar Lease	0.28	N	11° 3'21.08"N 77°47'1.32"E
2	N2	Core	---	---	11° 3'12.09"N 77°47'0.12"E
3	N3	Nagappalayam	0.38	S	11° 2'50.28"N 77°46'55.58"E
4	N4	Vellaiyankattu pudur	0.52	NW	11° 3'18.57"N 77°46'37.06"E
5	N5	Ramanathapuram	1.65	NNW	11° 4'2.34"N 77°46'32.52"E

6	N6	Pillapalayam	1.20	SE	11° 2'54.66"N 77°47'36.47"E
7	N7	Poolavalasu	4.14	NNW	11° 4'58.49"N 77°45'28.35"E
8	N8	Nallasellipalayam	3.93	NE	11° 4'34.72"N 77°48'39.97"E
9	N9	Thottiyapalayam	1.43	W	11° 3'11.03"N 77°46'2.17"E
10	N10	Muthur	4.38	WSW	11° 2'49.05"N 77°44'25.94"E
11	N11	Oodayam	2.67	S	11° 1'36.03"N 77°47'0.36"E
12	N12	Nadupalayam	2.82	NNE	11° 4'31.98"N 77°47'47.40"E

Source: On-site monitoring/sampling by **Accuracy Analabs) 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 (L _{eq} in dB (A))	
N1	Sampathkumar Lease	Industrial Area	42.8	33.8	75	70
N2	core		43.4	34.4	75	70
N3	Nagappalayam	Residential Area	41.2	36.6	55	45
N4	Vellaiyankattu pudur		44.2	39	55	45
N5	Ramanathapuram		37.9	29.6	55	45
N6	Pillapalayam		39.2	28.2	55	45
N7	Poolavalasu		39.8	30.2	55	45
N8	Nallasellipalayam		39.2	30.2	55	45
N9	Thottiyapalayam		42.2	30.3	55	45
N10	Muthur		45.6	35.6	55	45
N11	Oodayam		36.9	28	55	45
N12	Nadupalayam		37.5	28.6	55	45

Source: On-site monitoring/sampling by **Accuracy Analabs) Limited** in association with GTMS

The Table 3.18 shows that noise level in core zone was 43.4 dB (A) Leq during day time and 34.4 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 36.9 to 45.6dB (A) Leq and during night time from 28.0 to 35.6dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.23 and 3.24.

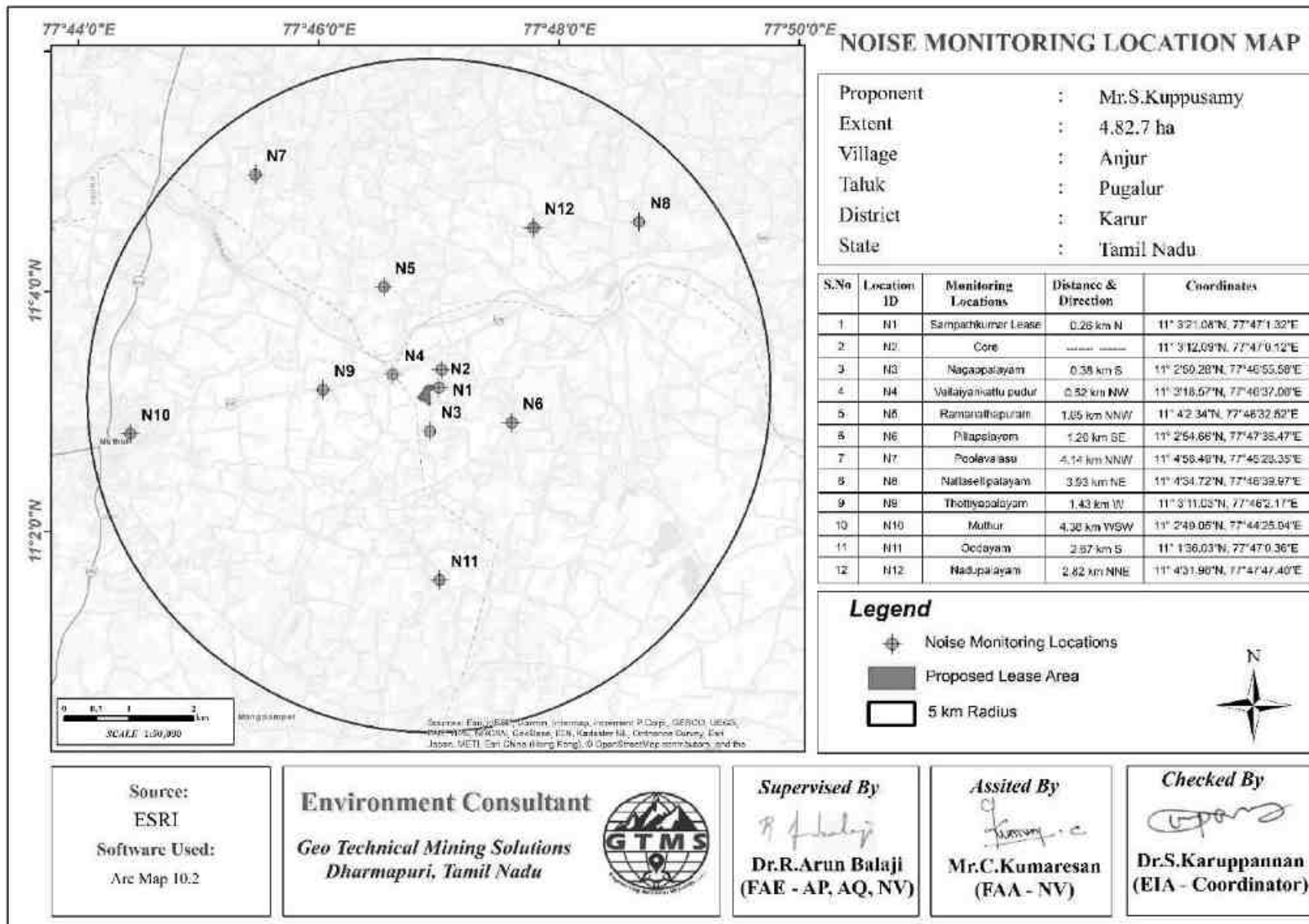


Figure 3.22 Toposheet Showing Noise Level Monitoring Station Locations around 5 km Radius from Proposed Project Site

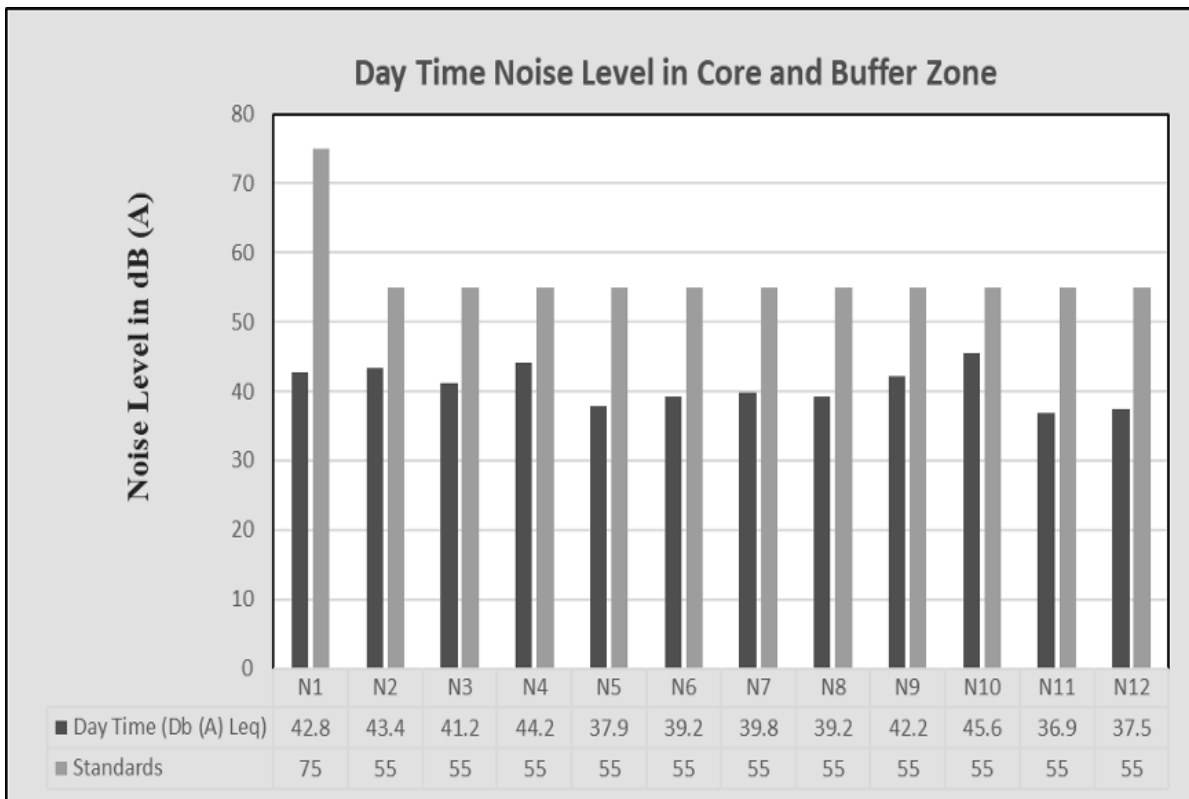


Figure 3.23 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

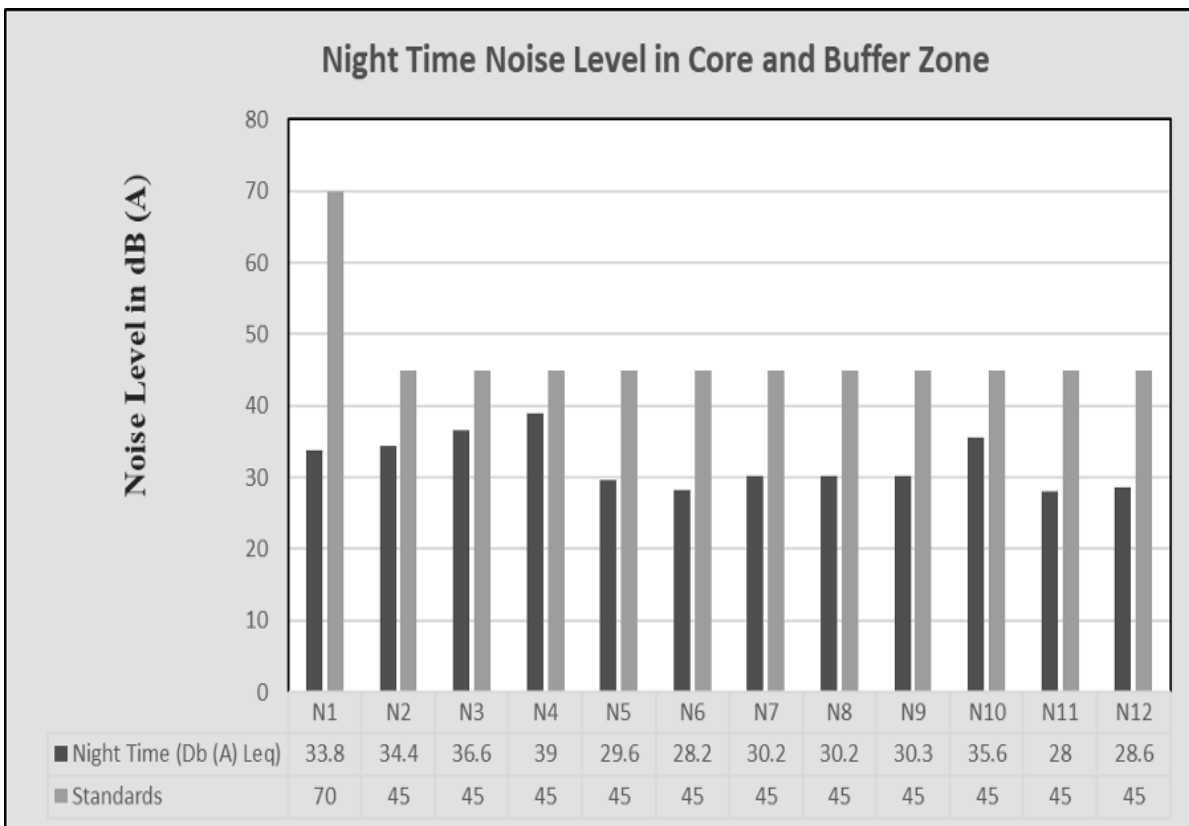


Figure 3.24 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

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 collected from different sources, i.e., government departments such as District Forest Office and 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, as shown in Figure 3.25.



Figure 3.25 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. Photographs showing various species are provided in Figure 3.26.

Crop Patterns in Pugalur Taluk

The principal crops of the district are millets, pulses, oilseeds, sugarcane and banana. The major crops like *Sesamum indicum* and *Manihot esculenta* are grown in Anjur Village, Pugalur taluks. In uplands, millets like sorghum, pearl millet pulses such as horse gram and oilseeds such as groundnut are grown both irrigated and rain fed conditions.





Figure 3.26 Crop Patterns in Pugalur Taluk

Flora in mine lease area (core zone)

There are no flora species in mine lease area.

The Flora in lease area and 300 m radius (buffer zone)

There is no agricultural land nearby lease area. It contains a total of 34 species belonging to 21 families have been recorded from the buffer zone. 6 Trees (17%), 5 Shrubs (17%) and 22 Herbs and Climbers, Creeper, Grass & Cactus 20 (64%) were identified. Details of flora with the scientific name details and of diversity species Richness index were mentioned in Table 3.21-3.23 and Figure 3.26. There is no threatened species in 300 m radius.

Flora in 10 km radius buffer zone

Similar type of environment occurs in both core and buffer zone but more floral diversity noticed in buffer zone compared with core zone area. Buffer area contains a total species belonging to 38 families have been recorded. The floral (75) varieties among them 35 Trees (46%), 15 Shrubs (15%) Herbs and Climbers, Creeper, Grass & Cactus, 25 (33%) were identified. Details of flora with the scientific name, species diversity and richness index were mentioned in Table3.24-3.26 and Figure 3.27.

Table 3.21 Flora in 300 m 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
Trees													
1	Karuvealan	<i>Prosopis juliflora</i>	Fabaceae	4	3	5	0.8	60.0	1.3	16.7	16.7	33.3	Not Listed
2	Palm tree	<i>Borassus flabellifer</i>	Fabaceae	3	2	5	0.6	40.0	1.5	12.5	11.1	23.6	Not Listed
3	Vembu	<i>Azadirachta indica</i>	Meliaceae	5	4	5	1.0	80.0	1.3	20.8	22.2	43.1	Not Listed
4	Vealli vealan	<i>Vachellia leucophloea</i>	Babesiae	4	3	5	0.8	60.0	1.3	16.7	16.7	33.3	Not Listed
5	Unjai maram	<i>Albizia amara</i>	Fabaceae	3	2	5	0.6	40.0	1.5	12.5	11.1	23.6	Not Listed
6	Vetpalai	<i>Wrightia tinctoria</i>	Apocynaceae	5	4	5	1.0	80.0	1.3	20.8	22.2	43.1	Not Listed
Shrubs													
1	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	8	7	10	0.8	70.0	1.1	21.6	21.9	43.5	Not Listed
2	Uumaththai	<i>Datura metel</i>	Solanaceae	6	5	10	0.6	50.0	1.2	16.2	15.6	31.8	Not Listed
3	Thuthi	<i>Abutilon indicum</i>	Meliaceae	7	6	10	0.7	60.0	1.2	18.9	18.8	37.7	Not Listed
4	Avarai	<i>Senna auriculata</i>	Fabaceae	9	8	10	0.9	80.0	1.1	24.3	25.0	49.3	Not Listed
5	Unichadi	<i>Lantana camara</i>	Verbenaceae	7	6	10	0.7	60.0	1.2	18.9	18.8	37.7	Not Listed
Herbs													
1	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae	6	5	15	0.4	33.3	1.2	3.9	3.8	7.7	Not Listed

2	Nearunji mull	<i>Tribulus zeyheri</i> Sond	Zygophyllaceae	7	6	15	0.5	40.0	1.2	4.6	4.5	9.2	
3	pill	<i>Cenchrus ciliaris</i>	Poaceae	9	8	15	0.6	53.3	1.1	5.9	6.1	12.0	Not Listed
4	pulapoo	<i>Aerva lanata</i>	Amaranthaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	10.6	Not Listed
5	kapok bush	<i>Aerva javani</i>	Amaranthaceae	6	5	15	0.4	33.3	1.2	3.9	3.8	7.7	Not Listed
6	Rail poondu	<i>Croton bonplandianus</i>	Euphorbiaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	10.6	Not Listed
7	Yanai neariji	<i>pedalium murex</i>	Pedaliaceae	7	6	15	0.5	40.0	1.2	4.6	4.5	9.2	Not Listed
8	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	10	9	15	0.7	60.0	1.1	6.6	6.8	13.4	Not Listed
9	Thumbai chadi	<i>Leucas aspera</i>	Lamiaceae	6	5	15	0.4	33.3	1.2	3.9	3.8	7.7	Not Listed
10	Umathai	<i>Datura metel</i>	Solanaceae	7	6	15	0.5	40.0	1.2	4.6	4.5	9.2	Not Listed
11	Sethamutti	<i>Sida cordata</i>	Malvaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	10.6	Not Listed
12	Kolunji	<i>Tephrosia purpurea</i>	Fabaceae	9	8	15	0.6	53.3	1.1	5.9	6.1	12.0	Not Listed
13	Ishappukol Vitai	<i>Plantago coronopus</i>	Plantaginaceae	6	5	15	0.4	33.3	1.2	3.9	3.8	7.7	Not Listed
14	Vealiparuthi	<i>Pergularia daemia</i>	Apocynaceae	7	6	15	0.5	40.0	1.2	4.6	4.5	9.2	Not Listed
15	Seppu nerinji	<i>Indigofera linnaei</i> Ali	Fabaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	10.6	Not Listed
16	Sapathikalli	<i>Opuntia ficus-indica</i>	Cactaceae	9	8	15	0.6	53.3	1.1	5.9	6.1	12.0	Not Listed
17	Pal kodi	<i>Cynanchum viminale</i>	Apocynaceae	6	5	15	0.4	33.3	1.2	3.9	3.8	7.7	Not Listed
18	Ilia perandai	<i>Cissus rotundifolia</i>	Vitaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	10.6	Not Listed
19	Katralai	<i>Aloe vera</i>	Asphodelaceae	9	8	15	0.6	53.3	1.1	5.9	6.1	12.0	Not Listed
20	Seammulli	<i>Barleria prionitis</i>	Acanthaceae	8	7	15	0.5	46.7	1.1	5.3	5.3	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)
Trees						
1	Karuvealan	<i>Prosopis juliflora</i>	4	0.17	-1.79	-0.30
2	Palm tree	<i>Borassus flabellifer</i>	3	0.13	-2.08	-0.26
3	Vembu	<i>Azadirachta indica</i>	5	0.21	-1.57	-0.33
4	Vealli vealan	<i>Vachellia leucophloea</i>	4	0.17	-1.79	-0.30
5	Unjai maram	<i>Albizia amara</i>	3	0.13	-2.08	-0.26
6	Vetpalai	<i>Wrightia tinctoria</i>	5	0.21	-1.57	-0.33
H (Shannon Diversity Index) =1.77						
Shrubs						
1	Erukku	<i>Calotropis gigantea</i>	8	0.22	-1.53	-0.33
2	Uumaththai	<i>Datura metel</i>	6	0.16	-1.82	-0.29
3	Thuthi	<i>Abutilon indicum</i>	7	0.19	-1.67	-0.32
4	Avarai	<i>Senna auriculata</i>	9	0.24	-1.41	-0.34
5	Unichadi	<i>Lantana camara</i>	7	0.19	-1.67	-0.32
H (Shannon Diversity Index) =1.60						
Herbs						
1	Nayuruv	<i>Achyranthes aspera</i>	6	0.04	-3.23	-0.13
2	Nearunji mull	<i>Tribulus zeyheri Sond</i>	7	0.05	-3.08	-0.14
3	Pill	<i>Cenchrus ciliaris</i>	9	0.06	-2.83	-0.17
4	pulapoo	<i>Aerva lanata</i>	8	0.05	-2.94	-0.15
5	kapok bush	<i>Aerva javani</i>	6	0.04	-3.23	-0.13
6	Rail poondu	<i>Croton bonplandianus</i>	8	0.05	-2.94	-0.15
7	Mookuthi poondu	<i>pedalium murex</i>	7	0.05	-3.08	-0.14
8	Perandai	<i>Cissus quadrangularis</i>	10	0.07	-2.72	-0.18
9	Thumbai chadi	<i>Leucas aspera</i>	6	0.04	-3.23	-0.13
10	Umathai	<i>Datura metel</i>	7	0.05	-3.08	-0.14
11	Sethamutti	<i>Sida cordata</i>	8	0.05	-2.94	-0.15
12	Kolunji	<i>Tephrosia purpurea</i>	9	0.06	-2.83	-0.17
13	Ishappukol Vitai	<i>Plantago coronopus</i>	6	0.04	-3.23	-0.13
14	Vealiparuthi	<i>Pergularia daemia</i>	7	0.05	-3.08	-0.14
15	Seppu nerinji	<i>Indigofera linnaei Ali</i>	8	0.05	-2.94	-0.15
16	Sapathikalli	<i>Opuntia ficus-indica</i>	9	0.06	-2.83	-0.17
17	Pal kodi	<i>Cynanchum viminale</i>	6	0.04	-3.23	-0.13
18	Ilia perandai	<i>Cissus rotundifolia</i>	8	0.05	-2.94	-0.15
19	Katralai	<i>Aloe vera</i>	9	0.06	-2.83	-0.17
20	Seammulli	<i>Barleria prionitis</i>	8	0.05	-2.94	-0.15
H (Shannon Diversity Index) =2.98						

Table 3.23 Species Richness (Index) in 300 m radius

Details	H	H max	Evenness	Species Richness
Trees	1.77	1.79	0.99	1.57
Shrubs	1.60	1.61	0.99	1.11
Herbs	2.98	3.00	1.00	3.78

Table 3.24 Flora in Buffer Zone

S.No	Local Name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
TREES													
1	Vembu	<i>Azadirachta indica</i>	Meliaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
2	Thekku	<i>Tectona grandis</i>	Verbenaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
3	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
4	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
5	Manga	<i>Mangifera indica</i>	Anacardiaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
6	Puliyamaram	<i>Tamarindus indica</i>	Legumes	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
7	Vadanarayani	<i>Delonix elata</i>	Fabaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
8	Thenpazham	<i>Muntingia calabura</i>	Tiliaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
9	Punnai	<i>Calophyllu inophyllum</i>	Calophyllaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
10	Ilanthai	<i>Ziziphus jujubha</i>	Rhamnaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
11	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
12	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
13	Arai nelli	<i>Phyllanthus acidus</i>	Euphorbiaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
14	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
15	Sapota	<i>Manilkara zapota</i>	Sapotaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
16	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae	7	6	10	0.7	60.0	1.2	4.4	4.8	9.2	Not Listed
17	Alamaram	<i>Ficus benghalensis</i>	Moraceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
18	Vazhaimaram	<i>Musa</i>	Musaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
19	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
20	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed

21	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
22	Maramalli	<i>Millingtonia hortensis</i>	Bignoniaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
23	Kuduka puli	<i>Pithecellobium dulce</i>	Mimosaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
24	Karungali	<i>Acacia sundra</i>	Legumes	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
25	Nochi	<i>Vitex negundo</i>	Lamiaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
26	Karimurungai	<i>Moringa olefera</i>	Moraginaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
27	Pappali maram	<i>Carica papaya L</i>	Caricaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
28	Poovarasu	<i>Thespesia populnea</i>	Malvaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
29	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	3	2	10	0.3	20.0	1.5	1.9	1.6	3.5	Not Listed
30	Vilvam	<i>Aegle marmelos</i>	Rutaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
31	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
32	Nettilingam	<i>Polyalthia longifolia</i>	Annonaceae	4	3	10	0.4	30.0	1.3	2.5	2.4	4.9	Not Listed
33	Koyya	<i>Psidium guajava</i>	Myrtaceae	6	5	10	0.6	50.0	1.2	3.8	4.0	7.8	Not Listed
34	Seethapazham	<i>Annona reticulata</i>	Annonaceae	7	6	10	0.7	60.0	1.2	4.4	4.8	9.2	Not Listed
35	Savukku	<i>Casuarina L.</i>	Casuarinaceae	5	4	10	0.5	40.0	1.3	3.1	3.2	6.3	Not Listed
SHRUBS													
1	Avarai	<i>Senna auriculata</i>	Fabaceae	9	8	15	0.6	53.3	1.1	7.9	8.1	16.0	Not Listed
2	Sundaika	<i>Solanum torvum</i>	Solanaceae	8	7	15	0.5	46.7	1.1	7.0	7.1	14.1	Not Listed
3	Puramuttai	<i>Chrozophora rottleri</i>	Euphorbiaceae	6	5	15	0.4	33.3	1.2	5.3	5.1	10.3	Not Listed
4	Arali	<i>Nerium indicum</i>	Apocynaceae	7	6	15	0.5	40.0	1.2	6.1	6.1	12.2	Not Listed
5	Seemaiagaththi	<i>Cassia alata</i>	Caesalpinaceae	6	5	15	0.4	33.3	1.2	5.3	5.1	10.3	Not Listed
6	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	9	8	15	0.6	53.3	1.1	7.9	8.1	16.0	Not Listed
7	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	8	7	15	0.5	46.7	1.1	7.0	7.1	14.1	Not Listed
8	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	7	6	15	0.5	40.0	1.2	6.1	6.1	12.2	Not Listed
9	Idlipoo	<i>xoracoc cineia</i>	Rubiaceae	9	8	15	0.6	53.3	1.1	7.9	8.1	16.0	Not Listed
10	Thuthi	<i>Abutilon indicum</i>	Meliaceae	8	7	15	0.5	46.7	1.1	7.0	7.1	14.1	Not Listed
11	Nithyakalyani	<i>Cathranthus roseus</i>	Apocynaceae	7	6	15	0.5	40.0	1.2	6.1	6.1	12.2	Not Listed
12	Uumaththai	<i>Datura metel</i>	Solanaceae	6	5	15	0.4	33.3	1.2	5.3	5.1	10.3	Not Listed
13	Kundumani	<i>Abrus precatorius</i>	Fabaceae	8	7	15	0.5	46.7	1.1	7.0	7.1	14.1	Not Listed

14	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	9	8	15	0.6	53.3	1.1	7.9	8.1	16.0	Not Listed
15	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae	7	6	15	0.5	40.0	1.2	6.1	6.1	12.2	Not Listed
Herbs, Climber, Creeper & Grasses													
1	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae	6	5	25	0.2	20.0	1.2	3.1	3.0	6.1	Not Listed
2	Veetukaayapoond	<i>Tridax procumbens</i>	Asteraceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
3	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
4	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	9	8	25	0.4	32.0	1.1	4.6	4.7	9.4	Not Listed
5	Karisilanganni	<i>Eclipta prostrata</i>	Asteraceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
6	Korai	<i>Cyperus rotundus</i>	Cyperaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
7	Thumbai	<i>Leucas aspera</i>	Lamiaceae	6	5	25	0.2	20.0	1.2	3.1	3.0	6.1	Not Listed
8	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
9	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
10	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	10	9	25	0.4	36.0	1.1	5.2	5.3	10.5	Not Listed
11	Arugampul	<i>Cynodon dactylon</i>	Poaceae	11	10	25	0.4	40.0	1.1	5.7	5.9	11.6	Not Listed
12	Thoiya keerai	<i>Digeria muricata</i>	Amaranthaceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
13	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
14	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	9	8	25	0.4	32.0	1.1	4.6	4.7	9.4	Not Listed
15	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae	6	5	25	0.2	20.0	1.2	3.1	3.0	6.1	Not Listed
16	Karkakartum	<i>Clitoria ternatea</i>	Fabaceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
17	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae	9	8	25	0.4	32.0	1.1	4.6	4.7	9.4	Not Listed
18	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae	10	9	25	0.4	36.0	1.1	5.2	5.3	10.5	Not Listed
19	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae	6	5	25	0.2	20.0	1.2	3.1	3.0	6.1	Not Listed
20	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
21	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
22	mookuthi poond	<i>Wedelia trilobata</i>	Asteraceae	9	8	25	0.4	32.0	1.1	4.6	4.7	9.4	Not Listed
23	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae	8	7	25	0.3	28.0	1.1	4.1	4.1	8.3	Not Listed
24	Musthakasu	<i>Kyllinga brevifolia</i>	Cyperaceae	7	6	25	0.3	24.0	1.2	3.6	3.6	7.2	Not Listed
25	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	6	5	25	0.2	20.0	1.2	3.1	3.0	6.1	Not Listed

Table 3.25 Calculation of Species Diversity in Buffer Zone

S.No	Common name	Scientific name	No. of Species	Pi	In (Pi)	Pi x in (Pi)
Tree						
1	Vembu	<i>Azadirachta indica</i>	5	0.03	-3.47	-0.11
2	Thekku	<i>Tectona grandis</i>	4	0.03	-3.69	-0.09
3	Pongam oiltree	<i>Pongamia pinnata</i>	3	0.02	-3.98	-0.07
4	Thennai maram	<i>Cocos nucifera</i>	4	0.03	-3.69	-0.09
5	Manga	<i>Mangifera indica</i>	6	0.04	-3.28	-0.12
6	Puliyamaram	<i>Tamarindus indica</i>	3	0.02	-3.98	-0.07
7	Vadanarayani	<i>Delonix elata</i>	4	0.03	-3.69	-0.09
8	Thenpazham	<i>Muntingia calabura</i>	6	0.04	-3.28	-0.12
9	Punnai	<i>Calophyllu inophyllum</i>	5	0.03	-3.47	-0.11
10	Ilanthai	<i>Ziziphus jujubha</i>	6	0.04	-3.28	-0.12
11	Karuvelam	<i>Acacia nilotica</i>	4	0.03	-3.69	-0.09
12	Nettilinkam	<i>Polylathia longifolia</i>	3	0.02	-3.98	-0.07
13	Arai nelli	<i>Phyllanthus acidus</i>	5	0.03	-3.47	-0.11
14	Panai maram	<i>Borassus flabellifer</i>	3	0.02	-3.98	-0.07
15	Sapota	<i>Manilkara zapota</i>	6	0.04	-3.28	-0.12
16	Navalmaram	<i>Sygygium cumini</i>	7	0.04	-3.13	-0.14
17	Alamaram	<i>Ficus benghalensis</i>	3	0.02	-3.98	-0.07
18	Vazhaimaram	<i>Musa</i>	4	0.03	-3.69	-0.09
19	Karuvelam maram	<i>Vachellia nilotica</i>	5	0.03	-3.47	-0.11
20	Nelli	<i>Embllica officinalis</i>	3	0.02	-3.98	-0.07
21	Eucalyptus	<i>Eucalyptus globules</i>	4	0.03	-3.69	-0.09
22	Maramalli	<i>Millingtonia hortensis</i>	5	0.03	-3.47	-0.11
23	Kuduka puli	<i>Pithecellobium dulce</i>	4	0.03	-3.69	-0.09
24	Karungali	<i>Acacia sundra</i>	3	0.02	-3.98	-0.07
25	Nochi	<i>Vitex negundo</i>	6	0.04	-3.28	-0.12
26	Karimurungai	<i>Moringa olefera</i>	5	0.03	-3.47	-0.11
27	Pappali maram	<i>Carica papaya L</i>	6	0.04	-3.28	-0.12
28	Poovarasu	<i>Thespesia populnea</i>	4	0.03	-3.69	-0.09
29	Arasanmaram	<i>Ficus religiosa</i>	3	0.02	-3.98	-0.07
30	Vilvam	<i>Aegle marmelos</i>	4	0.03	-3.69	-0.09
31	Nuna maram	<i>Morinda citrifolia</i>	5	0.03	-3.47	-0.11
32	Nettilingam	<i>Polyalthia longifolia</i>	4	0.03	-3.69	-0.09
33	Koyya	<i>Psidium guajava</i>	6	0.04	-3.28	-0.12
34	Seethapazham	<i>Annona reticulata</i>	7	0.04	-3.13	-0.14
35	Savukku	<i>Casuarina L.</i>	5	0.03	-3.47	-0.11
H (Shannon Diversity Index) =3.52						
Shrubs						
1	Avarai	<i>Senna auriculata</i>	9	0.08	-2.54	-0.20
2	Sundaika	<i>Solanum torvum</i>	8	0.07	-2.66	-0.19
3	Puramuttai	<i>Chrozophora rottleri</i>	6	0.05	-2.94	-0.15
4	Arali	<i>Nerium indicum</i>	7	0.06	-2.79	-0.17
5	Seemaigaththi	<i>Cassia alata</i>	6	0.05	-2.94	-0.15
6	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	9	0.08	-2.54	-0.20

7	Kattamanakku	<i>Jatropha curcas</i>	8	0.07	-2.66	-0.19
8	Chaturakalli	<i>Euphorbia antiquorum</i>	7	0.06	-2.79	-0.17
9	Idlipoo	<i>xoracoc cinea</i>	9	0.08	-2.54	-0.20
10	Thuthi	<i>Abutilon indicum</i>	8	0.07	-2.66	-0.19
11	Nithyakalyani	<i>Cathranthus roseus</i>	7	0.06	-2.79	-0.17
12	Uumaththai	<i>Datura metel</i>	6	0.05	-2.94	-0.15
13	Kundumani	<i>Abrus precatorius</i>	8	0.07	-2.66	-0.19
14	Erukku	<i>Calotropis gigantea</i>	9	0.08	-2.54	-0.20
15	Neermulli	<i>Hydrophila auriculata</i>	7	0.06	-2.79	-0.17
H (Shannon Diversity Index) =2.70						
Herbs, Climber, Creeper &Grasses						
1	Nayuruvi	<i>Achyranthes aspera</i>	6	0.03	-3.48	-0.11
2	Veetukaayapoondur	<i>Tridax procumbens</i>	7	0.04	-3.32	-0.12
3	Mukkirattai	<i>Boerhaavia diffusa</i>	8	0.04	-3.19	-0.13
4	Kuppaimeni	<i>Acalypha indica</i>	9	0.05	-3.07	-0.14
5	Karisilanganni	<i>Eclipta prostata</i>	7	0.04	-3.32	-0.12
6	Korai	<i>Cyperus rotundus</i>	8	0.04	-3.19	-0.13
7	Thumbai	<i>Leucas aspera</i>	6	0.03	-3.48	-0.11
8	Nai kadugu	<i>Celome viscosa</i>	8	0.04	-3.19	-0.13
9	Parttiniyam	<i>Parthenium hysterothorus</i>	7	0.04	-3.32	-0.12
10	Thulasi	<i>Ocimum tenuiflorum</i>	10	0.05	-2.97	-0.15
11	Arugampul	<i>Cynodon dactylon</i>	11	0.06	-2.87	-0.16
12	Thoiya keerai	<i>Digeria muricata</i>	7	0.04	-3.32	-0.12
13	Kovai	<i>Coccinia grandis</i>	8	0.04	-3.19	-0.13
14	Perandai	<i>Cissus quadrangularis</i>	9	0.05	-3.07	-0.14
15	Mudakkotan	<i>Cardiospermum helicacabum</i>	6	0.03	-3.48	-0.11
16	Karkakartum	<i>Clitoria ternatea</i>	7	0.04	-3.32	-0.12
17	Kovakkai	<i>Trichosanthes dioica</i>	9	0.05	-3.07	-0.14
18	Sangupoo	<i>Clitoriaternatia</i>	10	0.05	-2.97	-0.15
19	Siru puladi	<i>Desmodium triflorum</i>	6	0.03	-3.48	-0.11
20	Sithrapaalavi	<i>Euphorbia prostrata</i>	7	0.04	-3.32	-0.12
21	Thumattikai	<i>Cucumis callosus</i>	8	0.04	-3.19	-0.13
22	mookuthi poondur	<i>Wedelia trilobata</i>	9	0.05	-3.07	-0.14
23	Kattu kanchippul	<i>Apluda mutica</i>	8	0.04	-3.19	-0.13
24	Musthakasu	<i>Kyllinga brevifolia</i>	7	0.04	-3.32	-0.12
25	Nagathali	<i>Opuntia dillenii</i>	6	0.03	-3.48	-0.11
H (Shannon Diversity Index) =3.20						

Table 3.26 Species Richness (Index) in Buffer Zone

Details	H	H max	Evenness	Species Richness
Trees	3.52	3.56	0.99	6.70
Shrubs	2.70	2.71	1.00	2.96
Herbs	3.20	3.22	1.00	4.56

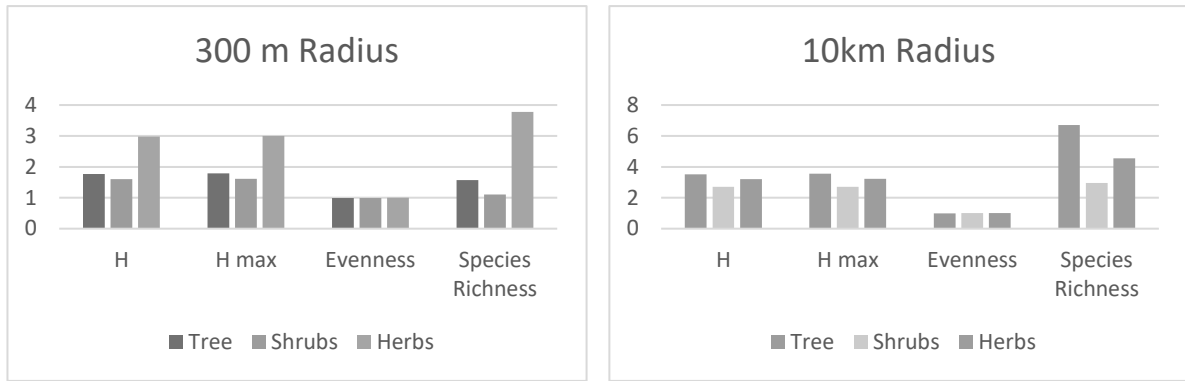


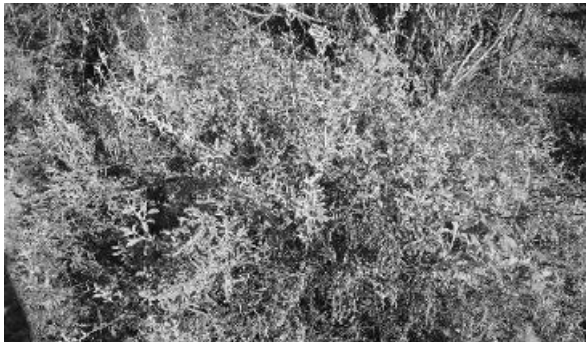
Figure 3.27 Floral Diversity Species Richness (Index) in Buffer Zone and 300 m Radius



Albizia amara



Aerva lanata



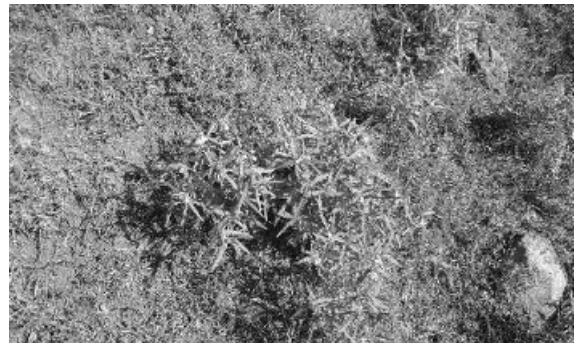
Aerva javanica



Escontria chiotilla



Datura metel



Leucas aspera



Calotropis gigantea



Mangifera indica



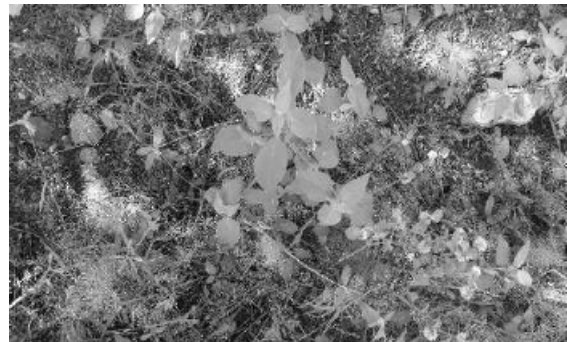
Iva annua



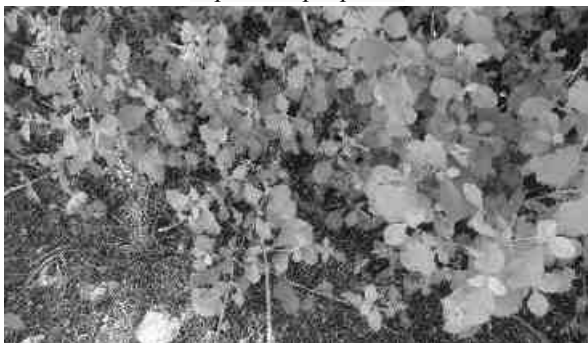
Cyanthillium cinereum



Tephrosia purpurea



Acalypha indica



Achyranthes aspera



Prosopis juliflora



Senna auriculata



Plantago coronopus



Cenchrus polystachios



Vachellia leucophloea



Azadirachta indica



Pedaliium murex



Opuntia ficus-indica



Wrightia tinctoria



Cynanchum viminalis



Cocos nucifera

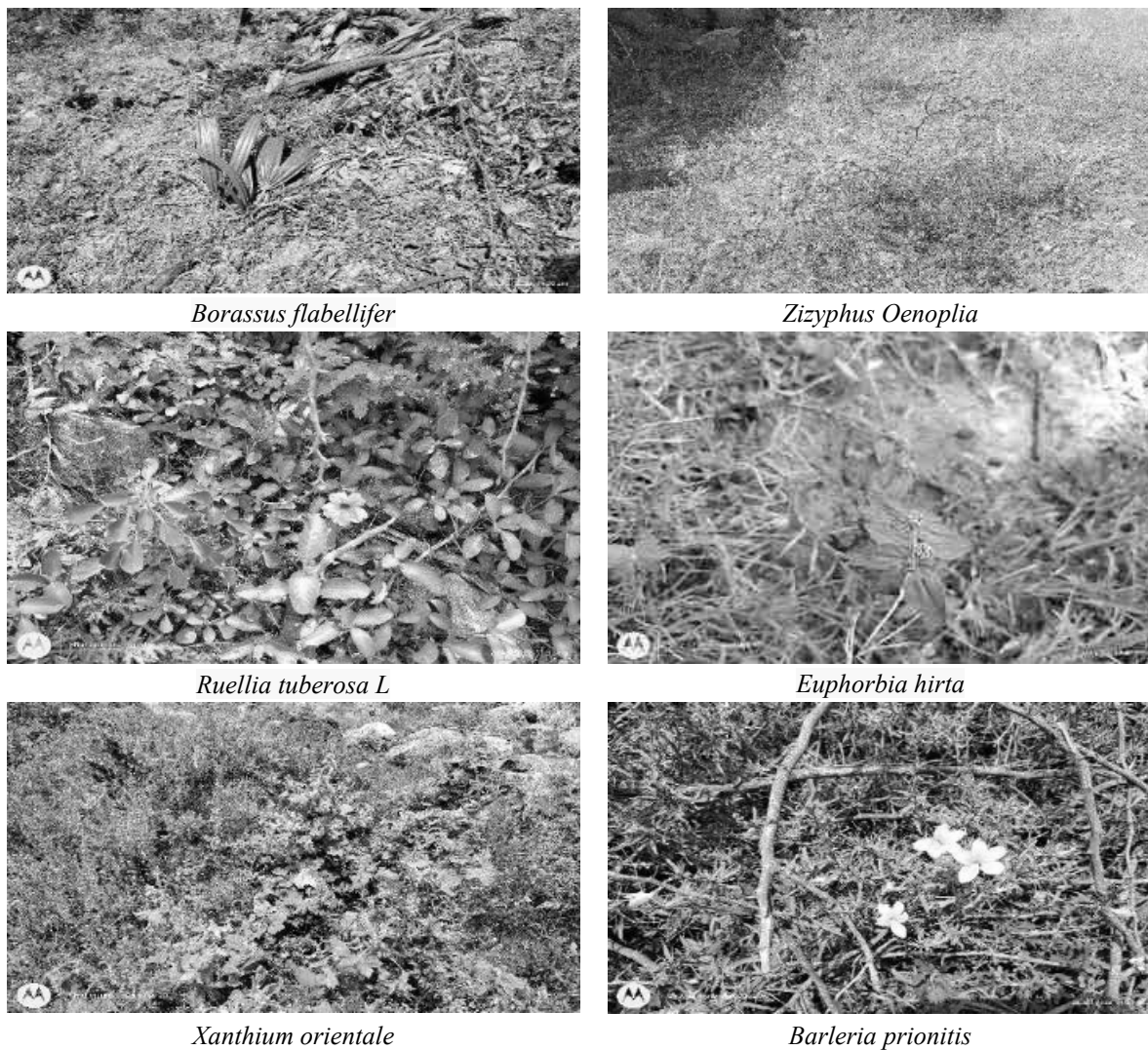


Figure 3.28 Flora in Core and Buffer Area

Aquatic Vegetation

The field survey for assessing the aquatic vegetation was also undertaken during the study period. The list of aquatic plants observed in the study area is given in Table 3.27.

Table 3.27 Aquatic Vegetation

S.No.	Scientific name	Common Name	IUCN Red List of Threatened Species
1	<i>Eichornia crassipes</i>	Water hyacinth	NA
2	<i>Aponogeton natans</i>	Floating lace plant	NA
3	<i>Carex cruciata</i>	Cross Grass	NA
4	<i>Cynodon dactylon</i>	Scutch grass	LC

*LC- Least Concern, NA-Not yet assessed

Forest Vegetation

The biosphere reserves or reserve forest or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), and migratory routes of fauna. There are no 10km radius. The area under study (Mine lease area and the 10 km buffer zone) is not ecologically sensitive.

Endangered and endemic species as per the IUCN Red List

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

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 core area.

Table 3.28 Methodology applied during survey of fauna

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

Fauna in Core Zone

The 25 varieties of species observed in the core zone. Among them numbers of Insects 8 (32%), Reptiles 3 (12%), Mammals 5 (20%) and Avian 9 (36%). A total of 25 species belonging to 22 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 eight species are under schedule IV according to Indian wild life Act 1972. A total eight species of birds were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table. 3.29.

Table 3.29 Fauna in Core Zone

S. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
INSECTS					
1	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
2	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
3	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
4	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
5	Stick insect	Lonchodidae	<i>carausius morosus</i>	NL	LC
6	Mottled emigrant	Peridae	<i>Catopsilia pyranthe</i>	NL	LC
7	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
8	<i>Acraea violae</i>	Nymphalidae	<i>Acraea violae</i>	NL	LC
REPTILES					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
3	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
MAMMALS					
1	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
2	Cow	Bovidae	<i>Bos taurus</i>	NL	NL
3	Common dog	Canidae	<i>Canis lupus familiaris</i>	NL	NL
4	Common cat	Felidae	<i>Felis silvestris catus</i>	NL	NL
5	Squirrel	Sciuridae	<i>Funambulus palmarum</i>	NL	NL
AVES					
1	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
2	Koel	Cucalidae	<i>Eudynamys</i>	Schedule IV	LC
3	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
4	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
5	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
6	Koel	Cucalidae	<i>Eudynamys scolopaceus</i>	Schedule IV	LC
7	Crow Pheasant	Cucalidae	<i>Centropus sinensis</i>	Schedule IV	LC
8	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC
9	Grey drongo	Dicruridae	<i>Dicrurus leucophaeus</i>	Schedule IV	LC

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

Fauna in Buffer Zone

A total of 47 species belonging to 34 families were recorded in the buffer zone. Based on habitat classification the majority of species were Birds 18 (40%), followed by Insects 15 (31%), Reptiles 7 (15%), 4 Mammals (8%) and amphibians 3 (6%). There are 4 schedule II species and 24 schedule IV species according to Indian wild life Act 1972. There are no critically endangered, vulnerable and endemic species observed. List of fauna in the buffer zone is provided in Table 3.30.

Table 3.30 Fauna in Buffer Zone

S. No.	Common Name/English Name	Family Name	Scientific Name	Schedule List Wildlife Protection Act 1972	IUCN Red List Data
INSECTS					
1	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
2	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
3	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
4	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
5	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
6	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
7	Lime butterfly	Papilionidae	<i>Papilio demoleus</i>	Schedule IV	LC
8	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
9	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
10	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
11	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
12	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
13	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
14	Lesser grass blue	Lycaenidae	<i>Zizina otis indica</i>	Schedule IV	LC
15	Jewel beetle	Buprestidae	<i>Eurythyrea austriaca</i>	Schedule IV	NA
REPTILES					
16	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
17	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
18	Indian chameleon	Chamaeleonidae	<i>Chamaeleo zeylanicus</i>	Sch II (Part I)	LC

19	Olive keelback water snake	Natricidae	<i>Atrretium schistosum</i>	Sch II (Part II)	LC
20	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
21	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
22	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
MAMMALS					
23	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
24	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule IV	LC
25	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
26	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
AVES					
27	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC
28	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
29	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
30	Red-breasted parakeet	Psittaculidae	<i>Psittacula alexandri</i>	NL	LC
31	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
32	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
33	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
34	Koel	Cucalidae	<i>Eudynamis</i>	Schedule IV	LC
35	Common Quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
36	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotuscafer</i>	Schedule IV	LC
37	Brahminy starling	Sturnidae	<i>Sturnia pagodarum</i>	Schedule IV	LC
38	Indian golden oriole	Oriolidae	<i>Oriolus kundoo</i>	Schedule IV	LC
39	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameria</i>	NL	LC
40	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
41	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	NL	LC
42	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
43	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC

44	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
AMPHIBIANS					
45	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
46	Green Pond Frog	Ranidae	<i>Rana hexadactyla</i>	Schedule IV	LC
47	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus (Rana tigerina)</i>	Schedule IV	LC

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

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. 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

3.6.0 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.

3.6.1 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.

3.6.2 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

3.6.3 Socio-Economic Status of Study area

The study area covers 10 villages including Karvazhi, Ichipalayam, Monjanur (West), Murungiyampalayam, Mangalapatti, Vadivullamangalam, Vallipuram, Kollankoil (TP), Muthur (TP) and Sivagiri (TP). As Anjur 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 10 villages in Tables 3.32 - 3.34.

Table 3.31 Kuppam Village Population Facts

Anjur Village	
Number of Households	935
Population	3144
Male Population	1553
Female Population	1591
Children Population	230
Sex-ratio	1024
Literacy	1933
Male Literacy	1141
Female Literacy	792
Scheduled Tribes (ST) %	0
Scheduled Caste (SC) %	771
Total Workers	2067
Main Worker	835
Marginal Worker	7

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
Karvazhi	427	1319	676	643	823	508	315	496	168	328
Ichipalayam	1682	5615	2770	2845	3733	2114	1619	1882	656	1226
Monjanur (West)	451	1348	662	686	815	482	333	533	180	353
Mangalapatti	1058	3512	1734	1778	2177	1225	952	1335	509	826
Murungiyampalayam	267	826	412	414	545	308	237	281	104	177
Vadivullamangalam	218	663	325	338	397	232	165	266	93	173
Vallipuram	358	1141	563	578	744	421	323	397	142	255
Kollankoil (TP)	2833	9196	4617	4579	6098	3428	2670	3098	1189	1909
Muthur (TP)	3948	13212	6588	6624	8621	3789	4832	4591	2835	1756
Sivagiri (TP)	6796	23040	11641	11399	14535	8206	6329	8630	3413	5217

Table 3.33 Details on Educational Facilities, Water, and Drainage & Health Facilities

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 (kutchha) Roads	Commercial Bank	Agricultural Credit Societies	Self - Help Group (SHG)	Nutritional Centres-Anganwadi Centre	Community Centre with/without TV	Power Supply For Domestic Use
Karvazhi	0	2	1	1	2	2	1	1	1	1	1	1	1	1	1
Mangalapatti	0	2	0	1	2	1	1	1	1	2	1	1	1	1	1
Ichipalayam	0	2	1	1	2	2	1	1	1	1	2	1	1	1	1
Monjanur (West)	0	2	0	2	2	1	1	1	1	2	1	1	1	2	1
Murungiyampalayam	0	2	0	1	1	2	1	2	1	2	2	1	1	2	1
Vadivullamangalam	0	2	0	1	2	2	1	2	1	2	2	1	1	2	1
Vallipuram	0	2	0	1	2	1	1	2	2	2	2	1	1	1	1

Table 3.34 Workers' Profile of Study Area

Village	Total Worker Population Person	Total Worker Population Male	Total Worker Population Female	Main Working Population Person	Main Working Population Male	Main Working Population Female	Main Cultivator Population Person	Main Agricultural Labourers Population Person	Main Other Workers Population Person	Non-Working Population Person
Karvazhi	974	504	470	711	370	341	363	220	114	345
Mangalapatti	3334	1862	1472	3257	1841	1416	958	1788	477	2281
Ichipalayam	955	512	443	949	511	438	390	405	142	393
Monjanur (West)	2296	1237	1059	1605	921	684	470	721	376	1216
Murungiyampalayam	598	305	293	598	305	293	289	188	47	228
Vadivullamangalam	423	246	177	377	235	142	167	145	60	240
Vallipuram	758	396	362	744	390	354	338	357	43	383
Kollankoil (TP)	5430	3121	2309	1137	687	450	1137	1823	1899	3766
Muthur (TP)	1521	923	598	1303	806	206	489	346	450	1652
Sivagiri (TP)	11498	6793	4705	9219	5729	3490	273	4510	4085	11542

3.6.4 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. So that special attention can be given to these groups with special provisions while making action plans.

3.6.5 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 and Kangayam to Kodumudi (SH-189) and Erode to Vellakovil (SH-381A) as shown in Table 3.35 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	0.48 Km-W	Village Road
TS2	Kangayam to Kodumudi (SH-189)	1.68 Km-NE	Kangayam to Kodumudi (SH-189)
TS2	Erode to Vellakovil (SH-381A)	4.70 Km-W	Erode to Vellakovil (SH-381A)

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	41	123	48	48	85	43	214
TS2	95	285	52	52	94	47	384
TS2	105	315	65	65	120	60	440

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	97	291

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	214	291	505	1200
Kangayam to Kodumudi (SH-189)	384	291	675	1200
Erode to Vellakovil (SH-381A)	440	291	731	1200

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

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

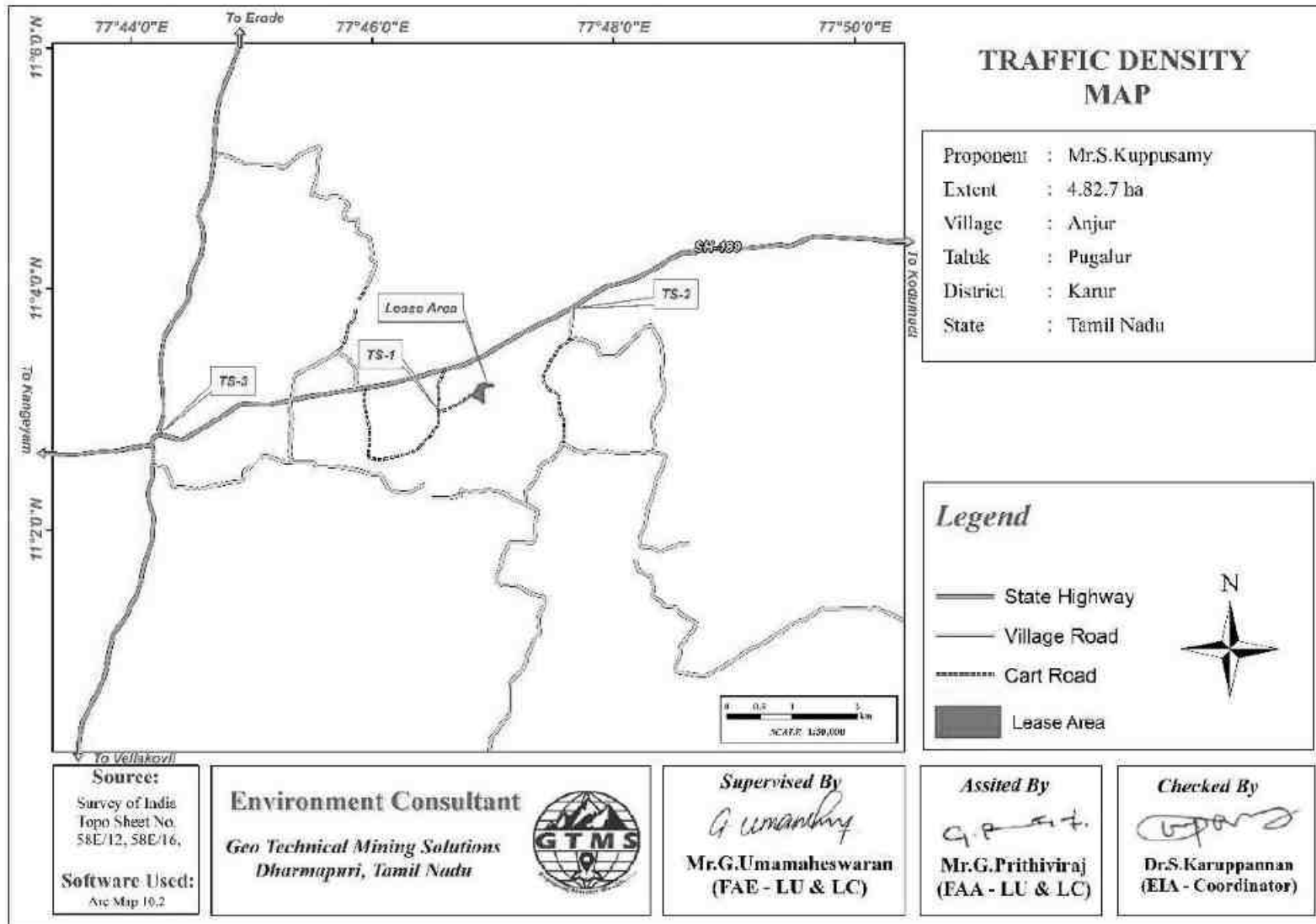


Figure 3.29 Traffic Density Map

3.8 SITE SPECIFIC FEATURES

There are no Wildlife Sanctuaries, Reserve Forest 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	Arachalur R.F	15.18km NW
		Chennimalai R.F	22.92km NW
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Noyyal Canal	0.40 km NE
		Noyyal River	0.63 km NW
		Noyyal Dam	2.97 km SE
		Cauvery River	11.85 km NE
4	Tiger Reserve/Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Densely Polluted Areas	Muthur	4.60 km W
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	TNPL	22.62 km E
10	Defence Installation	None	Nil within 10 km radius

Source: Survey of India Toposheet





Figure 3.30 Field Study Photographs

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.

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail:

- ❖ Land environment
- ❖ Soil environment
- ❖ Water Environment
- ❖ Air Environment
- ❖ Noise Environment
- ❖ Socio economic environment
- ❖ Biological Environment

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected are identified, quantified and assessed.

4.1 LAND ENVIRONMENT

4.1.1 Anticipated Impact

- ❖ Permanent or temporary change on land use and land cover.
- ❖ Change in topography of the mine lease area will change at the end of the life of the mine.
- ❖ Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- ❖ Degradation of the aesthetic environment of the core zone due to quarrying
- ❖ Soil erosion and sediment deposition in the nearby 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 from Proposed Project

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

4.2 SOIL ENVIRONMENT

No top soil will be removed in this project. However, some of the common mitigation measures is discussed in the following sections.

4.2.1 Anticipated Impact on Soil Environment

Following impacts are anticipated due to mining operations:

- Removal of protective vegetation cover
- Exposure of subsurface materials which are unsuitable for vegetation establishment

4.2.2 Common Mitigation Measures from proposed project

- ❖ Run-off diversion – Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- ❖ Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- ❖ Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- ❖ Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.3 WATER ENVIRONMENT

The total water requirement for this project will be 8.0 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The domestic effluent to be generated from the project will be collected in septic tank with soak pits arrangements. There are no waste dumps in this quarry. Based on the available information and the geophysical investigations the study concluded that the project area is considered to have poor groundwater potential. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected.

4.3.1 Anticipated Impact

The major sources of water pollution normally associated due to mining and allied operations are:

- ❖ Generation of waste water from vehicle washing.
- ❖ Washouts from surface exposure or working areas
- ❖ Domestic sewage
- ❖ Disturbance to drainage course in the project area
- ❖ Mine Pit water discharge
- ❖ Increase in sediment load during monsoon in downstream of lease area

- ❖ This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of oil & grease, suspended solids.
- ❖ The sewage from soak pit may percolate to the ground water table and contaminate it.
- ❖ Surface drainage may be affected due to Mining.
- ❖ As the proposed project acquires 8.0 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not deplete aquifer beneath the lease area.

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, excavation, loading and transportation.

4.4.1 Anticipated Impact from proposed project

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

4.4.2 Emission Estimation

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

Table 4.1 Empirical Formula for Emission Rate from Overall Mine

	Pollutant	Source Type	Empirical Equation	Parameters
Overall Mine	SPM	Area	$E = [u0.4a0.2\{9.7 + 0.01p + b/(4 + 0.3b)\}]$	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm ³ /yr); a = Lease area(km ²); E = Emission rate(g/s).
Overall Mine	SO ₂	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 ³ /yr); a = Lease area(km ²); E = Emission rate(g/s).
Overall Mine	NO _x	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 ³ /yr); a = Lease area(km ²); E = Emission rate(g/s).

The emission rate thus calculated using the empirical formula is used as one of the inputs in the AERMOD modelling. 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 PM₁₀ keeping in mind that proper control measures are followed. It is important to note that PM₁₀ emission rate is derived from the SPM estimation in the background that PM₁₀ constitutes 52% of SPM emission. The PM_{2.5}, PM₁₀, SO₂ and NO_x emission results have been given in Table 4.2.

Table 4.2 Estimated Emission Rate

Activity	Pollutant	Calculated Value (g/s)	Lease Area in m ²	Calculated Value (g/s/m ²)
Overall Mine	PM _{2.5}	0.0282721794	48270	5.85709E-07
Overall Mine	PM ₁₀	0.0454435883	48270	9.41446E-07
Overall Mine	SO ₂	0.0228392611	48270	4.73156E-07
Overall Mine	NO _x	0.0318176695	48270	6.5916E-07

4.4.2.1 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, 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 10km 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_{2.5}, PM₁₀, SO₂ and NO_x close to the proposed project site due to low to moderate wind speeds.

4.4.2.2 Modelling of Incremental Concentration

The air borne particulate matter such as PM₁₀ and PM_{2.5} generated by quarrying operation, transportation, and wind erosion of the exposed areas and emissions of sulphur dioxide (SO₂) and oxides of nitrogen (NO_x) due to excavation and loading equipment's 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 within 500 m around the project area is predicted by open pit source modelling using AERMOD Software and the incremental values of the air pollutants were added to the base line data monitored at the proposed site to predict total GLC of the pollutants, as shown in Tables 4.3-4.6.

4.4.2.3 Model Results

The post project resultant concentrations of PM₁₀, PM_{2.5}, SO₂ & NO_x (GLC) is given in Tables 4.3-4.6.

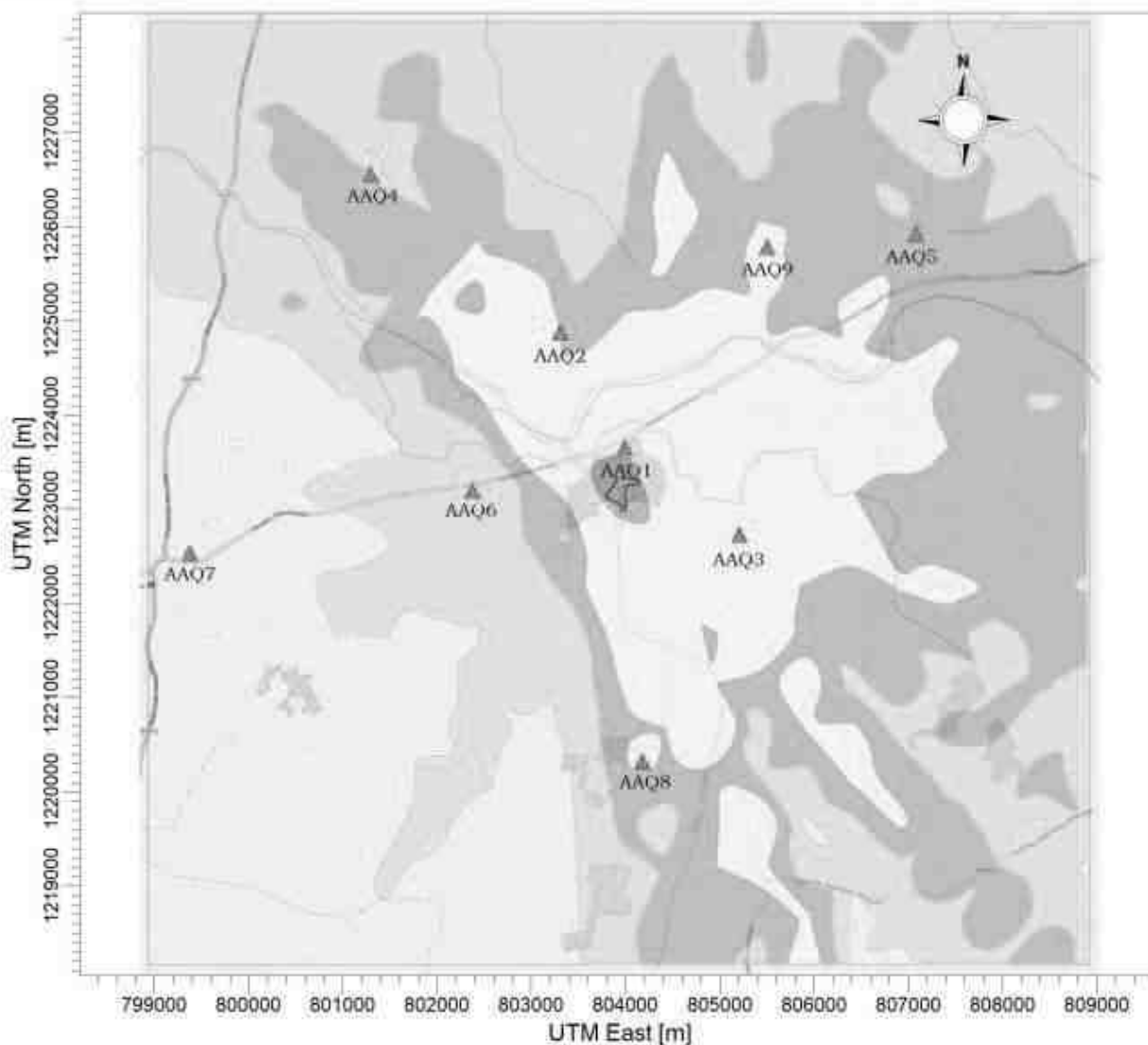
Table 4.3 Incremental & Resultant GLC of PM_{2.5}

Station ID	Distance to core area (km)	Direction	PM 2.5 concentrations(µg/m ³)			Comparison against air quality standard (60 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	0.31	N	25.0	8.72	33.72	Below standard	34.88	Not significant
AAQ2	1.68	NNW	21.6	5	26.6		23.15	
AAQ3	1.20	SE	18.8	5	23.8		26.60	
AAQ4	4.15	NNW	16.9	0.5	17.4		2.96	
AAQ5	3.93	NE	19.3	0.5	19.8		2.59	
AAQ6	1.42	W	21.0	0.5	21.5		2.38	
AAQ7	4.46	W	23.0	0	23		0.00	
AAQ8	2.69	S	17.9	5	22.9		27.93	
AAQ9	2.82	NNE	18.5	5	23.5		27.03	

Table 4.4 Incremental & Resultant GLC of PM₁₀

Station ID	Distance to core area (km)	Direction	PM ₁₀ concentrations(µg/m ³)			Comparison against air quality standard (100 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	0.31	N	45.2	12.8	58	Below standard	28.32	Not significant
AAQ2	1.68	NNW	37.5	5	42.5		13.33	
AAQ3	1.20	SE	33.1	5	38.1		15.11	
AAQ4	4.15	NNW	33.4	1	34.4		2.99	
AAQ5	3.93	NE	37.4	1	38.4		2.67	
AAQ6	1.42	W	42.2	0.5	42.7		1.18	
AAQ7	4.46	W	45.1	0	45.1		0.00	
AAQ8	2.69	S	38.3	0.5	38.8		1.31	
AAQ9	2.82	NNE	39.6	5	44.6		12.63	

PROJECT TITLE:
KUPPUSAMY ROUGHSTONE AND GRAVEL QUARRY PROJECT_PM2.5



Max: 8.72 [ug/m³] at (803926.61, 1223174.94)

ug/m³



COMMENTS:	SOURCES:	COMPANY NAME:	
	RECEPTORS:	MODELER:	
	OUTPUT TYPE:	SCALE:	1:72,013
	MAX:	DATE:	PROJECT NO.:
	1		
	450		
	Concentration		
	8.72 ug/m³		

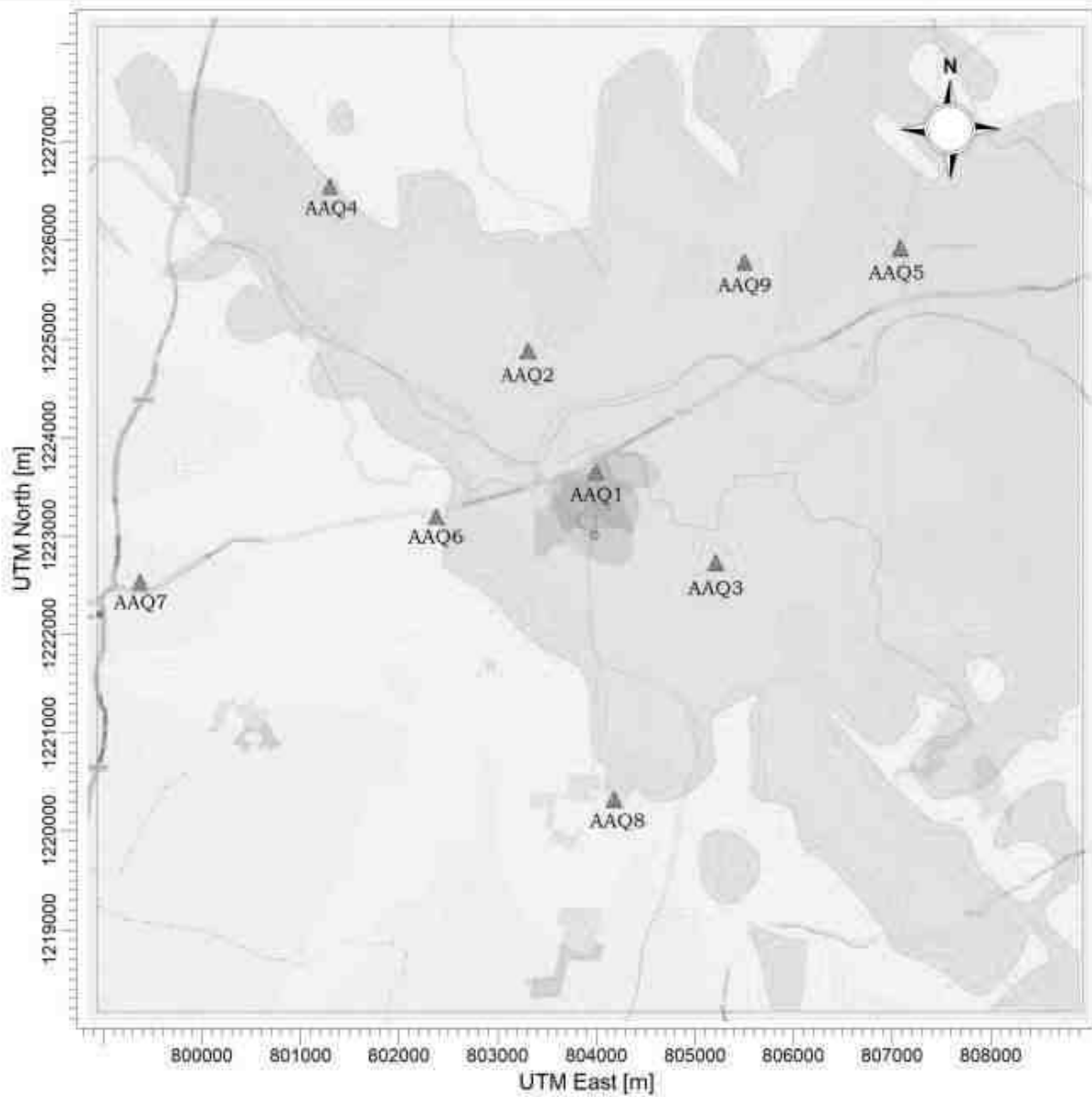
AERMOD View - Lakes Environmental Software



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Figure 4.1 Predicted Incremental Concentration of PM_{2.5}

PROJECT TITLE:

KUPPUSAMY ROUGHSTONE AND GRAVEL QUARRY PROJECT_PM10



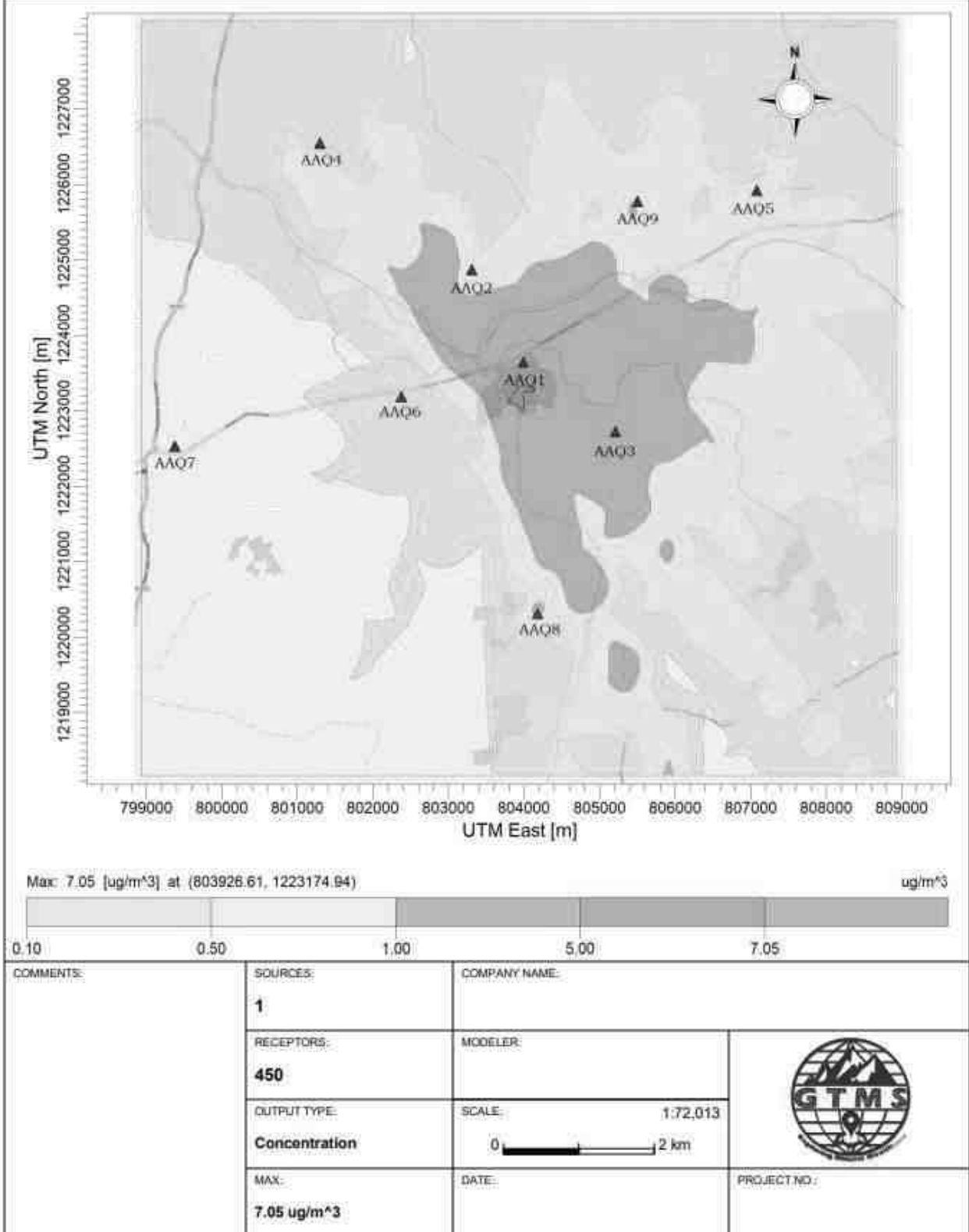
COMMENTS:	SOURCES: 1	COMPANY NAME:	
	RECEPTORS: 450	MODELER:	
	OUTPUT TYPE: Concentration	SCALE: 1:65,013 0  2 km	
	MAX: 12.8 ug/m^3	DATE:	PROJECT NO.:

AERMOD View - Lakes Environmental Software

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Figure 4.2 Predicted Incremental Concentration of PM10

PROJECT TITLE:
KUPPUSAMY ROUGHSTONE AND GRAVEL QUARRY PROJECT_SO2

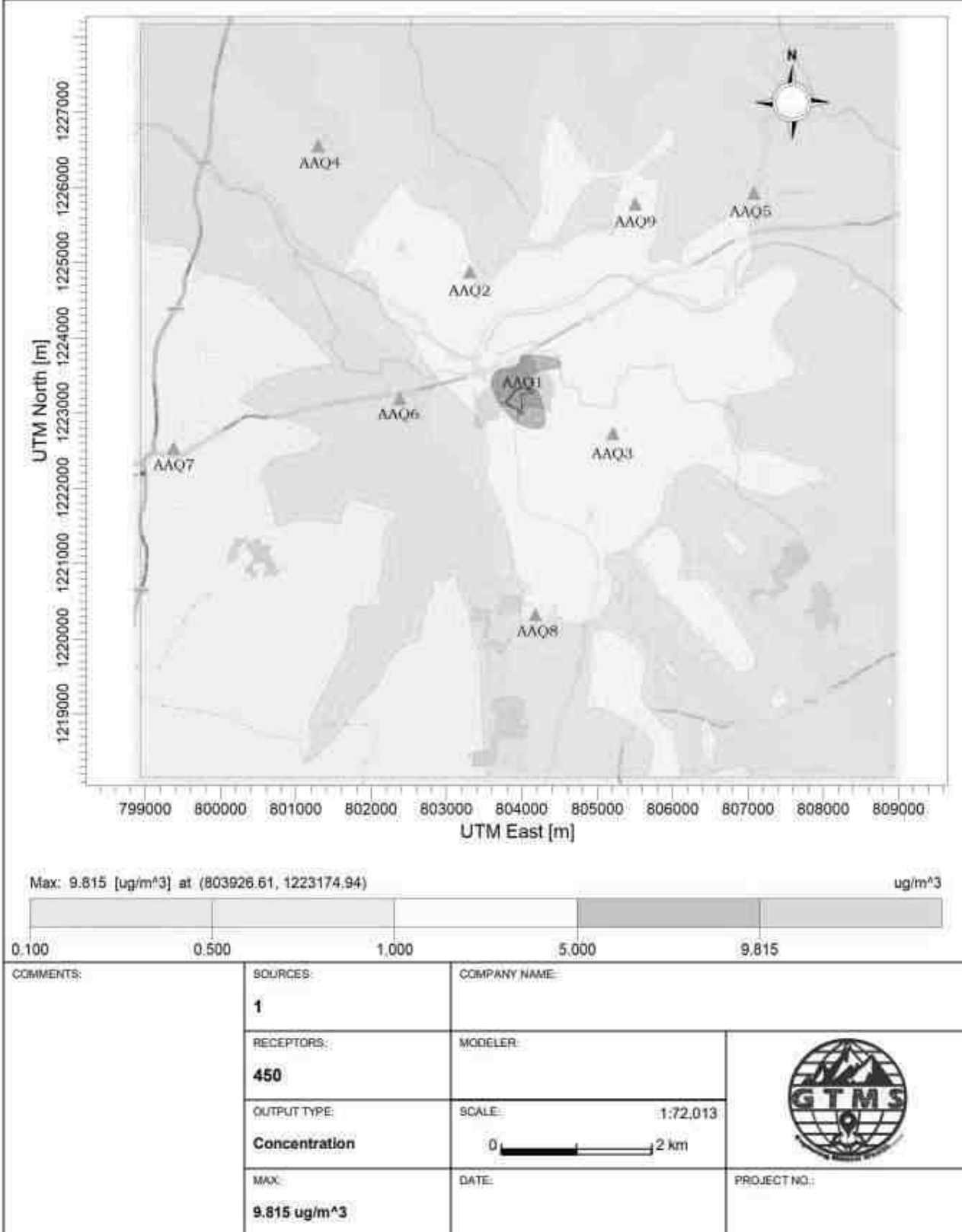


AERMOD View - Lakes Environmental Software

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Figure 4.3 Predicted Incremental Concentration of SO₂

PROJECT TITLE:
KUPPUSAMY ROUGHSTONE AND GRAVEL QUARRY PROJECT_NOx



AERMOD View - Lakes Environmental Software

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Figure 4.4 Predicted Incremental Concentration of NOx

Table 4.5 Incremental & Resultant GLC of SO₂

Station ID	Distance to core	Direction	SO ₂ concentrations(µg/m ³)			Comparison against air quality standard (80 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	0.31	N	8.6	7.05	15.65	Below standard	81.98	Not significant
AAQ2	1.68	NNW	8.4	1	9.4		11.90	
AAQ3	1.20	SE	8.2	5	13.2		60.98	
AAQ4	4.15	NNW	6.6	0.5	7.1		7.58	
AAQ5	3.93	NE	6.5	1	7.5		15.38	
AAQ6	1.42	W	6.6	0.5	7.1		7.58	
AAQ7	4.46	W	9.2	0	9.2		0.00	
AAQ8	2.69	S	5.9	5	10.9		84.75	
AAQ9	2.82	NNE	6.4	0.5	6.9		7.81	

Table 4.6 Incremental & Resultant GLC of NO_x

Station ID	Distance to core	Direction	NO _x concentrations(µg/m ³)			Comparison against air quality standard (80 µg/m ³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	0.31	N	25.9	9.81	35.71	Below standard	37.88	Not significant
AAQ2	1.68	NNW	17.8	5	22.8		28.09	
AAQ3	1.20	SE	15.4	5	20.4		32.47	
AAQ4	4.15	NNW	13.9	1	14.9		7.19	
AAQ5	3.93	NE	21.2	1	22.2		4.72	
AAQ6	1.42	W	23.2	0.5	23.7		2.16	
AAQ7	4.46	W	24.7	0	24.7		0.00	
AAQ8	2.69	S	19.1	5	24.1		26.18	
AAQ9	2.82	NNE	23.5	5	28.5		21.28	

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.

4.4.3 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.

Advantages of Wet Drilling

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

Blasting

- ❖ Suitable time of blasting will be chosen according to the local conditions and water will be sprinkled on blasting face.
- ❖ Blasting will be avoided when temperature inversion is likely to occur and strong wind blows towards residential areas.
- ❖ Controlled blasting will be carried out using suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone.
- ❖ Blasting will be restricted to a particular time of the day i.e., at the time of lunch hours.
- ❖ Before loading of material water will be sprayed on blasted material.
- ❖ Dust mask will be provided to the workers and their use will be strictly monitored.

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-metaled 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 main mine haul roads 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

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.

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

Where,

L_{p1} & L_{p2} are sound levels at points located at distances r_1 and r_2 from the source

$A_{e1,2}$ is the excess attenuation due to environmental conditions.

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

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

4.5.1 Anticipated Impact

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
Total			95.8

*50 feet from source = 15.24 meters

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

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 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)
Sampathkumar Lease	280	42.8	48.22	49.31
Core	100	43.4	57.16	57.34
Nagappalayam	380	41.2	45.56	46.92
Vellaiyankattu pudur	520	44.2	42.84	46.58

Ramanathapuram	1650	37.9	32.81	39.07
Pillalalayam	1200	39.2	35.58	40.77
Poolavalasu	4140	39.8	24.82	39.94
Nallasellipalayam	3930	39.2	25.27	39.37
Thottiyapalayam	1430	42.2	34.05	42.82
Muthur	4380	45.6	24.33	45.63
Oodayam	2670	36.9	28.63	37.50
Nadupalayam	2820	37.5	28.15	37.98
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 57.16 dB (A) in core zone and ranges between 24.33 and 48.22dB (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
- ❖ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- ❖ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- ❖ The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system
- ❖ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise

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

4.5.3 Ground Vibrations

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	53	380	0.893	19	0.31	144

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	53	100	7.558	19	1.54	158
		200	2.493		0.67	151
		300	1.303		0.41	146
		400	0.822		0.29	143
		500	0.575		0.22	141

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, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- ❖ A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public

- ❖ Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- ❖ The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- ❖ The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects
- ❖ Appropriate blasting techniques shall be adopted in such a way that the predicted peak particle velocity shall not exceed 0.251mm/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 Impact on Ecology and Biodiversity

- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.
- Carbon released from quarrying machineries and tippers during quarrying would be 6493 kg per day, 1753064 kg per year and 8765322 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	447	120631	603153
Fuel consumption of compressor	53.2	14364	71820
Fuel consumption of tipper	1923	519134	2595670
Total fuel consumption in liters	2423	654129	3270643
Co ₂ emission in kg	6493	1753064	8765322

4.6.2 Mitigation Measures on Flora

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

Carbon Sequestration

- ❖ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 75597 kg of carbon

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

- ❖ As per the greenbelt development plan as recommended by SEAC (Table 4.13), about 2183 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 214 kg of the total carbon, as provided in Table 4.12.

Table 4.12 CO₂ Sequestration

CO ₂ sequestration in kg	214	57866	289330
Remaining CO ₂ not sequestered in kg	6279	1695198	8475992
Trees required for environmental compensation	70633		
Area required for environmental compensation in hectares	141		

Greenbelt Development

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone. Greenbelt development plan and budget required for green belt development plan are given in Tables 4.14-4.15. For 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	Neem, Vembu	Tree	Well distinct thick at both the layer Well distinct in Palisade & Spongy parenchyma. Spongy parenchyma is
2	<i>Tectona grandis</i>	Lamiaceae	Teak	Tree	
3	<i>Polyalthia longifolia</i>	Annonaceae	Nettilingam	Tree	
4	<i>Albizia lebbbeck</i>	Fabaceae	Vagai	Tree	
5	<i>Delonix regia</i>	Fabaceae	Cemmayir-konrai	Tree	
6	<i>Bauhinia racemose</i>	Fabaceae	Aathi	Tree	

7	<i>Cassia fistula</i>	Fabaceae	Sarakondrai	Tree	present at lower epidermis Many vascular bundles arranged almost parallel series
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 ²)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	965	772	8689
	Number of plants outside the mine lease area		
	1448	1158	13033
Total	2414	1931	21722

Table 4.15 Budget for Greenbelt Development Plan

Activity	Plantation in the construction phase(3Months)	Cost	Capital Cost (Rs.)	Recurring Cost-per annum
Plantation inside the mine lease area (in safety margins)	965	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))"	193080	28962
Plantation outside the area	1448	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	434430	43443
Total			6,27,510	72,405

Source: EMP budget

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must

be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

4.6.3. Anticipated Impact on Fauna

- ❖ There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- ❖ No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- ❖ Fencing around all the proposed mine lease areas will be constructed to restrict the entry of stray animals
- ❖ Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.6.4 Measures for Protection and Conservation of Wildlife Species

- ❖ All the preventive measures will be taken for growth & development of fauna.
- ❖ Creating and development awareness for nature and wildlife in the adjoin villages.
- ❖ The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- ❖ Undertaking mitigation measures for conducive environment to the flora and fauna in consultation with Forest Department.
- ❖ Dust suppression system will be installed within mine and periphery of mine for proposed project
- ❖ Plantation around mine area will help in creating habitats for small faunal species and to
- ❖ create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

Aquatic Biodiversity

Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the rough stone and gravel quarry. There is no natural perennial surface water body within the mine lease area. Hence, aquatic biodiversity is not observed in the mine lease area.

Table 4.16 Ecological Impact Assessments

S. No	Attributes	Assessment
1	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting sites were identified in the lease area.
2	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species were sighted in core area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	<ul style="list-style-type: none"> • Arachalur, R.F 15.18km, NW • Chennimalai, R.F 22.92km, NW There are no national parks or eco-sensitive zones around 10 km radius.
4	Proposed project restricts access to waterholes for wildlife	No. The proposed project does not restrict access to water holes for wildlife.
5	Proposed mining project impact surface water quality that also provide water to wildlife	No scheduled or threatened wildlife animal were sighted in core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management system will be developed properly. So, there will be no siltation in nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities	Barbed wire fencing will be installed around the lease area. Therefore, wild animals will not fall into the quarry pit.
8	The project release effluents into a water body that also supplies water to a wildlife	No water bodies were found close to core zone so chances of water becoming polluted will be low.
9	Mining project effect the forest-based livelihood/ any specific forest product on which local livelihood depended	No. The proposed project does not involve any forestland. Therefore, it will not affect the livelihood of people depending the forest product.
10	Project likely to affect migration routes	No migration routes were found crossing the lease area.
11	Project likely to affect flora of an area, which have medicinal value	No flora with medicinal values were found in the study area.
12	Forestland is to be diverted, has carbon high sequestration	As the proposed project does not involve any forestland, there will be no need for diversion.
13	The project likely to affect wetlands, fish breeding grounds, marine ecology	Wetland was not present in and around mining lease area. No fish breeding grounds were present in core area.

Table 4.17 Anticipated Impact of Ecology and Biodiversity

S. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence - Probability Description / Justification	Significance	Mitigation Measures
Pre-Mining Phase					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	Site possesses common floral (not trees) species. Clearance of these species will not result in loss of flora	Less severe	No immediate action required. However, Greenbelt /plantation will be developed in project site and in periphery of the project boundary, which will improve flora and fauna diversity of the project area.
		Site specific loss of associated faunal diversity (Partial impact)	Site supports only common species, which use wide variety of habitats of the buffer zone reserve forest area. So, there is no threat of faunal diversity.		
		-Loss of Habitat (Direct impact)	Site does not form Unique / critical habitat structure for unique flora or fauna.		
Mining Phase					

2	Excavation of mineral using machine and labours, Transportation activities will generate noise.	Site-specific disturbance to normal faunal movements at the site due to noise. (Partial impact)	Site does not form unique / critical habitat structure for unique flora or fauna.	Less severe	Mining activity should not be operated after 5PM. Excavation of dump and transportation work should stop before 7PM.
3	Vehicular Movement for transportation of materials will result in generation of dust (SPM) due to haul roads and emission of SO ₂ , NO ₂ , CO etc.	Impact on surrounding agriculture and associated fauna due to deposition of dust and Emission of CO. (Indirect impact)	Impact is less as the agricultural land far from core area.	Less severe	All vehicles will be certified for appropriate Emission levels. More plantation has been suggested Upgrade the vehicles with alternative fuel such biodiesel, methanol and biofuel around the mining area.

4.7 SOCIO ECONOMIC ENVIRONMENT

4.7.1 Anticipated Impact from Proposed and Existing Projects

- ❖ 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 for Proposed Project

- ❖ 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;
- ❖ Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- ❖ Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up.

4.8.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following 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
- ❖ 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 gravel 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.

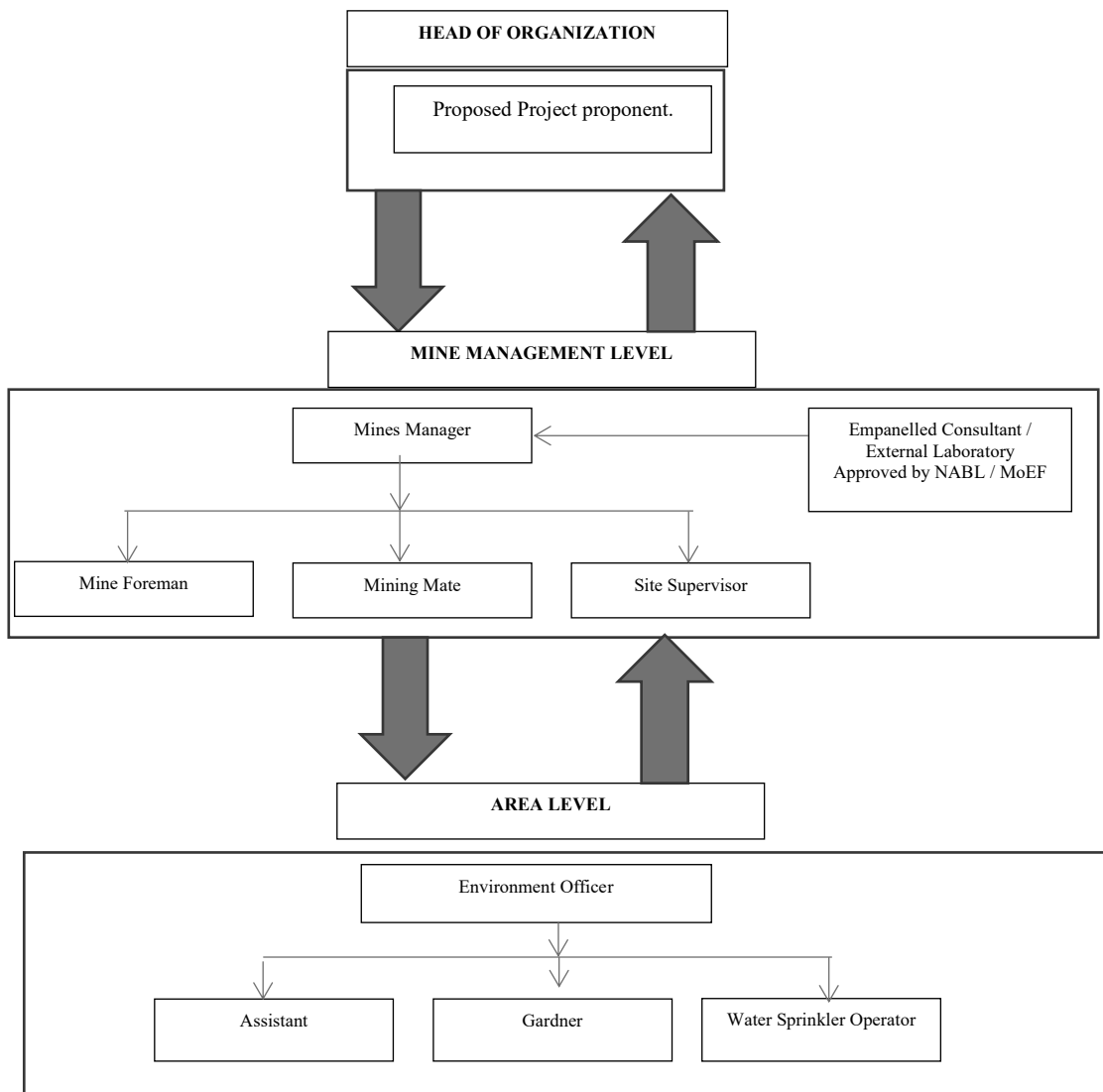


Figure 6.1 Proposed environmental monitoring chart

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

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

6.4 BUDGETARY PROVISION FOR ENVIRONMENT MONITORING PROGRAM

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

Table 6.3 Environment Monitoring Budget

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

Source: Field Data

6.5 REPORTING SCHEDULES OF MONITORED DATA

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

Periodical reports to be submitted to:

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

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

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

CHAPTER VII

ADDITIONAL STUDIES

7.0 GENERAL

Additional studies deal with:

- ❖ Risk Assessment
- ❖ Disaster Management Plan
- ❖ Cumulative Impact Study
- ❖ Plastic Waste Management
- ❖ Post-COVID Health Management Plan

7.1 PUBLIC CONSULTATION FOR PROPOSED PROJECT

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

7.2 RISK ASSESSMENT FOR PROPOSED PROJECT

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

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

Table 7.1 Risk Assessment & Control Measures for Proposed Project

S. No.	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries.	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ✓ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. ✓ Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited. ✓ Fire-fighting and first-aid provisions in the mine office complex and mining area. ✓ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ✓ Working of quarry, as per approved plans and regularly updating the mine plans. ✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut. ✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager. ✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.
2	Drilling	Improper and unsafe practices; Due to high pressure of compressed air, hoses may burst; Drill Rod may break;	<ul style="list-style-type: none"> ✓ Safe operating procedure established for drilling (SOP) will be strictly followed. ✓ Only trained operators will be deployed. ✓ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other.

			<ul style="list-style-type: none"> ✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ✓ Operator shall regularly use all the personal protective equipment.
3	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<ul style="list-style-type: none"> ✓ Before commencing work, drivers personally check the truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ✓ Concave mirrors should be kept at all corners ✓ All vehicles should be fitted with reverse horn with one spotter at every tipping point ✓ Loading according to the vehicle capacity ✓ Periodical maintenance of vehicles as per operator manual
4	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ✓ Escape Routes will be provided to prevent inundation of storm water ✓ Fire Extinguishers & Sand buckets
5	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> ✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN FOR PROPOSED PROJECT

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

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

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

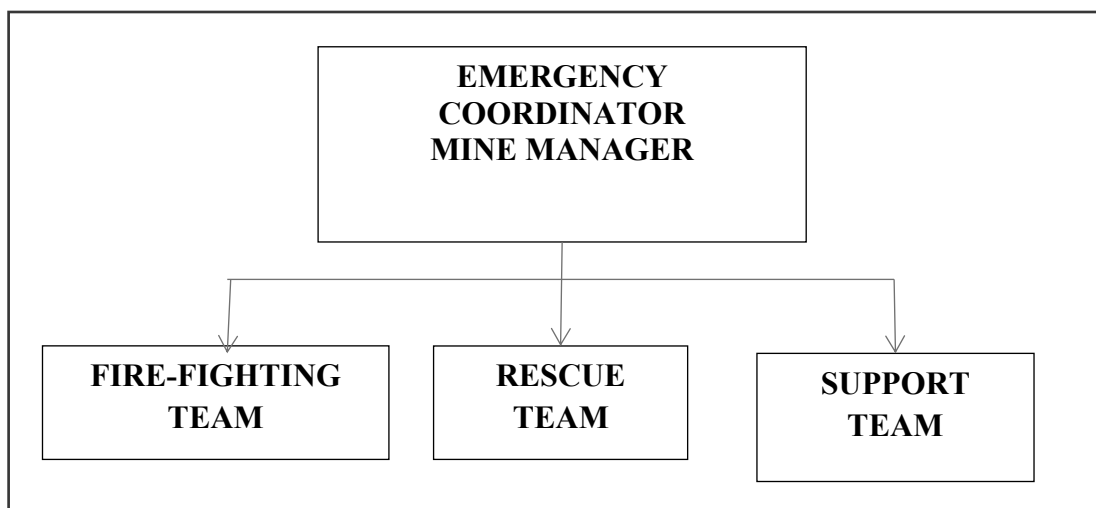


Figure 7.1 Disaster management team layout for proposed project

The emergency organization shall be headed by emergency coordinator who will be qualified competent mines manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mines manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

Table 7.2 Proposed Teams for Emergency Situation

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
RESCUE TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
SUPPORT TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers for respective proposed quarries. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

7.3.1 Roles and Responsibilities of Emergency Team

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carry out rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team.

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g., fire brigade, police, doctor and media men etc.,

7.3.2 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

7.3.3 Proposed Fire Extinguishers

The following type of fire extinguishers has been proposed at strategic locations within the mine, as shown in Table 7.3.

Table 7.3 Proposed Fire Extinguishers at Different Locations in P1

Location	Type of Fire Extinguishers
Electrical Equipment	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

7.3.4 Alarm System

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system. On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster. In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- ❖ Fire-fighting and first-aid provisions in the mines office complex and mining area are provided.
- ❖ Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- ❖ Training and refresher courses for all the employees working in hazardous premises.
- ❖ Working of mine, as per approved plans and regularly updating the mine plans.
- ❖ Cleaning of mine faces is regularly done.
- ❖ Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- ❖ Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- ❖ Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

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 7.4 and 7.5

Table 7.4 Salient Features of the Proposed Project P2

Name of the Quarry	Mr.P.Sampathkumar Rough Stone and Gravel Quarry			
Type of Land	Patta Land			
Extent	4.81.5 Ha			
S.F.No	759/2(P), 761/2(P),761/3(P), 762/2,762/3, 763/2, 763/3			
Toposheet No	58-E/16			
Location of Project Site (Centre Point)	11° 3'20.14"N 77°46'56.69"E			
Highest Elevation	186m AMSL			
Existing Pit Dimensions	Pit Level	Length (m)	Width (m)	Depth (m)
	1	63	53	5
	2	70	42	10
	3	150	50	14
	4	115	75	15
	5	160	80	15
	6	120	55	16
depth of Mining	45m BGL			
Geological Resources	Rough Stone in m ³		Gravel in m ³	
	1784581		3888	
Mineable Reserves	Rough Stone in m ³		Gravel in m ³	
	554542		2880	

Proposed reserves for five years	Rough Stone in m ³	Gravel in m ³ /1 year
	514164	2880
Method of Mining	Open-Cast Semi Mechanized mining	
Topography	Flat Topography	
Machinery proposed	Jack Hammer	3
	Compressor	1
	Tipper	7
	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	19 Nos	
Project Cost	Rs.74,96,500/-	
CER Cost @ 2% of Project Cost	Rs. 5,00,000/-	
Proposed Water Requirement	6.0 KLD	

Table 7.5 Salient Features of the Proposed Project P2

Name of the Quarry	Mr.V.Arunprashath Rough Stone and Gravel Quarry
Type of Land	Patta Land
Extent	1.24.0 ha
S.F.No	767/3
Toposheet No	58-E/16
Location of Project Site (Centre Point)	11° 03'05.42"N to 11° 03'10.93"N 77°46'56.76"E 77°46'59.20"E
Highest Elevation	186AMSL

Existing Pit Dimensions	Pit Level	Length (m)	Width (m)	Depth (m)
	I	71	61	30
Ultimate depth of Mining	30m BGL			
Geological Resources	Rough Stone in m ³		Gravel in m ³	
	1308418		18846	
Mineable Reserves	Rough Stone in m ³		Gravel in m ³	
	436139		21256	
Proposed reserves for five years	Rough Stone in m ³		Gravel in m ³ /1 year	
	436139		21256	
Method of Mining	Open-Cast Semi Mechanized mining			
Machinery proposed	Jack Hammer		3	
	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	12Nos			
Project Cost	Rs.56,93,500/-			
CER Cost @ 2% of Project Cost	Rs. 5,00,000/-			
Proposed Water Requirement	3.7KLD			

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

Proposed Production Details				
Quarry	5 Years in m³	Per Year in m³	Per Day in m³	Number of Lorry Load Per Day
P1	799894	159979	592	99
P2	554542	110908	411	68
P3	436139	87228	323	54
Grand Total	1790575	358115	1326	221

Table 7.7 Cumulative Production Load of Gravel

Quarry	Production for 1 Year (m³)	Yearly Production (m³)	Daily Production (m³)	Number of Lorry Loads Per Day
P1	31276	31276	116	19
P2	2880	2880	11	2
P3	21256	21256	79	13
Grand Total	55412	55412	206	34

The cumulative study shows that the overall production of rough stone from the quarry is 1326 m³ per day with a capacity of 221 trips of rough stone per day and that production of gravel from the proposed quarry is 206 m³ per day accounting for 34 trips/day.

7.4.1.1 Cumulative Impact of Air Pollutants

The results on the cumulative impact of the 3 proposed projects on air environment of the cluster have been provided in Table 7.8. The cumulative values resulting from the 3 projects for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.8 Cumulative Impact Results from the 3 proposed projects

Pollutants	Baseline Data (µg/m³)	Incremental Values (µg/m³)			Cumulative Value (µg/m³)
		P1	P2	P3	
PM _{2.5}	25.0	8.72	7.69	4.23	45.64
PM ₁₀	45.2	12.80	13.20	8.20	79.4
SO ₂	8.6	7.05	5.07	3.26	23.98
NO _x	25.9	9.81	7.67	4.85	48.23

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.7.9 Cumulative Impact of Noise from 3 Proposed Quarries on Nagappalayam Habitation

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	380	S	41.2	45.5	46.9	55
Habitation Near P2	840	S	41.2	38.7	43.1	
Habitation Near P3	450	S	41.2	44.1	45.8	
Cumulative Noise (dB (A))					50.3	

Source: Lab Monitoring Data

Table 7.10 Cumulative impact of Noise from 3 proposed quarries on Vellaiyankattu pudur Habitation

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	520	NW	44.2	42.8	46.5	55
Habitation Near P2	420	W	44.2	44.6	47.4	
Habitation Near P3	640	NW	44.2	41.0	45.9	
Cumulative Noise (dB(A))					51.4	

The cumulative analysis of noise due to 3 proposed projects shows that habitation of Nagappalayam and that of Vellaiyankattu pudur will receive about 50.3 dB (A) and 51.4 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 3 mines have been shown in Table 7.11-7.12.

Table 7.11 Cumulative Effect of Ground Vibrations Resulting from 3 Mines on Habitation of Nagappalayam

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	53	380	0.893
P2	39.5	840	0.202
P3	6	450	0.119
Total			1.214

Table 7.12 Cumulative Effect of Ground Vibrations resulting from 3 Mines on Habitation of Vellaiyankattu pudur

Location ID	Maximum Charge in (kgs)	Nearest Habitation in (m)	PPV in mm/s
P1	53	520	0.541
P2	39.5	420	0.601
P3	6	640	0.068
Total			1.21

Results from the above tables 7.11-7.12 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 proposed project were calculated and the results have been shown in Table 7.13 the project together will contribute Rs. 15,00,000/-towards CER fund.

Table 7.13 Socio Economic Benefits from 3 Mines

Location ID	Project Cost	CER Cost @ 2%
P1	Rs.1,13,87,000	Rs. 5,00,000
P2	Rs.74,96,500	Rs. 5,00,000
P3	Rs. 56,93,500/-	Rs. 5,00,000
Grand Total	Rs. 2,45,77,000/-	Rs. 15,00,000

Table 7.14 Employment Benefits from 3 Mines

Location ID	Employment
P1	29
P2	19
P3	12
Grand Total	60

A total of 60 people will get employment due to 3 proposed mines in cluster

7.4.4 Ecological Environment

Table 7.15 Greenbelt Development Benefits from Mine

Code	Number of Trees proposed	Area to be covered (m²)	No. of Trees expected to be grown @ 80% survival rate	Species recommended
P1	2414	21722	1931	<i>Azadirachta indica, Albizia lebbeck, Delonix regia, Tectona grandis, etc.,</i>
P2	2408	21668	1926	
P3	620	5580	496	
Total	5442	48970	4353	

Cumulative studies show that the proposed project will plant about 5442 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., 4353 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 7.16.

Table 7.16 Action Plan to Manage Plastic Waste

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

Source: Proposed by FAEs and EC

7.6 POST COVID HEALTH MANAGEMENT PLAN FOR PROPOSED PROJECT

COVID – 19 diseases caused by SARS-CoV-2 Coronavirus is relatively a new disease, with fresh information being known on a dynamic basis about the natural history of the disease, especially in terms of post-recovery events.

After acute COVID-19 illness, recovered patients may continue to report wide variety of signs and symptoms including fatigue, body ache, cough, sore throat, difficulty in breathing, etc. As of now there is limited evidence of post-COVID sequelae and further research is required and is being actively pursued. A holistic approach is required for follow up care and well-being of all post COVID recovering patients.

7.6.1 Post-COVID Follow up Protocol

- ❖ Continue COVID appropriate behaviour (use of mask, hand & respiratory hygiene, physical distancing).
- ❖ Drink adequate amount of warm water (if not contra-indicated).
- ❖ Make sure your workplaces are clean and hygienic
- ❖ Surfaces (e.g., desks and tables) and objects (e.g., telephones, helmet) need to be wiped with disinfectant regularly
- ❖ Put sanitizing hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled
- ❖ Display posters promoting hand-washing
- ❖ Make sure that staff, contractors and customers have access to places where they can wash their hands with soap and water
- ❖ Display posters promoting respiratory hygiene.
- ❖ Brief your employees, contractors and customers that if COVID-19 starts spreading in your community anyone with even a mild cough or low-grade fever (37.3°C or more) need to stay at home. They should also stay home (or work from home) if they have had to take simple medications, such as paracetamol/acetaminophen, ibuprofen or aspirin, which may mask symptoms of infection
- ❖ Keep communicating and promoting the message that people need to stay at home even if they have just mild symptoms of COVID-19.
- ❖ Consider whether a face-to-face meeting or event is needed. Could it be replaced by a teleconference or online event?
- ❖ Could the meeting or event be scaled down so that fewer people attend?
- ❖ Pre-order sufficient supplies and materials, including tissues and hand sanitizer for all employees. Have surgical masks available to offer anyone who develops respiratory symptoms.

- ❖ It is also suggested by the Ministry of AYUSH that the use of Chyawanprash in the morning (1 teaspoonful) with Luke warm water/milk is highly recommended (under the direction of Registered Ayurveda physician) as in the clinical practice Chyawanprash is believed to be effective in post-recovery period.
- ❖ If there is persistent dry cough / sore throat, do saline gargles and take steam inhalation. The addition of herbs/spices for gargling/steam inhalation. Cough medications, should be taken on advice of medical doctor or qualified practitioner of Ayush.
- ❖ Look for early warning signs like high grade fever, breathlessness, Sp O₂ < 95%, unexplained chest pain, new onset of confusion, focal weakness.
- ❖ Avoid smoking and consumption of alcohol.
- ❖ Communicate to your employees and contractors about the plan and make sure they are aware of what they need to do – or not do – under the plan. Emphasize key points such as the importance of staying away from work even if they have only mild symptoms or have had to take simple medications (e.g., paracetamol, ibuprofen) which may mask the symptoms.
- ❖ The plan should address how to keep your business running even if a significant number of employees, contractors and suppliers cannot come to your place of business - either due to local restrictions on travel or due to illness.

CHAPTER VIII

PROJECT BENEFITS

8.0 GENERAL

The proposed project at Anjur Village aims to produce **799894 m³** of rough stone and **31276 m³** of gravel 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 29 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 Anjur Village, Pugalur Taluk, Karur 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 Anjur 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
	Total	Rs.5,00,000

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

8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about Rs. 5,46,56,219 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.)	Budget for Gravel (Rs.)
CER	5,00,000	-----
Seigniorage @ Rs.59/m ³ of Rough stone/ Rs.33/m ³ of Gravel	4,40,98,075	10,32,108
District Mineral Foundation Tax @ 10% of Seigniorage	44,09,808	103,210
Green Tax @ 10% of Seigniorage	44,09,808	103,210
Total	5,34,17,691	12,38,528

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 Mr. S. Kuppusamy 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

No top soil will be removed and stored during the mining operation. Therefore, topsoil management plan is not provided here.

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 50 m. The water table in the area is at 65-70 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 10.2.

Table 10.2 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 10.3.

Table 10.3 Proposed Controls for Air Environment

Control	Responsibility
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 10.4.

Table 10.4 Proposed Controls for Noise Environment

Control	Responsibility
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 10.5.

Table 10.5 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 10.6.

Table 10.6 Proposed Greenbelt Development Plan

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered(m²)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	965	772	8689
	Number of plants outside the mine lease area		
	1448	1158	13033
Total	2414	1931	21722

Source: Proposed by FAEs & EIA Coordinator

About 2414 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 10.7) keep upgrading the database of medical history of the employees.

Table 10.7 Medical Examination Schedule

S. No.	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th 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:						
Age Group		PME as per Mines Rules 1955		Special Examination		
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 10.8.

Table 10.8 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"> ✓ Employee rights, ✓ Supervisor responsibilities ✓ Self-rescue ✓ Respiratory devices ✓ Transportation controls ✓ Communication systems ✓ Escape and emergency evacuation ✓ Ground control hazards ✓ Occupational health hazards ✓ Electrical hazards and First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope	Employees assigned to new work tasks	Before new Assignments	Variable	<ul style="list-style-type: none"> ✓ Task-specific health & safety procedures and SOP for various mining activity

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

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 10.9 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

Table 10.9 EMP Budget for Proposed Project

Attribute	Mitigation measures	Provision for Implementation	Capital Cost	Recurring Cost/annum
			(Rs.)	(Rs.)
Air Environment	Compaction, gradation and drainage on both sides	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare and yearly maintenance @ Rs. 10,000/- per hectare	48270	48270
	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	125000	12500
	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	96540
	Installing wheel wash system near exit gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be transportation vehicles, and HEMM. For this, proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0

	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done.	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implementations that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 tons of blasted material	0	2092790
Water Environment	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)	48270	24135
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency (capital cost,	25000	20000

		recurring cost for collection /disposal).		
		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
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed display board at the quarry entrance as permanent structure	10000	1000
Occupational Health	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)	116000	29000
and Safety	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	29000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	19308
	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)	965400	48270

	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	241350	48270
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 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
Development of Green Belt	Green belt development - 500 trees per hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits /trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	193080	28962
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	434430	43443

Mine Closure	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	164118
	G.O.(Ms)No.23, Dated: 28.09.2021	Section IVA of TNMMCR 1959 (@10% of Seigniorage Fee) (Seigniorage Fee for Roughstone = Rs.59 and for Gravel= Rs.33)	4513018	0
TOTAL			7714818	3484988 (Excel. Mine Closure)

Table 10.10 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation

Ist Year	IInd Year	IIIrd Year	IVth Year	Vth Year (including Mine Closure Cost)	Total Recurring Cost	Total EMP Cost
3484988	3659237	3842199	4034309	4400143	19420877	27135695

In order to implement the environmental protection measures, an amount of **Rs.7714818** as capital cost and recurring cost as **Rs.3484988** 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. 27135695** as shown in Table 10.10.

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

11.0 INTRODUCTION

This EIA report was prepared in compliance with ToR obtained vide Lr.No:SEIAA-TN/F.No.9905/SEAC/ToR-1440/2023 Dated:10.05.2023 by considering 3 proposed quarries in a cluster with the total extent of 26.03.7 hectares in Anjur Village, Pugalur Taluk, Karur District and Tamil Nadu State. Cluster area was calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016. Baseline Monitoring studies were carried out during the period of March – May 2023.

11.1 PROJECT DESCRIPTION

The proposed project deals with excavation of rough stone and gravel which is primarily used in construction projects. The method adopted for rough stone and gravel excavation is an open cast semi-mechanized mining method involving drilling, blasting and formation of benches with 5 m height and 5 m width and secondary blasting. The proposed project area is located between latitudes from 11° 3'2.77"N to 11° 3'13.51"N and from longitudes from 77°46'49.20"E to 77°47'0.88"E in Anjur Village, Pugalur Taluk, and Karur District. The project site is a Patta land with the extent of 4.82.7 ha owned by the project proponent. The proponent had applied for quarry lease on 28.06.2022 to extract rough stone and gravel and obtained the precise area communication letter issued by Department of Geology and Mining, Karur vide Rc.No.300/Mines/2022, dated:14.02.2023. Based on the precise area communication letter, mining plan was prepared. The mining plan prepared was approved by Deputy Director of Geology and Mining, Karur Rc.No.300/Mines/2022, dated:01.03.2023.

According to the approved mining plan, about 799894 m³ of rough stone and about 31276 m³ of gravel will be mined up to the depth of 62 m BGL in the first five years. However, the SEAC advised to restrict the ultimate depth to 50 m BGL considering safety point of view. Accordingly, the rough stone reserves have been adjusted to be 747425 m³. It is the quantity that has been mentioned in this EIA report.

To achieve the estimated production, 5 jack hammers, 3 compressor, 2 excavator with bucket/rock breaker, and 10 tippers will be deployed. To operate the machineries and to break the rough stone to preferred dimension, about 29 persons will be employed. At the end of the quarry life, the dimension of the ultimate pit will be 124 m*161 m*50 m and about 2.40.7 ha of land will have been quarried; about 0.60.5 ha of land will be used for green belt development; about 0.10.7 ha of land will be left unutilized; and 0.15.0 will be used for roads and 0.02.0 will

be used for infrastructures. The final mine closure plan shows that about Rs. **16,41,180** with the annual recurring cost of **Rs.1,44,810** will be spent towards mine closure.

11.2 DESCRIPTION OF THE ENVIRONMENT

The baseline monitoring studies were carried out during March through May, 2023 to assess the existing environmental conditions in the study area. For the purpose of the EIA studies, project area was considered as the core zone and area outside the project area up to 5 km radius from the periphery of the project site was considered as buffer zone. Baseline Environmental data has been collected for land, water, air, noise, ecology, socio-economy, and traffic.

11.2.1 Land Environment

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, 7 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 82.95 ha accounting for 1.05 %, of which lease area of 4.82.7 ha contributes only about 0.057 %. This small percentage of mining activities shall not have any significant impact on the land environment.

11.2.2 Soil Characteristics

Seven soil samples were obtained from the study area and sent to laboratory for analysing physical and chemical characteristics of soil.

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 6.94 to 8.2 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 3.91 to 4.8 dsm-1. Bulk density ranges between 0.79 and 0.95 g/cm³.

Chemical Characteristics

Nitrogen ranges between 0.96 and 2.4 %. Potassium ranges between 1.69 and 5.22 %. Calcium ranges between 3.13 and 6.23 mg/kg. Organic matter content ranges between 20. and 30.2 %. Manganese ranges between 1553 and 2653 mg/kg

11.2.3 Water Environment

Surface Water Resources

Noyyal River is the prominent surface water resources present in the study area. This river was ephemeral in nature, which convey water only after rainfall events. The proposed project area is located 0.59 km NW of Noyyal River, as shown in Table 3.5 and Figure 3.7. Four surface water sample, known as SW01 were collected from the Noyyal River (Anjur, 0.59 km NW), SW02 were collected from the Noyyal River (Korakkattupudur, 3.82 NE), SW03 were collected from the Noyyal River (Muthur, 4.35 NW), to assess the baseline water quality. Table 3.6 summarizes surface water quality data of the collected sample.

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

Ground Water Resources

Six groundwater samples, known as OW01, OW02, OW03, BW01, BW02 and BW03, were collected from bore wells and open wells were analysed for physico-chemical conditions, heavy metals 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. Results for ground water samples indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

11.3 AIR ENVIRONMENT

Site Specific Meteorology

Site specific meteorology during the study period was recorded by an automated weather station. According to the onsite data, the temperature in March,2023 varied from 16.70 to 39.93⁰C with the average of 28.46⁰C; in April, 2023 from 23.18 to 41.15⁰C with the average of 31.32⁰C; and in May,2023 from 22.62 to 36.18⁰C with the average of 27.99⁰C. In March,2023, relative humidity ranged from 15.06 to 95.56 % with the average of 53.56%; in April, 2023, from 12.50 to 89.94 % with the average of 47.23 %; and in May,2023, from 37.50 to 97.38 % with the average of 75.95 %. The wind speed in March,2023 varied from 0.18 to 6.42 m/s with the average of 2.64 m/s; in April, 2023 from 0.05 to 7.07 m/s with the average of 2.70 m/s; and in May,2023 from 0.044 to 6.64 m/s with the average of 3.42 m/s. In March,2023, wind direction varied from 0.00 to 359.03⁰ with the average of 42.05⁰; in April, 2023, from 4.19 to 358.19⁰ with the average of 158.66⁰; and in May,2023, 0.00 to 343.10⁰ with the average of 245.49⁰. In March,2023, surface pressure varied 95.38 to 96.74 kPa with the

average of 96.16 kPa; in April, 2023, from 95.24 to 96.68 kPa with the average of 96.20 kPa; and in May, 2023, from 96.12 to 97.03 kPa with the average of 96.57 kPa

Ambient Air Quality Results

As per the monitoring data, PM_{2.5} ranges from 18.1 µg/m³ to 22.7 µg/m³; PM₁₀ from 36.7 µg/m³ to 41.6 µg/m³; SO₂ from 6.0 µg/m³ to 8.9 µg/m³; NO_x from 17.8 µg/m³ to 23.2 µg/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

11.4 NOISE ENVIRONMENT

Noise level in core zone was 43.4 dB (A) Leq during day time and 34.4 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 36.9 to 45.6 dB (A) Leq and during night time from 28.0 to 35.6 dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

11.5 BIOLOGICAL ENVIRONMENT

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

11.6 SOCIO-ECONOMIC ENVIRONMENT

An attempt has been made to assess the impact of the proposed mining project on Socio-economic aspect of the study area. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income and consumption pattern. Implementation of the Proposed Mine Project will generate both direct and indirect employment. Besides, mining operation will be legally valid and it will bring income to the state exchequer. At present seasonal agriculture is the main occupation of the people as more than half of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in mining-based activities rather in seasonal agriculture.

11.7 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR PROPOSED PROJECT

The summary of anticipated adverse environmental impacts due to the proposed project and mitigation measures are given below:

Table 11.1 Anticipated Impacts & Mitigation Measures

Impact	Mitigation Measure
Land Environment	
<ul style="list-style-type: none"> ❖ Destruction of natural landscapes ❖ Changes in soil characteristics ❖ Soil erosion and slope instability 	<ul style="list-style-type: none"> ❖ Mining will be carried out as per approved mine plan in scientific and systematic way ❖ Safety Zone or Buffer area will be maintained and will not be mined and instead plantation will be carried out in the safety zone ❖ Barbed wire fencing will be provided all along the proposed mine boundary ❖ At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir ❖ Construction of garland ❖ Construction of garland drains all around the quarry pit and construction of settling traps at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
Water Environment	
<ul style="list-style-type: none"> ❖ Decrease in aquifer recharge and increase in surface runoff; ❖ Disturbance to land drainage, overload and erosion of watercourses; ❖ Changes to the surface over which water flows; ❖ Changes to surface and groundwater resources quantity and quality due to stream blockage and contamination by particulate matter or waste; ❖ Contamination of aquifers due to removal of the natural filter medium. 	<ul style="list-style-type: none"> ❖ Construction of garland drains all around the quarry pit and construction of settling traps at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area ❖ De-silting will be carried out before and immediately after the monsoon season and the settling tank and drains will be cleaned weekly, especially during monsoons ❖ Domestic sewage from site office & urinals/latrines provided in project area will be discharged through septic tank followed by soak pit system. ❖ Tippers & HEMM will be washed in a designated area and the washed water will be routed through drains to a settling tank, which

	has an oil & grease trap, only clear water will be reused for greenbelt development.
Air Environment	
<ul style="list-style-type: none"> ❖ Generation of Fugitive Dust ❖ Dust will be generated mainly during excavation, loading & unloading activities. ❖ Gaseous pollutants will be generated mostly by the traffic. ❖ Reduction in visibility due to dust plumes. ❖ Coating of surfaces leading to annoyance and loss of amenity. ❖ Physical and/or chemical contamination and corrosion. ❖ Increase in the concentration of suspended particles in runoff water. ❖ Coating of vegetation leading to reduced photosynthesis, ❖ Inhibited growth, destroying of foliage, degradation of crops; ❖ Increase in health hazards due to inhalation of dust. 	<ul style="list-style-type: none"> ❖ Haul roads will be well maintained by sprinkling water twice a day ❖ The access road will be cleaned and brushed to ensure that mud and dust deposits do not accumulate. ❖ To ensure that dust and debris is minimised on the access road, all the tipper drivers will be instructed to use water spray system on all the tyres and spray water on the loaded material that is provided at the compound area before leaving the site ❖ Speed restrictions will be imposed to avoid spillage of loaded materials upon the road and to reduce wear and tear of the road. ❖ Weekly inspections of the condition of the access road by competent person employed, and immediate action will be taken to address any potholes or damage to the road surface. ❖ Dust wetting agents can be mixed with the water applied to haul roads during hot, dry weather conditions to increase the duration that the road surface remains damp. ❖ Personal Protective Equipment's will be provided to all workers ❖ All drilling rods used will have dust suppression systems fitted which injects water into the hole. ❖ Wet gunny bags will be used as a cover while drilling. ❖ The blast zone will be kept damp by the application of water from the rain gun fitted to the water tanker prior to each blast to control any fugitive dust emissions that could arise from the surface during detonation. ❖ A daily visual inspection shall be conducted by the site manager who will keep a daily log of all process operations and site activities and note any malfunctions which could lead to abnormal emissions from the quarry operations.

	<ul style="list-style-type: none"> ❖ A site speed limit of 20 km/h will be set to minimise the potential for dust generation ❖ Weekly maintenance programme to identify machinery due for maintenance, based on the number of hours it has been in operation. ❖ Air filters are renewed after every 10⁰ hours of use, unless otherwise indicated by an on-board computer system. ❖ All site machineries & tippers will be serviced and maintained 6 months once and drivers will report any defects immediately to the site manager to enable repairs to be carried out promptly.
Noise & Vibration	
<ul style="list-style-type: none"> ❖ Annoyance and deterioration of the quality of life; ❖ Propelling of rocks fragments by blasting. ❖ Shaking of buildings and people due to blasting; 	<ul style="list-style-type: none"> ❖ Usage of sharp drill bits while drilling which will help in reducing noise; ❖ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders; ❖ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained; ❖ The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system; ❖ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise; ❖ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise; ❖ Silencers / mufflers will be installed in all machineries; ❖ Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise; ❖ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.

Biological Environment	
<ul style="list-style-type: none"> ❖ Direct impacts include land clearance and excavation causing destruction of flora and fauna and loss of habitats; ❖ Indirect impacts include habitat degradation due to noise, dust, and human activity. 	<ul style="list-style-type: none"> ❖ Only some common herbs, shrubs and grass will be cleared. So, there will be no impact on the biodiversity. ❖ Green belt development with suitable species will enhance the biodiversity of the project area. ❖ The core zone or buffer zone does not encompass any threatened flora or fauna species.
Socio-Economic Environment	
<ul style="list-style-type: none"> ❖ Health and safety of workers and the general public; ❖ Increase in traffic volumes and sizes of road vehicles; ❖ Economic issues, including the increase in employment opportunities; 	<ul style="list-style-type: none"> ❖ The mining activity puts negligible change in the socio-economic profile. ❖ Around 88 local workers will get employment opportunities along with periodical training to generate local skills. ❖ New patterns of indirect employment/ income will generate. ❖ Regular health check-up camp. ❖ Assistance to schools and scholarship to children will be provided.
Occupational Health & Safety	
<ul style="list-style-type: none"> ❖ Exposure to Dust ❖ Noise and Vibration Exposure ❖ Physical Hazards ❖ Respiratory hazards due to Dust exposure 	<ul style="list-style-type: none"> ❖ Provision of rest shelters for mine workers with amenities like drinking water etc. ❖ All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc. ❖ Training of employees for use of safety appliances and first aid in vocational training centre. ❖ Weekly maintenance and testing of all equipment as per manufacturers' guidelines. ❖ Pre placement and Yearly Medical Examination of all workers by a medical Officer ❖ First Aid facility will be provided at the mine site. ❖ Close surveillance of the factors in working environment and work practices which may affect environment and worker's health by the mine's manager employed.

11.8 ANALYSIS OF ALTERNATIVES

There are no alternatives suggested as the proposed mining area has the following advantages:

- ❖ The mineral deposit occurs in a non-forest area.
- ❖ There is no habitation within the applied lease area; hence no R & R issues exist.
- ❖ There is no river, stream, nallas and water bodies in the or passing through the applied mine lease areas.
- ❖ 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 accessible.
- ❖ Mine connectivity through road and rail is good.
- ❖ The proposed mining operations do not intersect the ground water level. Hence, no impact on ground water environment.

11.9 ENVIRONMENTAL MONITORING PROGRAM

Environmental Monitoring program will be conducted for various environmental components such as air quality, meteorology, water quality, water level monitoring, soil quality, noise level, vibration, and greenbelt as per conditions stipulated in Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB. For this environmental monitoring program, Rs **2,95,000** /- per annum will spent by the project proponent. 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 and 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.

11.10 ADDITIONAL STUDIES

Public Consultation

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 is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

Risk Analysis & Disaster Management Plan

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad vide Circular No.13 of 2002, dated 31st December, and 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 time table are recorded along with pinpointed responsibilities.

In the unlikely event that a consequence has occurred, disaster management kicks in. This includes instituting procedures pertaining to a number of issues such as communication, rescue, and rehabilitation. These are addressed in the disaster management plan. Both, the RA and DMP, are living documents and need to be updated whenever there are changes in operations, equipment, or procedures. Assessment is all about preventing accidents and taking necessary steps to prevent it from happening.

The Disaster Management Plan (DMP) is a guide, giving general considerations, directions, and procedures for handling emergencies likely to arise from planned operations. The DMP has been prepared on the basis of the Risk Assessment and related findings covered in the report.

Cumulative Impact Studies

- 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 four proposed and one existing projects is well below the permissible limit of Peak Particle Velocity of 8 mm/s.
- The three proposed projects will allocate Rs.15,00,000/- towards CER as recommended by SEAC.
- The three proposed projects will directly provide jobs to about 60 local people.
- The three proposed projects will plant about 5442 saplings in and around the lease area.
- The three proposed projects will add 765 PCU per day to the nearby roads.

11.11 PROJECT BENEFITS FOR PROPOSED PROJECT

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 60 local people
- ❖ Rain water harvesting structures to augment the water availability for irrigation and plantation and ground water recharge
- ❖ 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 Programme
- ❖ Skill development & capacity building like vocational training
- ❖ Awareness program and community activities, like health camps, medical aids, sports & cultural activities, plantation etc.,
- ❖ CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Anjur Village. CSR budget is allocated as 2.5% of the profit.
- ❖ Rs. 5,00,000 will be allocated for CER.

11.12 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs.7714818** as capital cost and recurring cost as **Rs.3484988** 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. 27135695**

11.13 CONCLUSION

EIA study was performed as per the approved ToR. Various environmental attributes were studied relating with aspects of mining activities. The related impacts were identified and evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and accordingly fund was allocated. The EMP has been dynamic, flexible and subject to periodic review. CER activities were identified and for its time bound implementation, fund has been allocated.

The project will increase the revenue of the State Govt. as well as it will help in the social upliftment of the local community. The green belt development programme will help in increasing the green cover in the area. Thus, the proposed project is not likely to affect the environment or adjacent ecosystem in an adverse way.

The Mines Management will be responsible for the project 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 XII

DISCLOSURES OF CONSULTANT

The Project Proponent, Mr.S.Kuppusamy has engaged **Geo Technical Mining Solutions**, a NABET accredited consultancy for carrying out the EIA study as per the ToR issued.

Address of the consultancy:

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

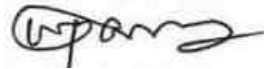
The accredited experts and associated members who were engaged in this EIA study are given below:

S.No	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
Approved Functional Area Experts & EC					
1.	Dr. S. 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.	S. Gopalakrishnan	In-house, FAE	1(a)(i)	HG, GEO	B
10.	P. Venkatesh	In-house, FAE	1(a)(i)	AP	B
11.	Dr. D.Kalaimurugan	In-house, FAE	1(a)(i)	SC	B
Approved Functional Area Associates					
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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA & EMP

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

Signature : 

Date :

Name : **Dr. S. Karuppanan**



Designation : EIA Coordinator




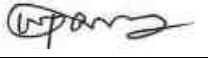



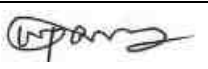



Name of the EIA Consultant Organization : Geo Technical Mining Solutions

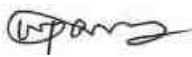

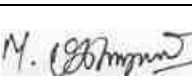



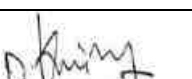

Period of Involvement : Till date

We, the FAEs and FAAs hereby declare that information furnished in this EIA/EMP report for Mr.S.Kuppusamy rough stone and gravel quarry project with the extent of 4.82.70 ha situated in the cluster with the extent of 26.03.7 ha in Anjur Village, Pugalur Taluk, Karur District of Tamil Nadu is true and correct to the best of our knowledge.


List of Functional Area Experts Engaged in this Project






S. No.	Functional Area	Involvement	Name of the Experts	Signature
1	AP	○ Identification of different sources of air pollution due to the proposed mine activity	J.N. Manikandan	
		○ Prediction of air pollution and propose mitigation measures / control measures	P.Venkatesh	

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

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

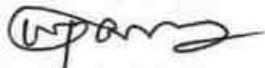
List of Functional Area Associate Engaged in this Project

S.No.	Name	Functional Area	Involvement	Signature
1	G. Prithviraj	LU, HG	<ul style="list-style-type: none"> ○ Site visit with FAE ○ Provide inputs & Assisting FAE for LU and HG 	

2	C. Kumaresan	NV	<ul style="list-style-type: none"> ○ Assistance to FAE in both primary and secondary data collection ○ Assistance in noise prediction modelling 	
3	P. Vellaiyan	HG & GEO	<ul style="list-style-type: none"> ○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection 	
4	S.Vasugi	AQ	<ul style="list-style-type: none"> ○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection 	
5	P. Dhatchayini	AQ	<ul style="list-style-type: none"> ○ Site visit with FAE ○ Assistance to FAE in collection of both primary and secondary data 	
6	V. Malavika	NV, SHW	<ul style="list-style-type: none"> ○ 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 Mr.S.Kuppusamy rough stone and gravel quarry project with the extent of of 4.82.70 ha situated in the cluster with the extent of 26.03.7 ha in Anjur Village, Pugalur Taluk, Karur District of Tamil Nadu is true and correct to the best of my knowledge.

Signature : 

Date : 30.06.2023

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 31.12.2023



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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.

Phone No. 044-24359973

Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9905/SEAC/ToR-1440/2023 Dated:10.05.2023

To

Thiru.S.Kuppusamy,
S/o. Samiappagounder,
Door No.95,
Saliangkattupallam,
Thotiyapalayam, Muthur,
Kangeyam Taluk,
Tiruppur District-638105.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference.(ToR) with Public Hearing for the Proposed Rough Stone & Gravel lease over an extent of 4.82.70Ha at S.F.No. 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A in Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu by Thiru.S.Kuppusamy - under project category – “BI” and Schedule S.No. 1(a) – ToR issued along with Public Hearing-preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/421900/2023 dt 13.03.2023.
2. Your application submitted for Terms of Reference dated: 16.03.2023.
3. Minutes of the 369th meeting of SEAC held on 20.04.2023.
4. Minutes of the 616th meeting of Authority held on 10.05.2023.


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Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, Thiru.S.Kuppusamy has submitted application for ToR, in Form-I, Pre-Feasibility report for the Proposed Rough Stone & Gravel lease over an extent of 4.82.70haHa at S.F.No. 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A in Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone & Gravel lease over an extent of 4.82.70Ha at S.F.No. 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A in Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu by Thiru.S.Kuppusamy -For Terms of Reference (SIA/TN/MIN/421900/2023 dt 13.03.2023).

The proposal was placed in this 369th meeting of SEAC held on 20.04.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru.S.Kuppusamy has applied for Terms of Reference for the the Proposed Rough Stone & Gravel lease over an extent of 4.82.70haHa at S.F.No. 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A in Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. Quarrying in this lease area was earlier carried out by during earlier lease period from 23.06.2017 to 22.06.2022. Environmental clearance was obtained from SEIAA-TN vide Lr.No.SEIAA-TN/F.No.1426/1(a/EC.No.3848/2015 dated: 30.05.2017 for Rough stone quarrying at SF.No759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1 in Anjur Village, Aravakurichi Taluk, Karur District, Tamil Nadu over 4.92.5 Ha of the lease area.
4. As per the mining plan the lease period is 5 years. The mining plan is for the period of five years & production should not exceed 7,99,894 m³ of Rough Stone &31,276 m³ of Gravel. The annual peak production is 1,85,360 m³ of Rough Stone &31,276 m³ of Gravel. The ultimate depth is 62m BGL.

Based on the presentation made by the proponent, **SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing**, subject to the following TORs, in addition to


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the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. As per Metalliferous Mines Regulation 1961, under Chapter XI, 106 (2) (a)
“..... the face shall be benched and the sides shall be sloped at an angle of not more than 60 degrees from the horizontal. The height of any bench shall not exceed six meters and the breadth thereof shall not be less than the height.”
Hence, The Project Proponent shall furnish the revised mining plan approved by the competent authority, incorporating the slope stability action plan by maintaining benches on both sides with appropriate bench geometry in accordance with the provisions of Reg. 106 of MMR 1961 and by maintaining the depth of 50m BGL.
2. Restricting the maximum depth of mining from 62m to 50m considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and consequently the revised quantity is spelt out in the ‘modified Production and Development Plan’ to be submitted during the EIA appraisal.
3. Also, the original letter of approval obtained for the revised Mining Plan prepared for the mine shall be furnished during the EIA appraisal.
4. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 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.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. 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.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall 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.


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8. 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.
9. 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.
10. 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.
11. 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 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.
12. 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).
13. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,


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14. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. Rain water harvesting management with recharging details along with water balance (both


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- monsoon & non-monsoon) be submitted.
22. 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.
 23. 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.
 24. 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.
 25. 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.
 26. Impact on local transport infrastructure due to the Project should be indicated.
 27. 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.
 28. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 29. 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.
 30. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
 31. The PP shall produce/display the EIA report, Executive summary and other related


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- information with respect to public hearing in Tamil Language also.
32. 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.
 33. 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.
 34. 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
 35. 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.
 36. 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.
 37. 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.
 38. 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.
 39. 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,


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quantitative dimensions may be given with time frames for implementation.

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. 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.
42. 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.
43. 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.
44. 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.


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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Azalea marmelos</i>	Vilvam	விவம்
2	<i>Adenanthe pavonina</i>	Marjadi	மர்ஜாடி
3	<i>Albizia lebbek</i>	Vaaga	வாగా
4	<i>Albizia amara</i>	Uai	உயி
5	<i>Eulalia purpurea</i>	Manthara	மந்தாரா
6	<i>Eulalia racemosa</i>	Aathu	ஆது
7	<i>Eulalia tenaxifera</i>	Iravathu	இரவாது
8	<i>Buchanania axillaris</i>	Kattuma	கட்டமா
9	<i>Borassus flabellifer</i>	Parai	பரை
10	<i>Butea monosperma</i>	Murukkamarum	முருக்கமரம்
11	<i>Bobotz corbe</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Purru	புரூ
13	<i>Cassia fetida</i>	Sarakondra	சரகண்டரா
14	<i>Cassia roxburghii</i>	Seegondra	சீகண்டரா
15	<i>Chloroxylon nicotiana</i>	Parasaram	பாரசாரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கொங்கு, மர்ஜல்லாவு
17	<i>Cordia dichotoma</i>	Naravali	நரவாலி
18	<i>Crotone adanson</i>	Mavalangum	மாவலங்கம்
19	<i>Dillenia indica</i>	Uva, Unha	உவா
20	<i>Dillenia pentagyna</i>	Saru Uva, Sivaraha	சரூ உவா
21	<i>Diospyros ebenum</i>	Karungali	கரங்கலி
22	<i>Diospyros chloroxylon</i>	Vagana	வாகா
23	<i>Ercus ampliflorus</i>	Kallichu	கல்லைச்சு
24	<i>Hibiscus tiliaceus</i>	Aatropooraram	ஆத்ரப்பூரம்
25	<i>Hos dickeia binata</i>	Acha	ஆச்சா
26	<i>Hedyotis uterifolia</i>	Ayili	ஆயிலி
27	<i>Linnæa serotina/decidua</i>	Odhani	ஒடானி
28	<i>Lagerstroemia speciosa</i>	Poo Maruthu	பூ மரூது
29	<i>Leprosanthus tetraphylla</i>	Neikottamaram	நீகொட்டமரம்
30	<i>Limonia acidissima</i>	Vila marum	வில்லா மரம்
31	<i>Litsea glutinosa</i>	Pizampattai	பிழம்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலப்பை
33	<i>Mankara hexandra</i>	Ulakkaipala	உலக்கைபலா
34	<i>Mimusops elengi</i>	Magulhamaram	மகுலம்மரம்
35	<i>Mitrasajna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuta	நூது
37	<i>Morinda citrifolia</i>	Vellai Nuta	வலை நூது
38	<i>Phoebe sylvestris</i>	Eschi	எச்சி
39	<i>Pongamia pinnat</i>	Pirugam	பிருகம்


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40	<i>Premna mollissima</i>	Maruva	முருவா
41	<i>Premna serratifolia</i>	Naramunai	நா முருவா
42	<i>Premna torquosa</i>	Malaipoovaru	மலை முருவா
43	<i>Prosopis cinerea</i>	Vattu marai	வாது மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterocarpium canescens</i>	Vennangu, Tada	வேணாங்கு
46	<i>Pterocarpium xylocarpum</i>	Polavu	பொலா
47	<i>Pithecolobium roxburghii</i>	Karipala	கரிபாலா
48	<i>Salvadora persica</i>	Ugai Maram	உகை மரம்
49	<i>Sapindus emarginatus</i>	Marupungan, Soapuka	மாறுபுண்டம் சோபுகா
50	<i>Sarcococca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Purai maram	புரை மரம்
52	<i>Strychnos nuxvomica</i>	Yethi	யேதி
53	<i>Strychnos potatorum</i>	Theerthang Kottai	தீர்த்தங்க கட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாந்திரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சாந்தா வெம்பு
58	<i>Thespesia populnea</i>	Puvazai	புவழை
59	<i>Walsura trifoliata</i>	valsura	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கோடுக்கப்பூர்

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 616th Authority meeting held on 10.05.2023. The Authority noted that this proposal was placed for appraisal in this 369th Meeting of SEAC held on 20.04.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in '**Annexure B**' of this minute.

In addition to that the PP shall study about the following,

1. 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
 - b) Soil health
 - c) Climate change
 - d) rise in Temperature


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- e) Water Table and drainage pattern
- f) Agriculture

2. The PP shall obtain a letter from the Concerned Director of Agriculture stating that proposed mining activity has no impact on the surrounding Agriculture.

Annexure 'B'

Cluster Management Committee

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


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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

- g) Soil health & soil biological, physical land chemical features .
- h) Climate change leading to Droughts, Floods etc.
- i) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
- j) Possibilities of water contamination and impact on aquatic ecosystem health.
- k) Agriculture, Forestry & Traditional practices.
- l) Hydrothermal/Geothermal effect due to destruction in the Environment.
- m) Bio-geochemical processes and its foot prints including environmental stress.
- n) 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.


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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.


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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.


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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.

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.

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


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infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other


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- Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).


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- 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


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- the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress


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Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.


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- 44) Besides the above, the below mentioned general points are also to be followed:-
- a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
 - i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
 - j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.


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In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km


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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.


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- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF& CC (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Karur District.
7. Stock File.

From
Dr.P.Jayapal M.Sc., Ph.D.,
Deputy Director,
Geology and Mining,
Karur.

To
Thiru.S.Kuppusamy,
S/o.Samiappagounder,
Door No.95, Saliangkattupallam,
Thotiyapalayam,
Muthur, Kangeyam Taluk,
Tiruppur District - 638 105.

Rc.No.300/Mines/2022, Dated:09.03.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Karur District - Pugalur Taluk - Anjur Village - S.F.Nos.764/3 (1.14.00 hectares), 765/3(0.48.00 hectares), 766/1(1.34.50 hectares), 766/2(1.14.00 hectares), 766/3A(0.47.35 hectares), 767/1(0.11.50 hectares) and 767/2A (0.13.35 hectares) Over an extant 4.82.70 hectares- Quarry lease application for Rough Stone and Gravel - Preferred by Thiru.S.Kuppusamy - Mining Plan approved - requested for the details of Existing/ Proposed/Expired/Abandoned quarries situated within 500 mts radial distance - furnished - Regarding.

- Ref:
1. Quarry lease application for Rough stone and Gravel preferred by Thiru.S.Kuppusamy, S/o.Samiappagounder, Door No.95, Saliangkattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur District - 638 105, dated: 28.06.2022.
 2. Precise Area Communication Notice Rc.No.300/Mines/2022, Dated:14.02.2023.
 3. Mining Plan submitted by Thiru.S.Kuppusamy, Letter dated: 20.02.2023.
 4. The Deputy Director, Geology and Mining, Karur Mining Plan approved letter Rc.No. 300/Mines/2022, Dated:01.03.2023.
 5. Thiru.S.Kuppusamy letter dated:06.03.2023.

In the reference 1st cited, Thiru.S.Kuppusamy have applied quarry lease for quarrying Rough stone and Gravel in S.F.Nos.764/3 (1.14.00 hectares), 765/3(0.48.00 hectares), 766/1(1.34.50 hectares), 766/2(1.14.00 hectares), 766/3A(0.47.35 hectares), 767/1(0.11.50 hectares) and 767/2A (0.13.35 hectares) Over an extant 4.82.70 hectares of patta lands in Anjur Village, Pugalur Taluk, Karur District. The Deputy Director of Geology and Mining, Karur had issued precise area letter to the proposed lease area vide reference 2nd cited.

Accordingly, the applicant has submitted the 3 copies of draft Mining Plan and the same was approved by the Deputy Director, Geology and Mining, Karur vide reference 4th cited.

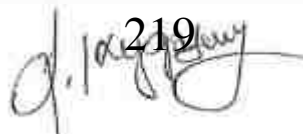
In the reference 5th cited, the applicant has requested the Deputy Director of Geology and Mining, Karur to provide the details of existing, proposed and abandoned quarries situated within 500 meter radial distance from subject area and same has been furnished as follows:-

I. Existing Quarries: -

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1			-- Nil --			

II. Proposed Quarries: -

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	Thiru.S.Kuppusamy, S/o.Samiappagounder, Door-No.95, Saliangkattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur District - 638 105.	Rough Stone and Gravel	Pugalur, Anjur (Patta land)	764/3 765/3 766/1 766/2 766/3A 767/1 767/2A (Patta land)	4.82.70	Proposed Area
2	Thiru.P.Sampathkumar, S/o.Palanisamy, Door No.98, Saliangkattupallam, Muthur, Kangeyam Taluk, Tiruppur District - 639 105	Rough Stone and Gravel	Pugalur, Anjur	759/2(P) 761/2(P) 761/3(P) 762/2 762/3 763/2 763/3 (Patta land)	4.81.50	Applied Field
3	Thiru.V.Arunprashath, S/o.Vadivel, Door No.60, Perumalkovilputhur, Ichipalayam, Kodumudi T.K., Eorde District	Rough Stone and Gravel	Pugalur, Anjur	767/3 (Patta land)	1.24.0	Applied Field

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III. Lease Expired Quarries : -

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	Thiru.P.Duraisamy S/o.PeriyasamyGounder ThatharakaduThottam, Anjur Village Erode Taluk & District.	Rough Stone	Pugalur, Anjur	762/4 763/4 764/1 765/1 (Patta land)	1.59.5	07.08.2017 to 06.08.2022
2	Tvl.Kowsick& Co Blue Metals Door No.24A Housing Unite Kollampalaym, Kasipalayam, Erode Taluk & District.	Rough Stone	Pugalur, Anjur	770/2B (P) 778/3B2 778/3B1(P) (Patta land)	4.98.0	07.08.2017 to 06.08.2022
3	Thiru.P.Ravi S/o.Palanisamy Chinnakangeyam palayam Mankalappatti post Kangeyam Taluk, Tiruppur District.	Rough Stone	Pugalur, Anjur	759/3 759/4 763/5 764/2 765/2 (Patta land)	4.18.0	07.08.2017 to 06.08.2022
4	Thiru.P.Ravi, S/o.Palanisamygounder, Saliyangkaddupallam, Muthur village, Kangeyam Taluk, Karur District.	Rough Stone	Pugalur, Anjur	775/1E(P) 776/3 777/1 778/1A 807/2B 807/2C2 (Patta land)	4.40.0	21.2.2018 to 20.2.2023

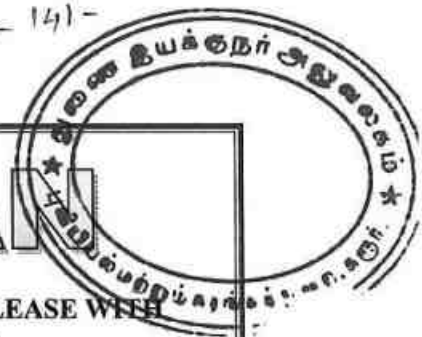
III. Abandoned Quarries : -

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	Thiru.P.Sundara moorthy, S/o. Palanisamy, No.A. 37 Velayuthampalayam, Pandilingapuram (Post), Aravakurichi T.K., Karur	Rough Stone	Pugalur, Anjur	837 (Poramboke land)	1.26.5	04.05.2010 to 03.05.2015

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09/05/23
Deputy Director,
Geology and Mining,
Karur.

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09/03/2023



MINING PLAN

**FOR ANJUR VILLAGE ROUGH STONE AND GRAVEL MINING LEASE WITH
PROGRESSIVE QUARRY CLOSURE PLAN**

Patta- Ryotwari land/Opencast-Semi Mechanized mining/ Non- Forest/Non - Captive Use –
“B2’ Category

Lease period 5 Years from the date of lease execution

(Prepared under rule 41 (3) (i) and submitted under rule 41 (8) (i) of Tamil Nadu Minor Mineral
Concession Rules, 1959)

LOCATION OF THE LEASE AREA

STATE : TAMILNADU
 DISTRICT : KARUR
 TALUK : PUGALUR
 VILLAGE : ANJUR
 S.F. NO'S : 764/3, 765/3, 766/1, 766/2, 766/3A,
 767/1 & 767/2A
 EXTENT : 4.82.7 HECTARES

ADDRESS OF THE APPLICANT

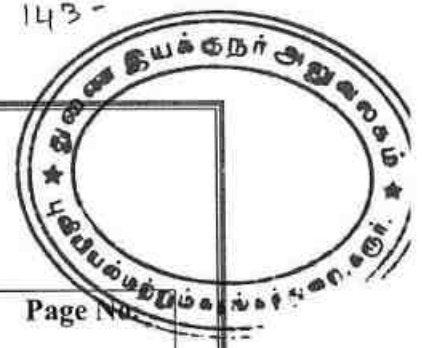
Mr.S.Kuppusamy,
 S/o.Samiappagounder,
 Door No.95, Saliangkattupallam,
 Thotiyapalayam,
 Muthur, Kangeyam Taluk,
 Tiruppur District – 638105.

(This Mining Plan is approved subject
 to the conditions/stipulations
 indicated in the Mining Plan approval
 Letter No: 300/mines/2022
 Dated: 01/03/2023)

PREPARED BY

A.ALLIMUTHU., M.Sc., M.Phil.,
 RQP/DMG/HYD/85/2022

D.No.1/231, Pattakaranavalavu, Chinnamuthiyampatti, Puduppalayam – Post,
 Edapaddi Taluk, Salem District, Tamil Nadu State, India
 Pincode – 636306
 Mob.No. +91 9788636242, 8870254313
 Email I'd: allimuthu1973@gmail.com



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13.0	Financial assurance	43
14.0	Certificates	43
15.0	Plan and section, etc	43
16.0	Any other details intend to furnish by the applicant	43
17.0	CSR expenditure	44

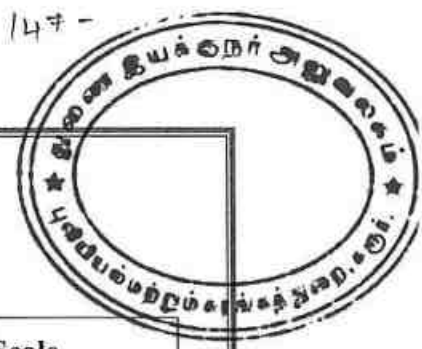
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ANNEXURES

Sl. No.	Description	Annexure No.
1.	Copy of precise area communication letter	I
2.	Copy of previous lease particulars a. Environmental Clearance b. Proceeding Letter c. Lease execution deed d. Copy of TNPCB CTO certificate	II
3.	Copy of FMB (Field Measurement book)	III
4.	Copy of combined sketch	IV
5.	Copy of "A" registered	V
6.	Copy of computer Chitta & adangal	VI
7.	Photocopy of the proposed lease area	VII
8.	Copy of explosive willing letter, agreement from explosive license holder & explosive license	VIII
9.	Copy of ID Proof of the authorized signature	IX
10.	Copy of RQP certificate	X

J. Jayaram



LIST OF PLATES

S. No	Description	Plate No.	Scale
1	Key map	I	Not to scale
2	Location plan	I-A	Not to scale
3	Toposheet map	I-B	Scale 1:1,00,000
4.	Satellite imagery map	I-C	Scale 1: 5,000
5.	Environmental plan	I-D	Scale 1: 5,000
6.	Mine lease plan	II	Plan Scale: 1:2000
7.	Surface & Geological plan	III	Plan scale: 1:2000
8.	Geological sections	IIIA	Section: HOR 1:1000 VER 1:500
		IIIB	
9.	Year wise development & production plan	IV	Plan scale: 1:2000
10.	Year wise development & production sections	IVA	Section: HOR 1:2000 VER 1:500
11.	Mine layout plan and land use pattern	V	Plan scale: 1:2000
12.	Conceptual plan	VI	Plan scale: 1:2000
13.	Conceptual sections	VIA	Section: HOR 1:2000 VER 1:500

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Mr.S.Kuppusamy,
S/o.Samiappagounder,
Door No.95, Saliankattupallam,
Thotiyapalayam,
Muthur, Kangeyam Taluk,
Tiruppur District – 638105.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan for rough stone and gravel quarry lease in S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A over an extent of 4.82.7hectares, Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu State has been prepared by

A.ALLIMUTHU., M.Sc., M.Phil., (Regn. No. RQP/DMG/HYD/85/2022)

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

A.ALLIMUTHU., M.Sc., M.Phil.,

RQP/DMG/HYD/85/2022

D.No.1/231, Pattakaranavalavu, Chinnamuthiyampatti, Puduppalayam – Post,
Edapaddi Taluk, Salem District, Tamil Nadu State, India

Pincode – 636306

Mob.No. +91 9788636242, 8870254313

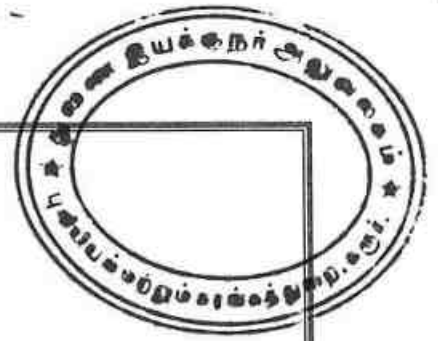
I hereby assure that all modifications so made in the Mining Plan by the Recognized Qualified Person may be deemed to made with my knowledge and consent and shall be acceptable and binding on me in all respects.

Place: Karur, TN

Date: 16/02/2023

S. Kuppusamy

S. Kuppusamy
Signature of the applicant
(S.Kuppusamy)



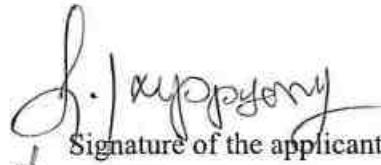
S.Kuppusamy,
S/o.Samiappagounder,
Door No.95, Saliankattupallam,
Thotiyapalayam,
Muthur, Kangeyam Taluk,
Tiruppur District – 638105.

DECLARATION

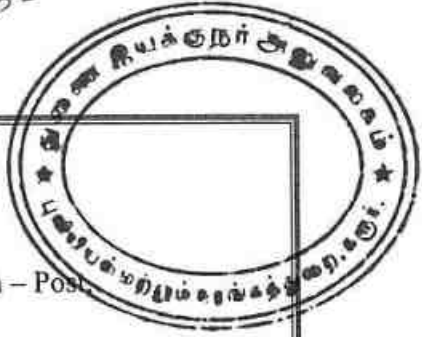
The Mining Plan of rough stone and gravel quarry lease in S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A over an extent of 4.82.7hectares, Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu State have been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place: Karur, TN

Date: 16/02/2023


Signature of the applicant
(S.Kuppusamy)





A.ALLIMUTHU., M.Sc., M.Phil.,

RQP/DMG/HYD/85/2022

D.No.1/231, Pattakaranavalavu, Chinnamuthiyampatti, Puduppalayam – Post,

Edapaddi Taluk, Salem District, Tamil Nadu State, India

Pincode – 636306

Mob.No. +91 9788636242, 8870254313

CERTIFICATE

This is to certify that the provisions of 19(1), 20 and 22 of Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the mining plan for the grant of rough stone and gravel quarry lease in S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A over an extent of 4.82.7hectares, Anjur Village, Pugalur Taluk, Karur District, Tamilnadu State applied to **Mr.S.Kuppusamy**, Tiruppur District, Tamil Nadu.

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: 18/02/2023

A. Allimuthu

Signature of the Recognized Qualified Person

A.ALLIMUTHU, M.Sc.,M.Phil.,
Recognized Qualified Person
RQP/DMG/HYD/85/2022

J. Kuppusamy



A.ALLIMUTHU., M.Sc., M.Phil.,

RQP/DMG/HYD/85/2022

D.No.1/231, Pattakaranavalavu, Chinnamuthiyampatti, Pudukkottai - Post,

Edapaddi Taluk, Salem District, Tamil Nadu State, India

Pincode - 636306

Mob.No. +91 9788636242, 8870254313

CERTIFICATE

I certified that the preparation of Mining Plan for rough stone and gravel quarry lease in S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A over an extent of 4.82.7hectares, Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu prepared to **Mr.S.Kuppusamy**, Tiruppur District, Tamil Nadu, covers all the provisions of Mines Act, Rules and Regulations etc. made there in and if any specific permission is required the applicant will approach "**The Director General of Mines Safety**", Chennai. The standards prescribed by DGMS regarding Mines Health will be strictly implemented.

Place: Dharmapuri, TN

Date: 18/02/2023

Signature of the Recognized Qualified Person

A.ALLIMUTHU, M.Sc.,M.Phil.,
Recognized Qualified Person
RQP/DMG/HYD/85/2022

MINING PLAN

FOR ANJUR VILLAGE ROUGH STONE AND GRAVEL MINING WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta- Ryotwari land/Open Cast-Semi Mechanized mining/ Non- Forest/Non - Captive Use –
"B2' Category

Lease period 5 Years from the date of lease execution

(Prepared under rule 41 (3) (i) and submitted under rule 41 (8) (i) of Tamil Nadu Minor
Mineral Concession Rules, 1959)

INTRODUCTORY NOTES:

- 1) **Introduction:** The applicant Mr.S.Kuppusamy S/o.Samiappagounder residing at Door No.95, Saliangkattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur District - 638105, Tamil Nadu State. The applicant was submit application on 28.06.2022 for request to the Deputy Director, Department of Geology and Mining, Karur, renewed to be continued quarrying operation for rough stone and gravel at S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A, over an extent of 4.82.7hectares of Anjur Village, Pugalur Taluk, Karur District, Tamil Nadu State further the period of 5 years.
- 2) **Precise area communication letter particulars:** The Deputy Director, Department of Geology and Mining, Karur has directed to the applicant Mr.S.Kuppusamy through his precise area communication letter **Rc.No.300/Mines/2022 Dated: 14.02.2023**, has recommended quarrying lease for rough stone and gravel quarry lease at Tamil Nadu State, Karur District, Pugalur Taluk, Anjur Village in S.F.No's: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A, over an extent of 4.82.7 hectares and should be submitted draft mining plan for approval for the period of 90 days the following conditions for a period of five (5) years under Rule 19 (1), 20 & 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.
 - i) A safety distance of 10 meter should be leave for Cart Road which crossing south-north direction in West and Southwest of S.F.No.756 & S.F.No.757 from the applied S.F.No. 766/1, 766/2 and 766/3A and properly excavate without any damage.
 - ii) A safety distance of 10 meter should be left out for patta road which crossing south-north direction in east of S.F.No.764/4 from the applied S.F.No.764/3 and properly excavate without any damage.

This Mining Plan is approved subject
to the conditions/stipulations

Indicated in the Mining Plan approval

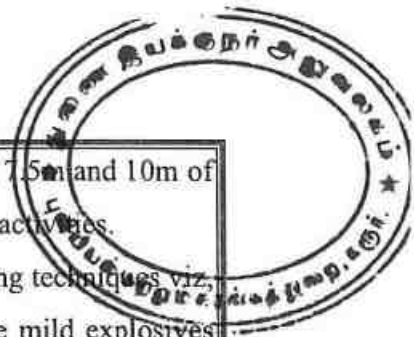
Letter No: 300/mines/2022

Dated: 01/02/2022

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S. Kuppusamy



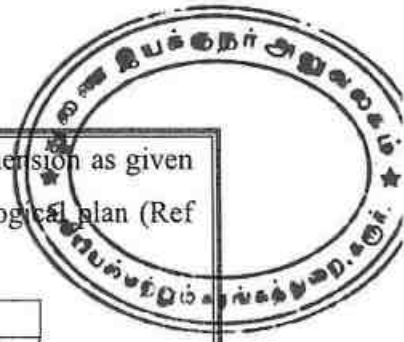
- iii) A safety distance should be left out nearby the applied area 7.5m and 10m of Patta and Poramboke lands as respectively while quarrying activities.
- iv) Quarrying operation to be carried out with controlled blasting techniques viz, hand-hack-Hammer, Driller for drilling shot holes and use mild explosives substance for blasting the rocks.
- v) To ensure the safety of quarry workers as per Metalliferous Mines Acts should formed wide, safe benches. Inside the quarry in safe manner vehicles come and go, do the quarry work ensuring the safety of the quarry workers.
- vi) To provide quarrying lease by the Deputy Director, Karur, approved mining plan, obtain Environmental Clearance from the competent authority of State Level Environment Impact Assessment Authority-Tamil Nadu (SEIAA) and should be submitted.

3) **The previous lease particulars:** The proposed lease area was previously granted to quarrying of rough stone in favor of **Mr.S.Kuppusamy** by the District Collector, Karur proceedings vide Rc.D.79/2001, dated 05.06.2001 in S.F.No. 759/5, 764/3, 765/3, 766/2, 767/1 & 767/2 (Part) Karur District, Aravakurichi Taluk, Anjur Village, over an extent of 4.56.5hectares for a period of 5 years and lease period was expired on 18.09.2006.

The **1st renewed application** of the same applicant for the lease application and granted vide letter Rc.B/597/G&M/2006, dated 26.02.2007 in 759/5, 764/3, 765/3, 766/2, 767/1 & 767/2 (Part) over an extent of 4.56.5Hectares. The lease was executed 16.03.2007 to 15.03.2012 for a period of 5 years.

The **2nd renewed application** of the same applicant for the lease application and granted vide Collr.Ref.No.173/Mines/2012 in S.F.No. 759/5, 764/3, 765/3, 766/1(Part), 766/2 & 767/1 over an extent of 4.92.5Hectares. The applicant got Environmental Clearance from SEIAA-TN vide Lr.no.SEIAA/TN/F.No.1426/1(a)/EC.No.3848/2015, dated 30.05.2017. The lease was executed 23.06.2017 to 22.06.2022 for a period of 5 years.

Now, **3rd Renewal application** for new proposals has submitted to the Deputy Director, Department of Geology and Mining (DDG & M), Karur dated 28.06.2022 and the Deputy Director, recommended to his precise area communication letter Rc.No.300/Mines/2022 Dated: 14.02.2023 for period of five years recommended to favor of Mr.S.Kuppusamy, Karur for quarrying lease rough stone and gravel at Tamil Nadu State, Karur District, Pugalur Taluk, Anjur Village in S.F.No: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A, over an extent of 4.82.7hectares

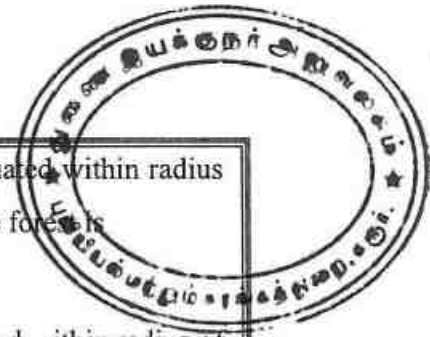


There is an existing pit was noticed with an average pit dimension as given under the table and the existing pit marked in the surface and geological plan (Ref Plate No's: III).

Existing pit Dimension			
Pit level	Length (m)	Width (m)	Depth(m)
1	53	22	3
2	20	45	4
3	8	60	6
4	15	95	7
5	25	20	10
6	71	61	12
7	48	140	13
8	82	58	15
9	62	76	16

- 3) **Preparation and Submission of Mining Plan:** The Mining Plan with progressive quarry closure plan has been prepared under rule 41 (3) (i) and submitted under rule 41 (8) (i) of Tamil Nadu Minor Mineral Concession Rules, 1959, for mining lease as per conditions mentioned in the precise area communication letter **Rc.No.300/Mines/2022 Dated: 14.02.2023.**
- 4) **Geological resources and Mineable reserves:** Geological resource of estimated as **2654528m³** including the resources of safety zone, and gravel. Of which, rough stone resources of about **2616836m³** and gravel is about **37692m³**. The total mineable reserve is estimated to be **831170m³** by deducting the reserve safety zone, block in benches from the total Geological resources. Of which, rough stone is about **799894m³** and gravel is about **31276m³** up to a depth of 62m below the ground level (R.L.190m-128m) (Refer Plate No. IIIA, IIIB & VIA).
- 5) **Proposed production schedule:** Total proposed production of **831170m³**. Of which, rough stone is **799894m³** and gravel is **31276m³** up to a depth of 62m below the ground level (R.L.190m-128m) for five years plan period. Average production is **159979m³** of rough stone per year. (Refer Plate No. IVA).
- 6) **Environmental Sensitivity of the proposed lease area: -**
- Interstate boundary:** There is no interstate boundary around 10Km radius periphery of proposed lease area.
 - Wildlife Protection Act, 1972:** There is no wild life sanctuary within radius of 10Km from the project site area under the Wildlife (Protection) Act, 1972.

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iii. **Indian Reserve Forest Act, 1980:** No reserved forest situated within radius of 1Km periphery of the proposed site. The Nearest reserve forest is

I.Arcachalur R.F -15.22km - Northwest Side

iv. **CRZ Notification, 1991:** There is no sea coastal zone found within radius of 10km and this project site doesn't attract CRZ Notification, 1991.

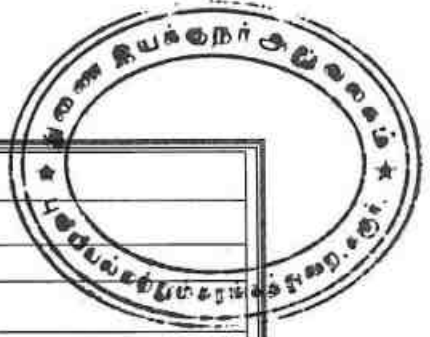
7) **Environmental measures to be adopted during the ongoing activity period,**

- a) Controlled blasting includes adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- 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) Transportation of material will be carried out during day time and material will be covered with tarpaulin.
- h) The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- i) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

1.0 **GENERAL:**

a.	Name of the Applicant	:	Mr.S.Kuppusamy
	Applicant address	:	S/o.Samiappagounder, Door No.95, Saliangkattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk,
	District	:	Tiruppur
	State	:	Tamilnadu
	Pin code	:	638105
	Phone	:	----
	Fax	:	Nil

S. Kuppusamy 232



Gram	:	Nil
Telex	:	Nil
E-mail	:	.....
b. Status of the Applicant		
Private individual	:	---
Cooperative Association	:	---
Private company	:	Private
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 and gravel quarry lease
d. Period for which the mining lease granted /renewed/ proposed to be applied	:	The precise area has been communicated to the applicant for quarrying period of five (5) years.
e. Name of the RQP preparing the Mining Plan	:	A.ALLIMUTHU., M.Sc., M.Phil., RQP/DMG/HYD/85/2022
Address	:	D.No.1/231, Pattakaranavalavu, Chinnamuthiyampatti, Puduppalayam – Post, Edapaddi Taluk, Salem District, Tamil Nadu State, India Pincode – 636306
Phone	:	+91 9788636242, 8870254313
Fax	:	Nil
e-mail	:	allimuthu1973@gmail.com
Telex	:	Nil
Certificate Number	:	RQP/DMG/HYD/85/2022
Date of grant/renewal	:	26.04.2022
Valid upto	:	25.04.2032
f. Name of the prospecting agency	:	The commissioner, Department of Geology and mining
Address	:	Department of Geology and Mining, Thiru Ve Ka Industrial Estate, Guindy, Chennai
Phone	:	044-22501874
g. Reference No. and date of consent letter from the state government	:	The precise area communication letter was received from the Deputy Director,

S. J. Rajarajasekaran 233



Department of Geology and Mining, District Collectorate, Karur Vide Rc.No.300/Mines/2022 Dated: 14.02.202.

2.0 LOCATION AND ACCESSIBILITY:

a.	Details of the Area:	:	Refer plate no: IA & IB			
	District & State	:	Karur, Tamil Nadu			
	Taluk	:	Pugalur			
	Village	:	Anjur			
Khasra No./ Plot No./ Block Range/ Felling Series etc.						
Survey No.	Sub division	Total Extent in Hect	Patta No.	Name of the Land Owner	Mine lease Applied S.F. No.	Mine lease Applied Area out of total area in hect.
764	3	1.14.0	1231	Mr.S.Kuppusamy S/o. Samiappagounder	764/3	1.14.0
765	3	0.48.0	1231		765/3	0.48.0
766	1	1.34.5	1591		766/1	1.34.5
766	2	1.14.0	1231		766/2	1.14.0
766	3A	0.47.35	2287		766/3A	0.47.35
767	1	0.11.5	1231		767/1	0.11.5
767	2A	0.13.35	2288		767/2A	0.13.35
Total Extent		4.82.7			Applied lease area extent		4.82.7
Lease area (hectares)			:	4.82.7 Hectare		
Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)			:	No, forest is involved. This is recorded patta Land.		
Ownership / Occupancy			:	This is a Patta land S.F.No. 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A is registered in the name of Mr.S.Kuppusamy S/o. Samiappagounder vides Patta No.1231, 1591, 2287 & 2288. (Ref. Annex. No:VI).		
Existence of Public Road / Railway line if any nearby and approximate distance			:	<input checked="" type="checkbox"/> Excavated materials will be transported through the approach road on the southwest side of the lease applied area. <input checked="" type="checkbox"/> There is an SH-189 road are situated about 0.33km away from the north side which is connecting Kangayam - Kodumudi Rd.		

S. Kuppusamy 234



	<p>✓ There is an NH-381A road situated about 4.55km away from the west side of the lease area.</p> <p>✓ There is no railway line situated around 5km radius from the site.</p>																																										
<p>Toposheet No. with latitude and longitude</p>	<p>SOI Toposheet No. 58 E/16</p> <p>Latitude : From 11°3'2.77"N to 11°3'13.51"N</p> <p>Longitude : From 77°46'49.20"E to 77°47'0.88"E</p>																																										
<p>Geo-Coordinates of the lease boundary:</p>																																											
<table border="1"> <thead> <tr> <th>Pillar No</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr><td>1</td><td>11° 3'12.47"N</td><td>77°47'0.88"E ✓</td></tr> <tr><td>2</td><td>11° 3'11.23"N</td><td>77°47'0.78"E</td></tr> <tr><td>3</td><td>11° 3'10.88"N</td><td>77°46'56.70"E</td></tr> <tr><td>4</td><td>11° 3'10.25"N</td><td>77°46'55.81"E</td></tr> <tr><td>5</td><td>11° 3'3.77"N</td><td>77°46'56.05"E</td></tr> <tr><td>6</td><td>11° 3'2.77"N ✓</td><td>77°46'55.36"E</td></tr> <tr><td>7</td><td>11° 3'4.69"N</td><td>77°46'53.49"E</td></tr> <tr><td>8</td><td>11° 3'5.67"N</td><td>77°46'50.44"E</td></tr> <tr><td>9</td><td>11° 3'7.10"N</td><td>77°46'49.20"E ✓</td></tr> <tr><td>10</td><td>11° 3'10.66"N</td><td>77°46'52.00"E</td></tr> <tr><td>11</td><td>11° 3'12.70"N</td><td>77°46'52.97"E</td></tr> <tr><td>12</td><td>11° 3'13.32"N</td><td>77°46'55.42"E</td></tr> <tr><td>13</td><td>11° 3'13.51"N ✓</td><td>77°46'55.49"E</td></tr> </tbody> </table>		Pillar No	Latitude	Longitude	1	11° 3'12.47"N	77°47'0.88"E ✓	2	11° 3'11.23"N	77°47'0.78"E	3	11° 3'10.88"N	77°46'56.70"E	4	11° 3'10.25"N	77°46'55.81"E	5	11° 3'3.77"N	77°46'56.05"E	6	11° 3'2.77"N ✓	77°46'55.36"E	7	11° 3'4.69"N	77°46'53.49"E	8	11° 3'5.67"N	77°46'50.44"E	9	11° 3'7.10"N	77°46'49.20"E ✓	10	11° 3'10.66"N	77°46'52.00"E	11	11° 3'12.70"N	77°46'52.97"E	12	11° 3'13.32"N	77°46'55.42"E	13	11° 3'13.51"N ✓	77°46'55.49"E
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7	11° 3'4.69"N	77°46'53.49"E																																									
8	11° 3'5.67"N	77°46'50.44"E																																									
9	11° 3'7.10"N	77°46'49.20"E ✓																																									
10	11° 3'10.66"N	77°46'52.00"E																																									
11	11° 3'12.70"N	77°46'52.97"E																																									
12	11° 3'13.32"N	77°46'55.42"E																																									
13	11° 3'13.51"N ✓	77°46'55.49"E																																									
<p>Land use pattern (Forest, Agricultural, Grazing, Barren etc.)</p>	<p>It is an existing and renewed quarry lease.</p>																																										
<p>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</i></p>	<p>Refer plate no-IA & IB</p>																																										

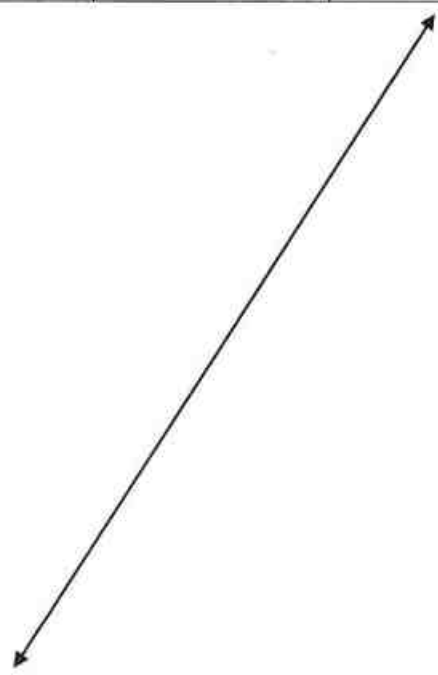
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area should be shown on an accurate sketch map on scale of 1 : 5000.

i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Muthur	4.7Km	West
b.	Nearest police station	Muthur	4.72km	West
c.	Nearest fire station	Kodumudi	10.0km	NE
d.	Nearest medical facility	Muthur	4.3Km	West
e.	Nearest school	Muthur	3.80Km	West
f.	Nearest railway station	Kodumudi	11.58km	NE
g.	Nearest port facility	Tuticorin	254.0km	South
h.	Nearest airport	Coimbatore	84.4km	West
i.	Nearest DSP office	Kangeyam	24.2m	SW
j.	Nearest villages	Karattan	1.61km	North
		kattupudur		
		Kolantapalaiyam	0.68km	East
		Pillapalaiyam	1.3km	SE
		Thottipalaiyam	1.36km	West



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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:

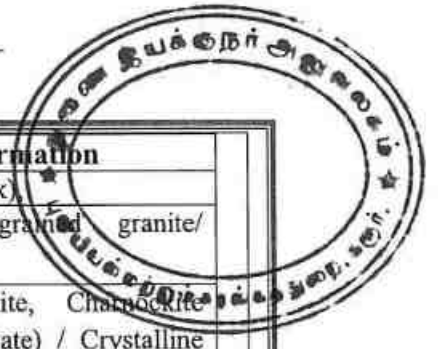
(i)	Topography	: The proposed lease area exhibits flat topography. The proposed site shows the relief of 1m; the maximum elevation (190m) was observed in North side of the site, while the minimum elevation (189m) was observed east side of the site. The slope is towards eastern side and falls in Toposheet no. 58 E/16.
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(ii) **a) Geology of the District:**

The Karur district forms part of the Archean complex of peninsular gneiss. The general rock types of this area are Biotite gneiss. Karur District is blessed with good reserves of crystalline limestone known as "Palayam belt" in Varavanai, Thennilai, Gudalur etc., villages in Kulithalai Taluk and the occurrences of good quality of pegmatite veins constituting with glassy quartz and potash feldspar in lensoid patches in Nagampalli and Pungambadi areas in Aravakurichi Taluk. The major mineral such as limestone, quartz and feldspar are exploited in Karur district and utilized in the mineral-based industries.

The Granite gneiss rocks are found to occur in K.Paramathi, Athur, Thennilai, Punnam, Godanthur South, Munnur, Punnam, Anjur villages in Karur and Aravakurichi Taluk are exploited to produce building materials and road metal (Jelly) and over burden soil appear as gray to reddish in colour called as gravel. The commercially known "Coloumbo Zubrana" the unique type in the Multi coloured granite / Granite gneiss category is occurring in Thogamalai, Naganur and Kazhugur Villages in Kulithalai Taluk. These rock type belong to minor mineral category. The arrangement of alternate layers of felsic and mafic minerals in linear pattern and exhibits wavy pattern in the rock and giving very good structure for the rock type. The well-developed gneissic pattern with linear arrangement, the rock type have attracted the granite market and found to be suitable for the exploitation of granite blocks. But in this area the banded gneissic rock has many fractures and foliation in it. So, this is not viable for dimensional stone. **Order of superposition of the proposed lease area,**

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Age	Group	Rock Formation
Recent to Sub recent	----	Topsoil (1-2m thick)
Proterozoic	Acid intrusive	Pink medium grained granite/ Granite gneiss
Archaean	Charnockite Group	Pyroxene Granulite, Charnockite (acid to intermediate) / Crystalline limestone / Quartzite

(iii) Local / Mine Geology of the mineral deposit area:

a) Topography of the proposed lease area:

The proposed lease area exhibits flat topography. The proposed site shows the relief of 1m; the maximum elevation (190m) was observed in North side of the site, while the minimum elevation (189m) was observed east side of the site. The slope is towards eastern side. The applied lease area is existing, with covered gravel and beneath the charnockite rocks found based on existing pit nearby the lease area. Surface plan preparing for contour lines, surface features and Geological mapped the applied lease area.

b) Mode of origin:

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.

c) Physiography of the rocks:

General characteristics of the rocks of this series has recorded that the rocks are in general bluish gray or darkish in colour and extremely fresh in appearance with an even grained granular structure.

d) Chemical composition of rocks:

The compositional characteristics of coexisting orthopyroxene, garnet and biotite have established several petrographic varieties within the Charnockites-Enderbites such as the granulite's and gneisses. Plagioclase feldspars, alkali feldspars and quartz are the salic minerals present in this series of rocks.

Order of superposition of rocks in the proposed site:

Age	Group	Rock Formation
Recent to Sub recent	----	Gravel
Archaean	Charnockite Group	Charnockite. ✓

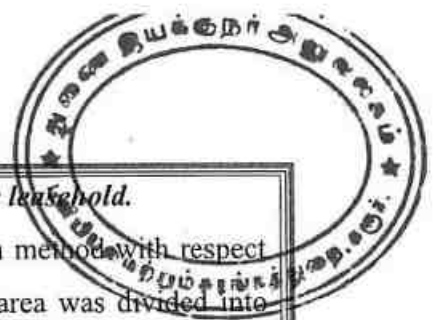
(iv) Drainage Pattern

No major river located within 50m radius. The drainage in the area is dendritic in nature.

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<p>(b) <i>The topographic plan of the lease area prepared on a scale of 1 : 1000 or 1: 2000 with contour interval of 3 to 10m depending upon the topography of the area should be taken as the base plan for preparation of geological plan. The details of exploration already carried out including evidences of mineral existence should be shown on the geological plan:</i></p>																															
<p>a. Present status</p>	<p>There is an existing pit was noticed by RQP with a pit level-1 is L53m X W22m X D3m, pit level-2 is L20m X W45m X D4m, pit level-3 is L8m X W60m X D6m, pit level-4 is L15m X W95m X D7m, pit level-5, is L25m X W20m X D10m, pit level-6 is L71m X W61m X D12m, pit level-7 is L48m X W140m X D13m, pit level-8 is L82m X W58m X D15m, pit level-9 is L62m X W76m X D16m. The Charnockite rocks are well seen in the existing pit with covered by lateritic soil over the part of lease area.</p>																														
<p>b. Surface Plan</p>	<p>Surface plan showing elevation contour, rock exposure, and accessibility road was prepared at the scale of 1: 2000, as shown in Plate No.III.</p>																														
<p>(c) Geological sections should be prepared at suitable intervals on a scale of 1: 1000 / 1: 2000</p>	<p>Longitudinal and transverse geological cross sections were prepared at the horizontal scale of 1: 1000 and at the vertical scale of 1:500, as shown in Plate No.IIIA & IIIB.</p>																														
<p>(d) <i>Broadly indicate the Year wise 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="width: 100%; border-collapse: collapse; text-align: center;"> <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>First</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>Second</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>Third</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>Fourth</td> <td>N.A</td> <td>---</td> <td>---</td> <td>N.A</td> </tr> <tr> <td>Fifth</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 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	First	N.A	---	---	N.A	Second	N.A	---	---	N.A	Third	N.A	---	---	N.A	Fourth	N.A	---	---	N.A	Fifth	N.A	---	---	N.A
Year	No.of boreholes	Total meterage	No.of Pits and Dimensions	No.of Trenches and Dimensions																											
First	N.A	---	---	N.A																											
Second	N.A	---	---	N.A																											
Third	N.A	---	---	N.A																											
Fourth	N.A	---	---	N.A																											
Fifth	N.A	---	---	N.A																											
<p>(e) <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.</i></p>																															



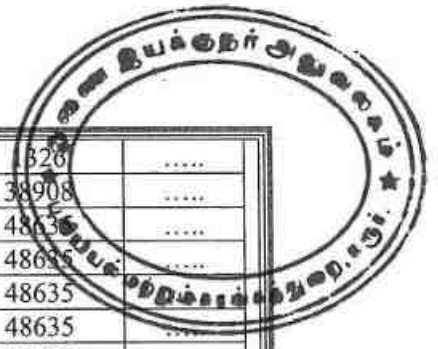
Availability of resources should also be indicated for the entire leasehold.

The geological resources were computed by cross section method with respect to the boundaries of the lease area. In this method, the lease area was divided into three sections (longitudinal and transverse) to calculate the volume of material up to the depth of 62m below ground level. The longitudinal and transverse cross sections were assigned (XY-AB), (XY-CD) & (XIYI-EF) as respectively. Using the cross-sectional method, total reserve is estimated to be **2654528m³** including the resources of safety zone, and gravel. Of which, rough stone is about **2616836m³** and gravel resource of about **37692m³**.

The gravel is obtained about 2m (R.L.190-188m) from the surface and a rough stone starts from 2 to 62m (R.L.188-128m) below ground level. (Refer plate no.IIIA).

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	104	179	2	37232	.....	37232
	II	136	179	5	121720	121720	.....
	III	137	179	5	122615	122615	.....
	IV	143	179	5	127985	127985	.....
	V	143	179	5	127985	127985	.....
	VI	143	179	5	127985	127985	.....
	VII	143	179	5	127985	127985	.....
	VIII	143	179	5	127985	127985	.....
	IX	143	179	5	127985	127985	.....
	X	143	179	5	127985	127985	.....
	XI	143	179	5	127985	127985	.....
	XII	143	179	5	127985	127985	.....
	XIII	143	179	5	127985	127985	.....
TOTAL				62	1561417	1524185	37232
XY-CD	I	10	9	2	180	.....	180
	II	10	9	5	450	450	.....
	III	19	11	3	627	627	.....
	III	19	28	2	1064	1064	.....
	IV	53	58	4	12296	12296	.....
	IV	116	111	1	12876	12876	.....
	V	116	111	5	64380	64380	.....
	VI	116	111	5	64380	64380	.....
	VII	116	111	5	64380	64380	.....
	VIII	116	111	5	64380	64380	.....
	IX	116	111	5	64380	64380	.....
	X	116	111	5	64380	64380	.....
	XI	116	111	5	64380	64380	.....
XII	116	111	5	64380	64380	.....
XIII	116	111	5	64380	64380	.....
TOTAL				62	606913	606733	180
XIYI-EF	I	5	28	2	280	280
	II	6	28	2	336	336
	II	27	28	3	2268	2268
	III	37	29	5	5365	5365

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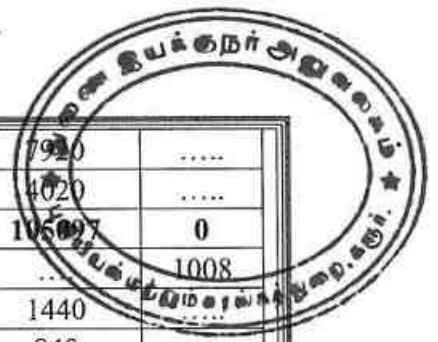
IV	39	34	1	1326	1326
IV	71	137	4	38908	38908
V	71	137	5	48635	48635
VI	71	137	5	48635	48635
VII	71	137	5	48635	48635	.....
VIII	71	137	5	48635	48635	.....
IX	71	137	5	48635	48635	.....
X	71	137	5	48635	48635	.....
XI	71	137	5	48635	48635	.....
XII	71	137	5	48635	48635	.....
XIII	71	137	5	48635	48635	.....
TOTAL			62	486198	485918	280
GRAND TOTAL				2654528	2616836	37692

(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 **831170m³** by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth of 62m (R.L.190-128m) below ground level. Of which, rough stone is about **799894m³** and gravel is about **31276m³**. The commercially viable rough stone has been prepared on 1: 2000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:500 as vertical axis (Refer plate no. VIA).

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	94	161	2	30268	....	30268
	II	124	157	5	97340	97340	.....
	III	120	147	5	88200	88200	.....
	IV	121	137	5	82885	82885	.....
	V	116	127	5	73660	73660	.....
	VI	111	117	5	64935	64935	.....
	VII	106	107	5	56710	56710	.....
	VIII	101	97	5	48985	48985	.....
	IX	96	87	5	41760	41760	.....
	X	91	77	5	35035	35035	.....
	XI	86	67	5	28810	28810	.....
	XII	81	57	5	23085	23085	.....
	XIII	76	47	5	17860	17860	.....
TOTAL					689533	659265	30268
XY-CD	III	7	11	5	385	385	.....
	IV	39	38	4	5928	5928	.....
	IV	92	67	1	6164	6164	.....
	V	92	62	5	28520	28520
	VI	87	52	5	22620	22620
	VII	82	42	5	17220	17220
	VIII	77	32	5	12320	12320

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	IX	72	22	5	7920	7920
	X	67	12	5	4020	4020
	TOTAL				105097	105097	0
X1Y1- EF	I	28	18	2	1008	1008	1008
	II	18	16	5	1440	1440	.....
	III	14	12	5	840	840	.....
	IV	11	12	1	132	132	.....
	IV	32	115	4	14720	14720	.....
	V	22	110	5	12100	12100	.....
	VI	12	105	5	6300	6300	.....
	TOTAL				36540	35532	1008
	GRAND TOTAL				831170	799894	31276

4.0 MINING:

a.	Briefly describe the existing / proposed method for developing / working the deposit with all design parameters. (Note: In case of pocket deposits, sequence of development/working may be indicated on the same plan)	:	It is an existing grant lease. The mining operation is open - cast, semi-mechanized method 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
----	---	---	---

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

Total proposed production **831170m³**. Of which, rough stone is **799894m³** and gravel is **31276m³** up to a depth of 62m below the ground level (R.L.190m-128m) for five years plan period. Average production is **159979m³** of rough stone per year (Refer Plate No. IV).

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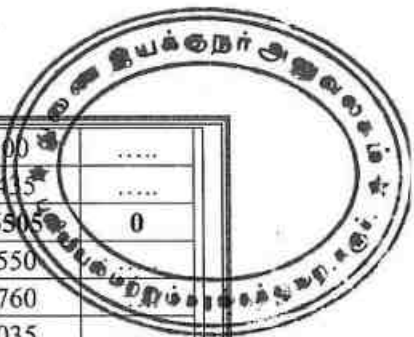
Year	Pit No.(s)	Topsoil/Overburden (m ³)	ROM (m ³)	Saleable rough stone (m ³) @ 100%	Rough stone rejects(m ³)	Sub grade/Weathered rock in (m ³)	Saleable Gravel (m ³)	Rough stone to topsoil ratio
First	I	---	181506	150230	...	...	31276	....
Second	I	---	147804	147804	...	...	....	....
Third	I	---	159995	159995	...	...	....	....
Fourth	I	---	156505	156505	...	...	....	....
Fifth	I	---	185360	185360	...	...	....	....
Total	—	...	831170	799894	...	....	31276	....

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

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

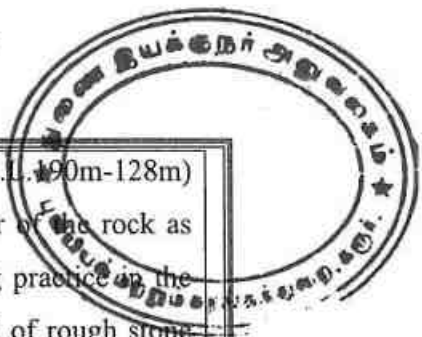
YEARWISE PRODUCTIONS RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
I-YEAR	XY-AB	I	94 ✓	161 ✓	2 ✓	30268	....	30268
		II	124 ✓	157 ✓	5 ✓	97340	97340	....
	X1Y1-EF	I	28 ✓	18 ✓	2 ✓	1008	....	1008
		II	18 ✓	16 ✓	5 ✓	1440	1440	....
	XY-AB	III	70 ✓	147 ✓	5 ✓	51450	51450	....
TOTAL						181506	150230	31276
II-YEAR	XY-AB	III	50 ✓	147 ✓	5 ✓	36750	36750	....
		III	7 ✓	11 ✓	5 ✓	385	385	....
	XY-CD	IV	39 ✓	38 ✓	4 ✓	5928	5928	....
		IV	92 ✓	67 ✓	1 ✓	6164	6164	....
	X1Y1-EF	III	14 ✓	12 ✓	5 ✓	840	840	....
		IV	11 ✓	12 ✓	1 ✓	132	132	....
	XY-AB	IV	32 ✓	115 ✓	4 ✓	14720	14720	....
		IV	121 ✓	137 ✓	5 ✓	82885	82885	....
TOTAL						147804	147804	0
III-YEAR	XY-AB	V	116 ✓	127 ✓	5 ✓	73660	73660	....
		VI	111 ✓	117 ✓	5 ✓	64935	64935	....
		VII	40 ✓	107 ✓	5 ✓	21400	21400	....
TOTAL						159995	159995	0
IV-YEAR	XY-AB	VII	66 ✓	107 ✓	5 ✓	35310	35310	....
		V	92 ✓	62 ✓	5 ✓	28520	28520	....
	XY-CD	VI	87 ✓	52 ✓	5 ✓	22620	22620
		VII	82 ✓	42 ✓	5 ✓	17220	17220
	X1Y1-	V	22 ✓	110 ✓	5 ✓	12100	12100

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	EF	VI	12	105	5	6300	6300	
	XY-AB	VIII	71	97	5	34435	34435	
TOTAL						156505	156505	0	
V-YEAR	XY-AB	VIII	30	97	5	14550	14550	
		IX	96	87	5	41760	41760	.....
		X	91	77	5	35035	35035	.....
	XY-CD	VIII	77	32	5	12320	12320	.....
		IX	72	22	5	7920	7920	.....
		X	67	12	5	4020	4020	.....
	XY-AB	XI	86	67	5	28810	28810	.....
		XII	81	57	5	23085	23085	.....
		XIII	76	47	5	17860	17860	.....
	TOTAL						185360	185360	0
GRAND TOTAL						831170	799894	31276	
d.	Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc.				:	Composite plan not prepared in this proposed lease area. It is "B ₂ " category of mine.			
e.	<p><i>Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected:</i></p> <p>At this rate of production, the expected life of quarry is calculated as given below: -</p> <p><u>Rough stone:</u></p> <p>Mineable reserves of rough stone = 799894m³</p> <p>Yearly production of rough stone = 159979m³</p> <p>Monthly production of rough stone = 13331m³</p> <p><u>Gravel:</u></p> <p>Mineable reserves of gravel = 31276m³</p> <p>Monthly production of gravel = 868m³</p> <p>The regular working of the quarry and its production depends upon the demand from the market. The market is always fluctuating and flexible one. Accordingly, there is a possibility to increase or decrease the production. The year wise production, anticipated life of quarry etc., are only a tentative figure.</p>								
f.	<i>Attach a note furnishing a conceptual mining plan for the entire lease period (for B" category mines) and up to the life of the mine (for "A" category mines) based on the geological, mining and environments considerations:</i>								
i)	Time frame of completion of mineral exploration program in leasehold area: Give broad				:	Considering the indefinite depth persistence of the rough stone and gravel deposit is proved beyond the workable limits about up to a depth			

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description identified potential areas to be covered in the given time frame:

of 62m below ground level (R.L. 190m-128m) from the petrogenetic character of the rock as well as from the actual mining practice in the area and with the current trend of rough stone production the quarry may sustain for 5 years.

ii) Whether ultimate pit limit has been determined and demarcated on surface and geological plan:-

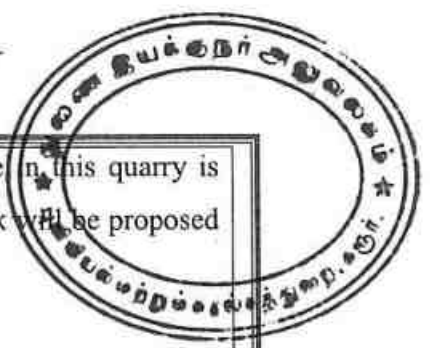
The ultimate pit limit has been determined and demarcated in the conceptual plan

ULTIMATE PIT LIMIT-(XY-AB)						
Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.190-188m	Five years Period	Gravel	94	161	2
II	R.L.188-183m		Rough stone	124	157	5
III	R.L.183-178m		Rough stone	120	147	5
IV	R.L.178-173m		Rough stone	121	137	5
V	R.L.173-168m		Rough stone	116	127	5
VI	R.L.168-163m		Rough stone	111	117	5
VII	R.L.163-158m		Rough stone	106	107	5
VIII	R.L.158-153m		Rough stone	101	97	5
IX	R.L.153-148m		Rough stone	96	87	5
X	R.L.148-143m		Rough stone	91	77	5
XI	R.L.143-138m		Rough stone	86	67	5
XII	R.L.138-133m		Rough stone	81	57	5
XIII	R.L.133-128m		Rough stone	76	47	5
Total						62m

ULTIMATE PIT LIMIT-(XY-CD)						
Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
III	R.L.183-178m	Five years Period	Rough stone	7	11	5
IV	R.L.178-174m		Rough stone	39	38	4
IV	R.L.174-173m		Rough stone	92	67	1
V	R.L.173-168m		Rough stone	92	62	5
VI	R.L.168-163m		Rough stone	87	52	5
VII	R.L.163-158m		Rough stone	82	42	5
VIII	R.L.158-153m		Rough stone	77	32	5
IX	R.L.153-148m		Rough stone	72	22	5
X	R.L.148-143m		Rough stone	67	12	5
Total						40m

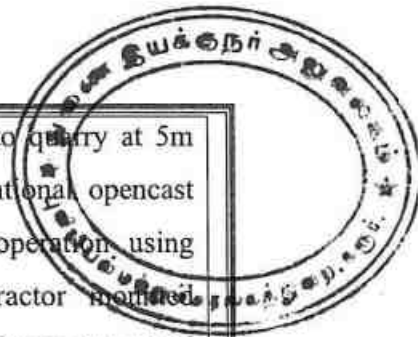
ULTIMATE PIT LIMIT-(X1Y1-EF)						
Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.190-188m	Five years Period	Gravel	28	18	2
II	R.L.188-183m		Rough stone	18	16	5
III	R.L.183-178m		Rough stone	14	12	5
IV	R.L.178-177m		Rough stone	11	12	1
IV	R.L.177-173m		Rough stone	32	115	4
V	R.L.173-168m		Rough stone	22	110	5
VI	R.L.168-163m	Rough stone	12	105	5	
Total						27m

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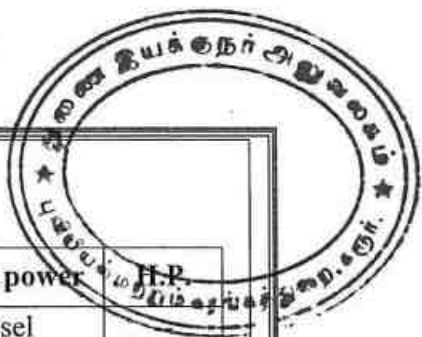
iii)	Whether the site for disposal of waste rock or an un-saleable material have/ has been examined for adequacy of land and suitability of long-term use in the event of continuation of mining activity: -	: The recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.
iv)	Whether back filling of pits after recovery of mineral up to techno-economically feasible depth envisaged. If so, describe the broad features of the proposal: -	: As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.
v)	Whether post mining land use envisaged: -	: At the end of mining activities over the quarry pit may be utilized fish culture or storage of rain water reservoir used for irrigation purposes.
g. Open cast Mines:		
i).	Describe briefly giving salient features of the mode of working (Mechanized, Semi-mechanized, manual)	: It is an existing quarry lease. 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. Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Excavators and tipper combination are adapted.

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<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 & width conventional opencast semi mechanized quarrying operation using drilling with the help of tractor mounted compressor attached with jack hammers, nonel blasting and waste and are removal using Hydraulic excavator and loaded directly to the tippers.</p> <p>Bench height = 5mts. Bench width = 5mts.</p>																																	
<p>a. Details of topsoil/ overburden</p>	<p>: There is no topsoil will be removed.</p>																																	
<p>b. Rough stone waste and side burden waste:-</p>	<p>: The recovery of rough stone in this quarry is 100%. Any other waste or side burden dumps are doesn't proposed.</p>																																	
<p>h. Underground Mines:</p>	<p>: Not applicable</p>																																	
<p>i. Extent of mechanization:</p> <p>Describe briefly including the calculation for adequacy and type of machinery and equipment proposed to be used in different mining operations.</p> <p>(1) Drilling Machines:</p> <p>Drilling of shot holes will be carried out using tractor mounted compressor and jack hammer. Details of drilling equipment's are given below.</p> <p>Details of drilling equipment's are given below.</p> <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>5</td> <td>32 mm</td> <td>Hand held</td> <td>---</td> <td>Diesel</td> <td>--</td> </tr> <tr> <td>Compressor</td> <td>3</td> <td>---</td> <td>Air</td> <td>--</td> <td>Diesel</td> <td>--</td> </tr> </tbody> </table> <p>(2) Loading Equipment:</p> <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>Hydraulic Excavator</td> <td>2</td> <td>2.9-4.5m³</td> <td>--</td> <td>Diesel</td> <td>--</td> </tr> </tbody> </table>		Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P	Jack Hammer	5	32 mm	Hand held	---	Diesel	--	Compressor	3	---	Air	--	Diesel	--	Type	Nos	Size / Capacity	Make	Motive power	H.P.	Hydraulic Excavator	2	2.9-4.5m ³	--	Diesel	--
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(3) Haulage and Transport Equipment

(a) Haulage within the mining leasehold:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	10	--	--	Diesel	

Whether the dumpers are fitted with exhaust conditioner should be indicated:

The dumpers are not used in this quarry; hence it's a small B2 category quarry.

a) Transport from mine head to the destination	:	Tipper will be used for transport rough stone from the mine head to needy customer.
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 trucks for initially production purposes.
e. Main destination to which ore is transported (giving to and from distance)	:	Excavated rough stone minerals directly will be used by the applicant in his own crusher for required size (i.e 1/4", 1/2", 1/3" and 1") The recovery of rough stone in this quarry is 100%.

f. Details of hauling / transport equipment:

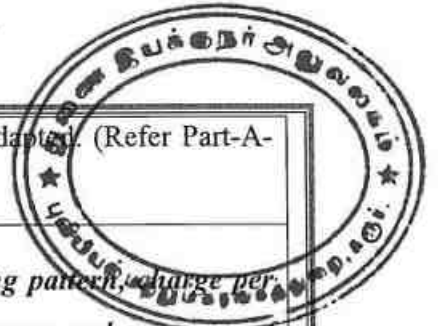
Type	Nos	Size / Capacity	Make	Motive power	H.P.
--	--	--	--	--	--

(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 opencast, 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

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combination are adapted. (Refer Part-A-4 (i))

5. BLASTING:

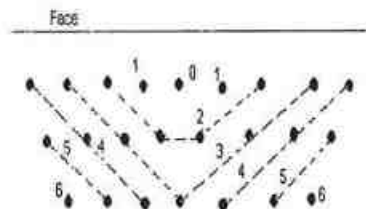
a) Broad blasting parameters like charge per hole, blasting pattern, delay, maximum number of holes blasted in a round, manner and sequence of firing, etc.

Blasting pattern:

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.

Drilling and Blasting parameters are as follows,

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 $1.2 \times 1.0 \times 1.5 = 1.8 \times 2.8$	5.04 Ts
6	Output per hole = $1.8 \times 2.8 = 5 T$	5 Ts
7	Production per annum $159979m^3 \times 2.8 = 447941 Ts$	447941 Ts
8	Total handling per day (280 working day)	1600Ts
9	Nos. of holes per day ($1600/5.04 = 317$)	317 holes
10	Meterage required per day ($317 \times 5.5 = 1744$)	1744meters
11	Charge per hole	0.375 kg
12	Powder factor ($317 \text{holes} \times 0.375 \text{ kg} = 119$)	119 kg
13	Sequence of blasting = Cord relay with electric detonators / Nonel	--

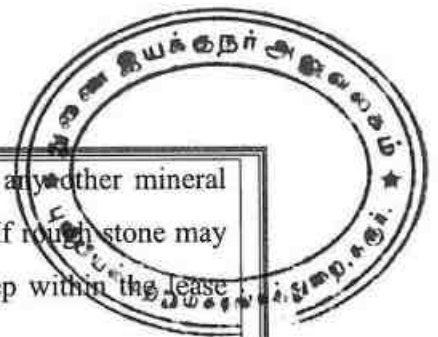


Staggered method of mining



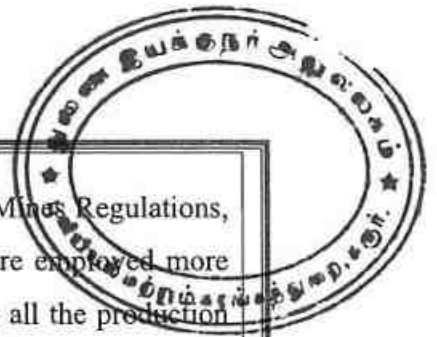
magazine)	<p>carry out blasting</p> <p>2. First Aid Box will be keeping ready at all the time.</p> <p>3. Necessary precautionary announcement will be carried out before the blasting operation.</p>
6. MINE DRAINAGE	
a) Likely depth of water table based on observations from nearby wells and water bodies	: The ground water table is reported as of 75m in rainy season and 80m in summer from the below 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 ultimate depth of mining is 62m bgl. Now, the present Mining lease will 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: No separate of topsoil will be removed and any other waste or side burden dumps are doesn't proposed.	
(b) Land chosen for disposal of waste with proposed justification	: There is no waste are proposed.

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(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. USE OF MINERAL:		
(a)	Describe briefly the end-use of the mineral (sale to intermediary parties, captive consumption, export, industrial use)	: The excavated stone materials will be supplied to the consumers like stone pillar, sized stone, etc. 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.
9. OTHERS		
(a)	Describe briefly the following 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.

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(b) Employment potential :
As per Mines safety under the provisions of Metalliferous Mines Regulations, 1961 and under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified mining mate to keep all the production workers directly under his control and supervision.

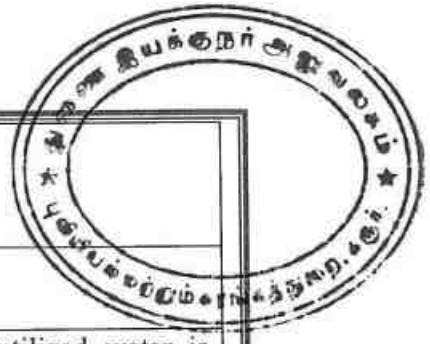
The following man power is proposed for quarrying stone material during the five years period the same manpower will be utilize for this mining plan period to achieve the proposed production and to comply the provisions of as per the MMR, 1961 norms.

1.	Highly Skilled	Mines Manager	1No.
		Mine Engineer	1No.
		Mine Geologist	1No
		Blaster	1No
2.	Unskilled	Musdoor / Labours	25 No's
Total =			29 No's

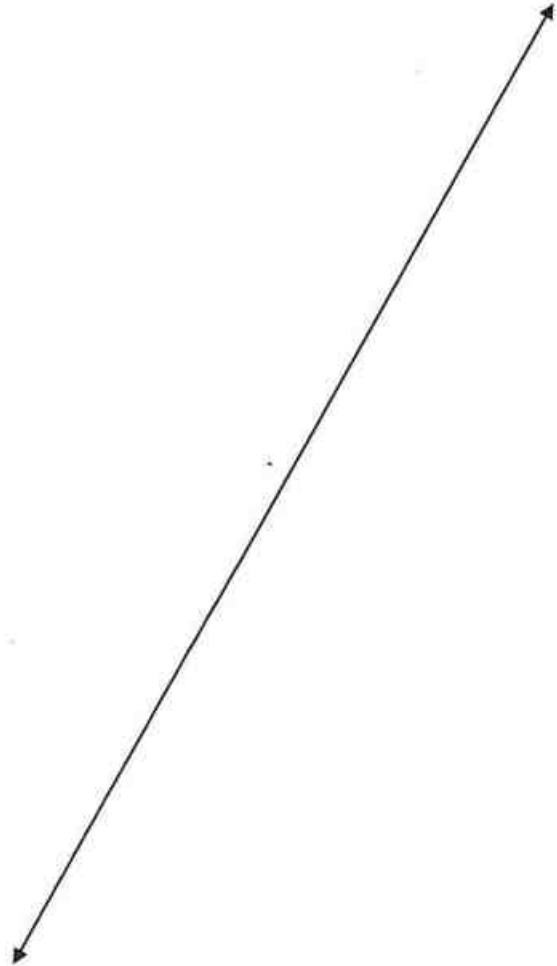
10 MINERAL PROCESSING/BENEFICIATIONS:

(a)	If processing / beneficiations of the ore or minerals mined is planned to be conducted on site or adjacent to the extraction area, briefly describe the nature of the processing /beneficiation. This should indicate size and grade of feed material and concentrate (finished marketable product), recovery rate.	:	Excavated rough stone minerals directly will be used by the applicant in his own crusher for required size ½, ¾ and 1½ inches Jelly which are mainly used in road and building construction purpose. The recovery of rough stone in this quarry is 100%.
(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).	:	No water will 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 will 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.
(c)	A flow sheet or schematic diagram of the processing procedure should be attached.	:	Not applicable.

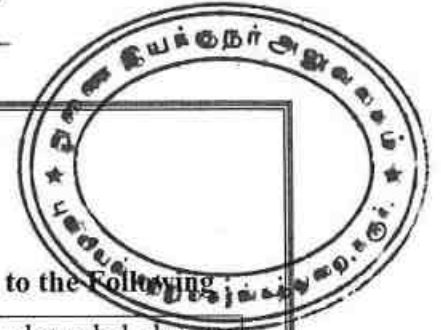
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(d)	Specify quantity and type of chemicals to be used in the processing plant.	: Not applicable
(e)	Specify quantity and type of chemicals to be stored on site / plant.	: Not applicable
(f)	Indicate quantity (cu.m. per day) of water required for mining and processing and sources of supply of water. Disposal of water and extent of recycling.	: Drinking is 1.5KLD, utilized water is 2.0KLD, Dust suppression is 2.0KLD and Green Belt is 2.5KLD. Minimum quantity of water 8.0KLD 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.



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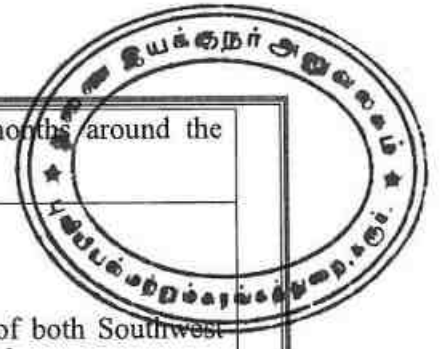
PART - B

11.0 ENVIRONMENTAL MANAGEMENT PLAN :

a) Attach a note on the status of Baseline information with regard to the following:

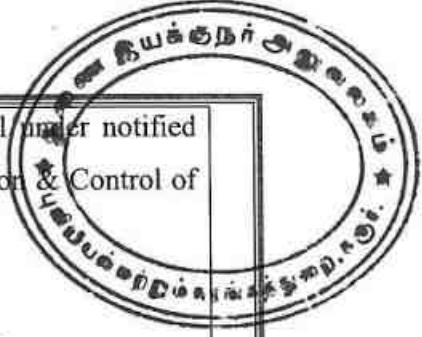
11.1	Existing land use pattern indicating the area already degraded due to quarrying /pitting, dumping, roads, processing plant, workshop, township etc in a tabular form. The present land use pattern is given as below.																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Sl. No.</th> <th style="width: 45%;">Land Use</th> <th style="width: 40%;">Present area (Hect.)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Area under mining</td> <td style="text-align: center;">2.40.7</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Infrastructure</td> <td style="text-align: center;">Nil</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Road</td> <td style="text-align: center;">0.04.0</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Green belt & Dump</td> <td style="text-align: center;">Nil</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Drainage & Settling Tank</td> <td style="text-align: center;">Nil</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Un-utilized area</td> <td style="text-align: center;">2.38.0</td> </tr> <tr> <td colspan="2" style="text-align: center;">Grand total</td> <td style="text-align: center;">4.82.7</td> </tr> </tbody> </table>			Sl. No.	Land Use	Present area (Hect.)	1.	Area under mining	2.40.7	2	Infrastructure	Nil	3	Road	0.04.0	4	Green belt & Dump	Nil	5	Drainage & Settling Tank	Nil	6	Un-utilized area	2.38.0	Grand total		4.82.7
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11.2	Water Regime	: Water table in this area is noticed at a depth of 80m in summer and 75m in rainy season from the general ground level and presently the quarrying of rough stone is proposed up to a depth of 62m bgl. Hence, it will not affect the ground water depletion of this area. It is made own borewell for providing uninterrupted supply of RO drinking water, dust suppression and green belt development.																								
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																								

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		carried out every six months around the quarry site.																									
11.5	<p>Climatic conditions:</p> <p>Climate:</p> <p>The district receives the rain under the influence of both Southwest and Northeast monsoons. The Northeast monsoon chiefly contributes to the rainfall in the district. Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in Bay of Bengal. The Southwest monsoon rainfall is highly erratic and summer rains are negligible. The average annual rainfall over the district varies from about 620 mm to 745 mm.</p> <p>Rainfall:</p> <p>The annual rainfall normal (1970-2000) of Karur district is 742 mm. Projections of rainfall over Karur for the periods 2010-2040 (2020s), 2040- 2070 (2050s) and 2070-2100 (2080s) with reference to the baseline (1970-2000) indicate a general decrease of 4.0%, 3.0% and 11.0% respectively.</p>																										
11.6	<p>Human Settlement:</p> <p>The nearest villages are found in the buffer zone with population as per 2011 census.</p> <table border="1"> <thead> <tr> <th>S.N</th> <th>Village</th> <th>Direction</th> <th>Distance in Kms</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Karattan kattupudur</td> <td>North</td> <td>1.61km</td> <td>750</td> </tr> <tr> <td>2</td> <td>Kolantapalaiyam</td> <td>East</td> <td>0.68km</td> <td>1308</td> </tr> <tr> <td>3</td> <td>Pillapalaiyam</td> <td>SE</td> <td>1.3km</td> <td>1450</td> </tr> <tr> <td>4</td> <td>Thottipalaiyam</td> <td>West</td> <td>1.36km</td> <td>2113</td> </tr> </tbody> </table>	S.N	Village	Direction	Distance in Kms	Population	1	Karattan kattupudur	North	1.61km	750	2	Kolantapalaiyam	East	0.68km	1308	3	Pillapalaiyam	SE	1.3km	1450	4	Thottipalaiyam	West	1.36km	2113	
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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.																									

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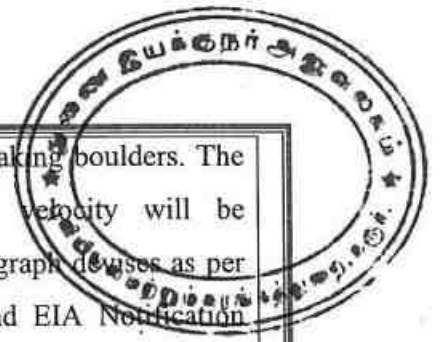


11.9	Does area (partly or fully) fall under notified area under Water (Prevention & Control of Pollution), Act, 1974	: The proposed area not fall under notified area under water (Prevention & Control of Pollution), Act, 1974
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b) Attach an Environmental 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)	<p>Land area indicating the area likely to be degraded due to quarrying / pitting, dumping, roads, workshop, processing plant, township etc:</p> <p>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:</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Land Use</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Area under mining</td> <td>3.94.5</td> </tr> <tr> <td>2</td> <td>Infrastructure</td> <td>0.02.0</td> </tr> <tr> <td>3</td> <td>Road</td> <td>0.15.0</td> </tr> <tr> <td>4</td> <td>Green belt</td> <td>0.60.5</td> </tr> <tr> <td>5</td> <td>Drainage & Settling Tank</td> <td>Nil</td> </tr> <tr> <td>6</td> <td>Un-utilized area</td> <td>0.10.7</td> </tr> <tr> <td colspan="2">Grand total</td> <td>4.82.7</td> </tr> </tbody> </table>	Sl. No.	Land Use	Area in use during the quarrying period (Hect)	1.	Area under mining	3.94.5	2	Infrastructure	0.02.0	3	Road	0.15.0	4	Green belt	0.60.5	5	Drainage & Settling Tank	Nil	6	Un-utilized area	0.10.7	Grand total		4.82.7	
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ii).	Air Quality	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying.																								
iii).	Water quality	A water sample from the open/bore wells was tested to NABL approved lab to assess hardness, Salinity, colour, Specific gravity, etc.																								
iv).	Noise levels	Quarrying of 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																								

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		shot holes are used for breaking boulders. The maximum peak particles velocity will 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 water bodies like rivers, pond, lake etc., located within a radius of 500m.
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	:	There is no topsoil will be removed.
ii).	Year wise proposal for reclamation of land affected by abandoned quarries and other mining activities during first five years (and upto conceptual plan period for 'A' category mines) clarifying the extent of back filling and re-contouring and / or alternative use of unfilled / partially filled excavations / road sides / slopes and mine. In case abandoned quarries/ pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given.	:	The present mining is proposed to an average depth of 62m bgl has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of working bench with S1 fencing. No immediate proposals for closure of pit as the rough stone persist still at deeper level.

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iii) *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.*

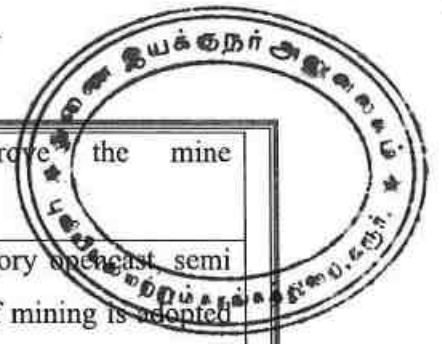
Green Belt Development:

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.

Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs
First	Lease Boundary	6050	670	80%	@100 Rs Per sapling	67,000/-
Second	Approach road and Nearby Village Road	--	300	80%		30,000/-
Third	Schools	--	300	80%		30,000/-
Total						1,27,000/-

iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the first five years (and up to conceptual plan period for 'A' category mines).	:	No waste or rejects removed in this lease area.
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. The worked-out pit will be protected with barbed wire and the mined-out pit will be used as storage rain water pit. The open pit will be used as rain water storage structure to augment groundwater

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		levels which improve the mine environment.
viii).	Protective measures for ground vibrations / air blast caused by blasting,	: It is a small B2 category open cast semi mechanized method of mining is adopted and no heavy machinery will 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.

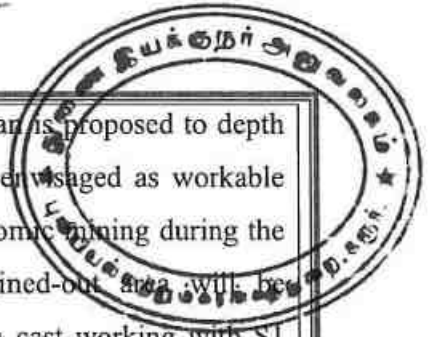
d). Monitoring schedules for different environmental components after the commencement of mining and other related activities. (for 'A' category mines only)

Not applicable. It is B2 category quarry

12.0 PROGRESSIVE QUARRY CLOSURE PLAN:

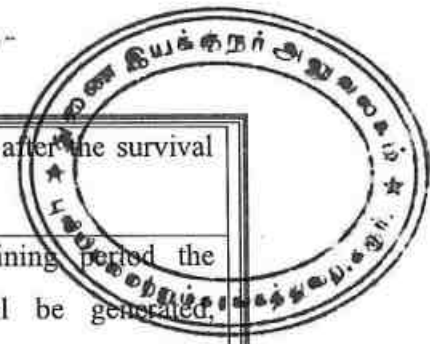
12.1	Steps proposed for phased restoration, reclamation of already mined out area.	: The Ultimate mining is proposed to an average depth of 62m bgl. The mined-out area will be fenced on top of working bench with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures 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 670 trees will be proposed in the quarry 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 restoration/ reclamation of the already mined out area	: The quarry lease is an existing mining lease. No mitigation measures adopted.

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12.4	Mine closure activity	: The present mining plan is proposed to depth of 62m bgl 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 SI fencing. 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 mine 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 method of mining is adopted in this quarry. If the benches are made with proposed height and with 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

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		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. 29 labors will be improved.
12.9	Reclamation and Rehabilitation	: Land degradation is one of the major adverse impacts of open-cast mining activities and any effort to control adverse impacts would be incomplete without appropriate land reclamation strategy. After the exhaustion of entire mineable rough stone, mined out pit will be converted in fish culture or storage of rain water reservoir purposes.

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

A	Fixed Asset Cost:	
	1. Land Cost	: Rs. 30,00,000/-
	2. Labour Shed	: Rs. 1,50,000/-
	3. Sanitary Facility	: Rs. 1,50,000/-
	4. Fencing	: Rs. 2,60,000/-
	5. Other expenses (Security guard, dust bin, etc)	: Rs. 3,00,000/-
	Total	: Rs. 38,60,000/-
B	B. Machinery cost	: Rs. 30,00,000/- (Hire Basis)
C	Total Expenditure of EMP cost (for five years)	
	1. Drinking Water Facility	: Rs. 2,50,000/-

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2. Sanitary facility & Maintenance	:	Rs. 1,00,000/-
3. Permanent water sprinkler	:	Rs. 3,00,000/-
4. Afforestation and its maintenance	:	Rs. 1,27,000/-
5. Safety Kits	:	Rs. 1,00,000/-
6. Provision of tyre washing facility	:	Rs. 1,50,000/-
7. Blasting materials with blast mat cost	:	Rs. 30,00,000/-
8. Environment monitoring	:	Rs. 5,00,000/-
Total	:	Rs. 45,27,000/-
D	Total Project Cost (A+B+C)	Rs. 1,13,87,000/-

13.0 FINANCIAL ASSURANCE:

Not applicable, it is a small B2 rough stone and gravel quarry.

14.0 CERTIFICATES:

All required certificates are enclosed.

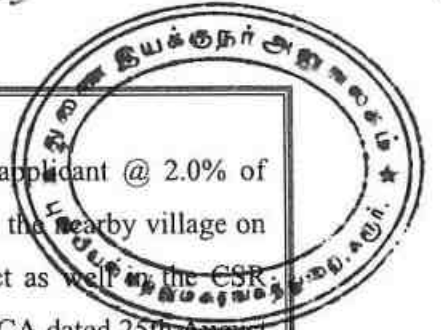
15.0 PLAN AND SECTIONS, ETC:

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 mining plan is prepared by incorporating the conditions stipulated in the precise area communication issued by the Deputy Director of Geology and Mining, Karur vide letter **Rc.No.300/Mines/2022 Dated: 14.02.2023**.
- (iv) Total proposed production of **831170m³**. Of which, rough stone is about **799894m³** and gravel is about **31276m³** up to a depth of 62m below the ground level (R.L.190m-128m) for five years plan period. Average production is **159979m³** of rough stone per year.

J. Jayaraman 263



17.0 CSR Expenditure:

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

Place: Dharmapuri, TN

Date: 18/02/2023

A. Allimuthu

Signature of the Recognized Qualified Person

A. ALLIMUTHU, M.Sc., M.Phil.,
Recognized Qualified Person
RQP/DMG/HYD/85/2022

This Mining Plan is approved based on incorporation of the particulars specified in clause 7 (iv) of the Commissioner of Geology and Mining Chennai Lr No 3868 / LC / 2012 dt 19-11-2012 and Draft Minor Mineral Conservation & Development Rules 2010

[Signature]
01/03/23

Deputy Director of Geology and Mining
Karur District

This Mining Plan is approved subject to the conditions/stipulations indicated in the Mining Plan approval Letter No: 200/miny/2022 Dated: 01/03/2023

[Signature]
01/03/2023



ந.க.எண். 300/கனிமம்/2022

மாவட்ட ஆட்சியர் அலுவலகம்,
புவியியல் மற்றும் கரங்கத்துறை
கரூர்

நாள்.14.02.2023.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கரூர் மாவட்டம் - புகளூர் வட்டம் - அஞ்சூர் கிராமம் - பட்டா புல எண்கள்.764/3 (1.14.00 ஹெக்டேர்), 765/3(0.48.0 ஹெக்டேர்), 766/1 (1.34.50 ஹெக்டேர்), 766/2(1.14.00 ஹெக்டேர்), 766/3A(0.47.35 ஹெக்டேர்),767/1 (0.11.50 ஹெக்டேர்) மற்றும் 767/2A(0.13.35 ஹெக்டேர்) ஆகியவற்றின் மொத்தம் 4.82.70 ஹெக்டேர் பரப்பில் - சாதாரணகல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வேண்டி திரு.சா.குப்புசாமி என்பவர் விண்ணப்பம் செய்தது - உரிமம் வழங்க பரிந்துரை செய்யப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட கரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

- பார்வை:**
1. திரு.சா.குப்புசாமி, த/பெ.சாமியப்பகவுண்டர், கதவு எண்.95, சாலியங்காட்டுபள்ளம், தொட்டிபாளையம், முத்தூர், காங்கேயம் வட்டம், திருப்பூர் மாவட்டம் என்பவரின் விண்ணப்ப நாள்: 28.06.2022.
 2. வருவாய் கோட்டாட்சியர், கரூர் அவர்களின் கடிதம் ந.க.எண். அ1/4146/2022, நாள்:08.02.2023
 3. உதவி புவியியலாளர், புவியியல் மற்றும் கரங்கத்துறை, கரூர் என்பவரது புலத்தணிக்கை அறிக்கை நாள்:10.02.2023
 4. அரசாணை (பல்வகை) எண். 169, தொழில் (எம்.எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது. (குமிழ்நாடு அரசிதழ் சிறப்பு வெளியீடு எண். 315 நாள்: 04.08.2020).

கரூர் மாவட்டம், புகளூர் வட்டம், அஞ்சூர் கிராமம், பட்டா புல எண்கள்.764/3 (1.14.00 ஹெக்டேர்), 765/3(0.48.0 ஹெக்டேர்), 766/1 (1.34.50 ஹெக்டேர்), 766/2(1.14.00 ஹெக்டேர்), 766/3A(0.47.35 ஹெக்டேர்),767/1 (0.11.50 ஹெக்டேர்) மற்றும் 767/2A(0.13.35 ஹெக்டேர்) ஆகியவற்றின் மொத்தம் 4.82.70 ஹெக்டேர் பரப்பு நிலத்திலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க திருப்பூர் மாவட்டம், காங்கேயம் வட்டம், சாலியங்காட்டுபள்ளம், கதவு எண்.95 என்ற முகவரியில் உள்ள திரு.சா.குப்புசாமி என்பவர் பார்வை 1-இல் கண்டுள்ளவாறு விண்ணப்பம் செய்துள்ளார்.

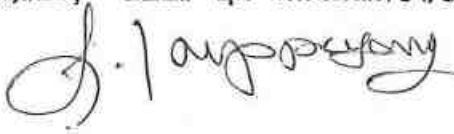
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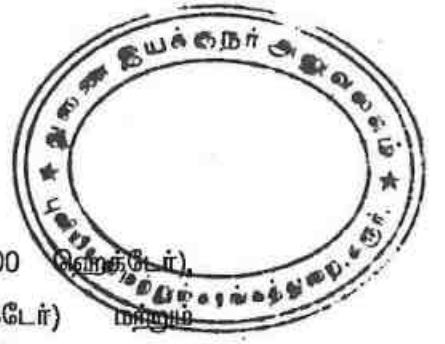


மேற்படி விண்ணப்பம் தொடர்பாக, வருவாய் கோட்டாட்சியர், கரூர் மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கரூர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கரூர் மாவட்டம், புகளூர் வட்டம், அஞ்சூர் கிராமம், பட்டா புல எண்கள்.764/3 (1.14.00 ஹெக்டேர்), 765/3(0.48.0 ஹெக்டேர்), 766/1 (1.34.50 ஹெக்டேர்), 766/2(1.14.00 ஹெக்டேர்), 766/3A(0.47.35 ஹெக்டேர்),767/1 (0.11.50 ஹெக்டேர்) மற்றும் 767/2A(0.13.35 ஹெக்டேர்) ஆகியவற்றின் மொத்தம் 4.82.70 ஹெக்டேர்ஸ் பரப்பில் தமிழ்நாடு சிறு கனிமச்சலுகை விதிகளில் விதி எண்கள்.19-(1) 20 மற்றும் 22-இன் கீழ் திரு.சா.குப்புசாமி என்பவர் ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பார்வை 2 மற்றும் 3-இல் கண்டுள்ளவாறு பரிந்துரை செய்துள்ளனர்.

1. விண்ணப்ப புல எண்.766/1, 766/2 மற்றும் 766/3A -க்கு மேற்கு மற்றும் தென்மேற்கில் உள்ள புல எண்கள். 756 மற்றும் 757-இல் தென்வடலாக செல்லும் வண்டிப்பாதை புறம்போக்கிற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
2. விண்ணப்ப புல எண்.764/3-க்கு கிழக்கில் புல எண். 764/4-இல் தென்வடலாக செல்லும் பட்டா மண் பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
3. விண்ணப்ப புலத்திற்கு அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் மற்றும் புறம்போக்கு நிலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
4. குத்தகைக்காலத்தில் கைத்துளைப்பான் கருவி கொண்டு பாறைகளை துளையிட்டும், மிதமான வெடிபொருள் பயன்படுத்தியும், பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ யாதொரு சேதமுமின்றி விதிமுறைகளின்படி குவாரிப்பணி செய்ய வேண்டும்.
5. குவாரித் தொழிலாளர்களின் பாதுகாப்பினை உறுதி செய்ய Mettalliferous Mines, விதிகளின்படி அகலமானதும், பாதுகாப்பானதுமான Benches அமைத்து பாதுகாப்பான முறையில் குவாரிக்குள் வாகனங்கள் சென்றுவரவும் மற்றும் குவாரி தொழிலாளர்களின் பாதுகாப்பினை உறுதி செய்தும் குவாரிப்பணி செய்ய வேண்டும்.
6. குவாரி குத்தகை வழங்க ஏதுவாக துணை இயக்குநர் (சுரங்கம்) அவர்களால் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினையும், மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (SEIAA) இசைவினை பெற்று மாவட்ட நிர்வாகத்திற்கு விண்ணப்பதாரர் நிறுவனத்தினரால் சமர்ப்பிக்கப்பட வேண்டும்.

எனவே, வருவாய் கோட்டாட்சியர், கரூர் மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கரூர் ஆகியோரின் பரிந்துரைகள் மற்றும் நிபந்தனைகளின் அடிப்படையில் கரூர் மாவட்டம், புகளூர் வட்டம், அஞ்சூர் கிராமம், பட்டா புல எண்கள்.764/3 (1.14.00 ஹெக்டேர்), 765/3(0.48.0

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ஹெக்டேர்), 766/1 (1.34.50 ஹெக்டேர்), 766/2(1.14.00 ஹெக்டேர்), 766/3A(0.47.35 ஹெக்டேர்), 767/1 (0.11.50 ஹெக்டேர்) மற்றும் 767/2A(0.13.35 ஹெக்டேர்) ஆகியவற்றின் மொத்தம் 4.82.70 ஹெக்டேர் பரப்பில் 1959-ஆம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண். 19(1), 20 மற்றும் 22-இன்படியும் மேலும் மேற்கண்ட நிபந்தனைகளுக்கும் உட்பட்டு 5 (ஐந்து) சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் திரு.சா.குப்புசாமி என்பவருக்கு அரிதியிட்ட (Precise area) நிலப்பரப்பாக கருதப்படுகிறது.

அதற்கிணங்க, தமிழ்நாடு சிறு கனிம சலுகை விதிகள்-1959 விதி எண்.41-இன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு திரு.சா.குப்புசாமி என்பவர் கேட்டுக்கொள்ளப்படுகின்றார். மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-இன்படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

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14/2/22

துணை இயக்குநர்,
புலியியல் மற்றும் சுரங்கத்துறை,
கரூர்.

பெறுநர்

திரு.சா.குப்புசாமி,
த/பெ.சாமியப்பகவுண்டர்,
கதவு எண்.95,
சாலியங்காட்டுபள்ளம்,
தொட்டிபாளையம்,
முத்தூர்,
காங்கேயம் வட்டம்,
திருப்பூர் மாவட்டம்.

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14/02/2023

நகல்:-

1. மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
2. ஆணையர், புலியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை.

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Dr. H. Malleshappa, I.F.S
Member Secretary

STATE LEVEL ENVIRONMENTAL IMPACT
ASSESSMENT AUTHORITY - TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet, Chennai-15
Phone No.044-24359973

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.1426/1(a)/ EC.No: 3848/2015 dated: 30.05.2017

To
Thiru S. Kuppusamy
Saliyangattupalam
Odaiyam Village,
Kangeyam Taluk
Tiruppur District - 638 105



Sir,

Sub: SEIAA-TN – Proposed Rough Stone quarry located at S.F.No 759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1, Anjur Village, Aravakurichi Taluk, Karur District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 14.06.2013
2. Minutes of the 71th SEAC held on 29.12.2015, 30.12.2015 & 31.12.2015
3. Minutes of the SEIAA meeting held on 30.05.2017

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 S. Kuppusamy Odaiyam Village, Kangeyam Taluk Tiruppur District - 638 105
2	Location of the Proposed Activity	
	Survey Number	759/5,764/3,765/3, 766/1(P),766/2 & 767/1
	Latitude and Longitude	11°03'12.12" N to 11°03'3.33" N 77°46'46.82" E to 77°47'0.41"E
	Village	Anjur
	Taluk	Aravakurichi
	District	Karur

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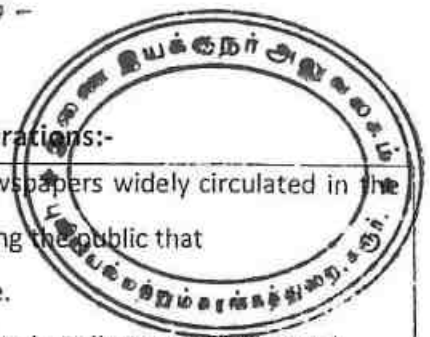
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MEMBER SECRETARY
SEIAA-TN



3	Proposed Activity	
	i. Minor mineral	Rough Stone
	ii. Mining Lease Area	4.92.5 Ha
	iii. Approved quantity	45200 cu.m of Rough Stone
	iv. Depth of Mining	16 m
	v. Type of mining	Opencast Semi Mechanised Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Na.Ka.No.173/Kanimam/2012 Dated:10.04.2013
	viii. Mining plan approval	Assistant Director Rc.No.173Mines/2012 Dated:02.05.2013
	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:	11 Employees
6	Utilities	
	i. Source of Water :	water vendors/Existing bore hole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.1KLD
	b. Industrial	} 0.9KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	
7	Cost	
	i. Project Cost	Rs.28.92 Lakhs
	ii. EMP Cost	Rs.4.05 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:	29.12.2015,30.12.2015 & 31.12.2015 71-01
10	Date of Review/Discussion by SEIAA and the Remarks:-	
	The proposal was placed before the SEIAA in its 212 th Meeting held on 30.05.2017 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 45200 cu.m of Rough stone for the period of 5 Years from the date of execution of the Mining Lease period.	

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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. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. 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.
6. 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.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. 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.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.
14. 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.

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MEMBER SECRETARY
SEIAA-TN

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15. The mined out pits should be backfilled where warranted and areas 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.
16. 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.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. 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.
21. 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.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
- Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - 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.
24. 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.
25. 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.





26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. 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.
29. 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.
30. 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.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. 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.
33. 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.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. 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.
36. 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.
37. 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
38. Ground water quality monitoring should be conducted once in 3 Months
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF , GOI.

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MEMBER SECRETARY
SEIAA-TN

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41. Air sampling at intersection point should be conducted and reported to MPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
42. Bunds to be provided at the boundary of the project site.
43. Ground water quality monitoring should be conducted once in 3 Months
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 Project Proponent shall provide solar lighting system to the nearby villages
49. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
50. Rainwater shall be pumped out Via Settling Tank only
51. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
52. As per MoEF&CC, GoI, 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.
53. 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.
54. Safety equipments to be provided to all the employees.
55. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai.
56. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
57. 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.
58. The Project Proponent is also directed to strictly adhere to the Sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
59. 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.

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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.
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.

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17. This Environmental Clearance does not imply that the other statutory and 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 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, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Karur District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. El Division, Ministry of Environment & Forests, Parivaran Bhawan, New Delhi.
10. Spare.

J. Jayaraman



PROCEEDINGS OF THE DISTRICT COLLECTOR, KARUR.

PRESENT: THIRU T.N. VENKATESH, I.A.S.,

Re.B/597/G&M/2006.

Dated: 19.02.2007.

Sub Mines and Quarries - Karur District - Aravakurichi Taluk - Anjur Village - over an extent of 4.56.5 hecets., of patta land in S.F.Nos.759/5 (1.40.0 hecets.), 764/3 (1.14.0 hecets.), 765/3 (0.48.0 hecets.), 766/2 (1.14.0 hecets.), 767/1 (0.11.5 hecets.) and 767/2 (Part) (0.29.0 hecets.) - Quarry lease to quarry roughstone application preferred by Thiru S. Kuppusamy - Orders Issued - Regarding.

- Ref 1 Quarry lease application preferred by Thiru S. Kuppusamy, Erode District dt:Nil.
2. Report of the Special Revenue Inspector (Mines) Karur dt:19.02.2007.
 3. Report of the Deputy Director (Geology and Mining) Karur, dt:19.02.2007.
 4. Other connected records.

== =

ORDER:

Thiru S. Kuppusamy, S/o.Samiappa Gounder, Saliangattupallam, Muthur Post, Erode Taluk, Erode District has applied for the grant of quarry lease to quarry roughstone over an extent of 4.56.5 hecets., of patta land in S.F.Nos.759/5 (1.40.0 hecets.), 764/3 (1.14.0 hecets.), 765/3 (0.48.0 hecets.), 766/2 (1.14.0 hecets.) 767/1 (0.11.5 hecets.) and 767/2 (Part) (0.24.0 hecets.) of Anjur Village, Aravakurichi Taluk, Karur District for a period of five years, vide reference 1st cited.

2) The Special Revenue Inspector (Mines) in his report 2nd cited has reported that the area applied for quarry lease i.e., the S.F.Nos.759/5 (1.40.0 hecets.), 764/3 (1.14.0 hecets.), 765/3 (0.48.0 hecets.), 766/2 (1.14.0 hecets.) 767/1 (0.11.5 hecets.) stands registered in the name of the applicant, Thiru S. Kuppusamy vide patta No.1231 and the S.F.No.767/2 (1.27.5 hecets stands registered in the name Thiru Palanisamy vide patta No.1232 of Anjur Villlage. The above said pattadar have given no objection

J. Kuppusamy

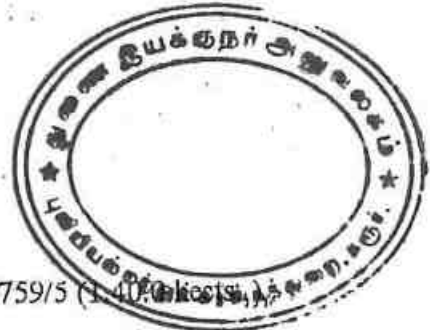


affidavit for the grant of quarry lease in favour of the applicant. Hence, the applicant has surface rights over the area applied for the grant of quarry lease. There are no permanent buildings, temples, monuments in and around the area applied for quarry lease. There is no pond, lake, river in the area applied for quarry lease. There is no low tension/ high tension powerline, telephone line running through the area applied for quarry lease. There is no habitation within the radius of 300 metres from the area applied for quarry lease. The above land is not required for public purposes. The above land is not covered under Land Ceiling Act and Land Acquisition Act. The Village Administrative Officer in his statement has state that there is no objection raised by the public of the village for the grant of quarry lease. Finally, the Special Revenue Inspector (Mines) has recommended for the grant of quarry lease in favour of the applicant.

3) The Deputy Director (Geology and Mining) Karur in his report 3rd cited has reported that

1. Previously, the area applied for quarry lease was granted on lease in favour of the applicant for a period of five years vide District Collector's Proceedings Rc.D.79/2001 dt:05.06.2001, and the lease period was expired on 18.09.2006. Now, the applicant has applied for the fresh grant of quarry lease.
2. The area applied for quarry lease is flat terrain. Charnockite is traversed with numerous pegmatite veins. The formation is striking almost North-South and dips almost vertically. The rock type found to occur in this area is suitable for exploitation of roughstones viz., Aralai and jelly. The approximate quantity of the mineral that may be available in this area is calculated as 2,80,000 M³ or 50,000 Lorry loads
3. approach road is available for the area applied for quarry lease.
4. one cart track is running on the North eastern side of the area applied for quarry lease.
5. the area applied for quarry lease is a plain terrain surrounded by dry lands and there is no thick forest around the applied area. Hence, there is no chance for any destabilization, environmental degradation and ecological imbalance due to the proposed quarrying activities.

Finally, the Deputy Director (Geology and Mining) Karur has stated that the application preferred by Thiru S. Kuppusamy, S/o. Samiappa Gounder, Saliangattupallam, Muthur Post, Erode District for the grant of quarry lease to quarry



roughstone over an extent of 4.56.5 hecets., of patta land in S.F.Nos.759/5 (1.40.0 hecets.), 764/3 (1.14.0 hecets.), 765/3 (0.48.0 hecets.), 766/2 (1.14.0 hecets.), 767/1 (0.11.5 hecets.) and 767/2 (Part) (0.29.0 hecets.) of Anjur Village, Aravakurichi Taluk, Karur District may be considered for the grant of quarry lease for a period of 5 years as per Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 with usual terms and conditions and also subject to the following special condition that

- (1) the applicant should leave a safety distance of 10 metres for the cart tract running on the Southern side of the area applied for quarry lease.
- (2) the applicant should leave a safety distance of 10 metres for the Public path in S.F.Nos.759/1 and 764/4.

5) In view of the above, the quarry lease to quarry aralai, jelly and sholing over an extent of 4.56.5 hecets., of patta land in S.F.Nos.759/5 (1.40.0 hecets.), 764/3 (1.14.0 hecets.), 765/3 (0.48.0 hecets.), 766/2 (1.14.0 hecets.), 767/1 (0.11.5 hecets.) and 767/2 (Part) (0.29.0 hecets.) of Anjur Village, Aravakurichi Taluk, Karur District is granted in favour of Thiru S. Kuppusamy, S/o. Samiappa Gounder, Saliangattupallam, Muthur Post, Erode District for a period of 5 years as per Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959 with usual terms and conditions and also subject to the following special conditions that,

- (1) the applicant should leave a safety distance of 10 metres for the cart tract running on the Southern side of the area applied for quarry lease.
- (2) the applicant should leave a safety distance of 10 metres for the Public path in S.F.Nos.759/1 and 764/4.

[Signature]
for Collector,
Karur.

To
Thiru S. Kuppusamy,
S/o. Samiappa Gounder,
Saliangattupallam,
Muthur Post,
Erode District
Copy to the Revenue Divisional Officer, Karur.
Copy to the Tahsildar, Aravakurichi.
Copy to the Village Administrative Officer, Anjur.
Copy to the Village President, Anjur.

[Signature] 26/2/07
[Signature] 26/2/07

[Signature]



கரூர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறைகள் நக.ஆ.597/2006
நாள் 19-2-2007-இன் இணைப்பு

இதர நிபந்தனைகள்:

1. விண்ணப்பதாரர் ரூ.5,000/-ஐ பாதுகாப்புத் தொகையாக செலுத்தி குத்தகை ஒப்பந்தப்பத்திரம் மாவட்ட ஆட்சியரிடம் நிறைவேற்ற வேண்டும்.
2. விண்ணப்பதாரர், 1959 ஆம் வருடத்திய தமிழ் நாடு சிறு கனிம சலுகை விதிகளின் இணைப்பு -இல் உள்ள படிவத்தில் குத்தகை பத்திரம் ரூ. (ரூபாய்.....
..... மட்டும்) மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில், இந்த உத்திரவு கிடைக்கப் பெற்ற 15 தினங்களில் நிறைவேற்ற வேண்டும். குத்தகை ஒப்பந்தப்பத்திரத்தை விண்ணப்பதாரர் தன் சொந்த செலவில் பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து 30 தினங்களுக்குள் பதிவு செய்து இவ்வலுவலகத்தில் ஒப்படைக்க வேண்டும்.
3. குத்தகை காலம் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளாகும்.
4. விண்ணப்பதாரர் மேற்கண்ட இடத்தில் குவாரி செய்யும் சாதாரண கற்களான அரணை, ஜல்லி, சோலிங் ஆகியவற்றை மேற்படி இடத்திலிருந்து வெளியில் எடுத்துச் செல்வதற்கு முன்பு அவை ஒவ்வொன்றிற்கும் அவற்றிற்குரிய வீதத்தில் சீனியரேஜ் தீர்வை செலுத்தி இவ்வலுவலகத்தில் பர்மிட் மற்றும் அனுமதி சீட்டு பெற்ற பின்புதான் மேற்படி கனிமங்களை குவாரியிலிருந்து வெளியில் எடுத்துச் செல்ல வேண்டும். சீனியரேஜ் தீர்வை அல்லது டெட்ரெண்ட் இதில் எது அதிகமோ அதனை செலுத்த வேண்டும். சீனியரேஜ் தீர்வை அல்லது டெட்ரெண்ட் மற்றும் பரப்புத்தீர்வை 1959-ஆம் வருடத்திய தமிழ் நாடு சிறு கனிம சலுகை விதிகளின் இணைப்பு-2 இல் அவ்வப்போது அரசால் நிர்ணயிக்கப்படும் வீதத்தில் செலுத்த வேண்டும்.
5. குத்தகை இடத்தில் பெறப்படும் அனைத்து கனிமங்கள் பற்றிய விபரங்கள் அவற்றின் அளவு ஆகியவற்றிற்கு முறையான கணக்கு பதிவேடுகளில் எழுதப்பட்டு அப்பதிவேடுகள் குவாரியில் வைக்கப்பட வேண்டும்.
6. குத்தகை இடத்தில் குவாரி செய்யப்பட்ட கனிமங்களின் அளவு, எடுத்துச் செல்லப்பட்ட கனிமங்களின் அளவு, முதலியவற்றை குறிப்பிட்டு ஒவ்வொரு மாதத்திற்கும், அதற்கு அடுத்த மாதம் 5-ஆம் தேதிக்குள் கரூர், புலியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநருக்கு மாதாந்திர அறிக்கை அனுப்ப வேண்டும்.
7. குத்தகை இடத்திற்கு அருகிலுள்ள குடியிருப்புகள், கட்டிடங்கள், நீர்நிலைகள், குளங்களின் கரைகள், மரங்கள், சாலைகள், வண்டிப்பாதைகள், நடைபாதைகள் மற்றும் இதர பொது சொத்துக்களுக்கு பாதகமில்லாமல் குவாரி செய்ய வேண்டும்.
8. குத்தகை இடத்திற்கு அருகாமையில் உள்ள பட்டாதாரர்கள் மற்றும் பொது மக்களுக்கு பாதகமில்லாமல் குவாரி செய்ய வேண்டும்.
9. குத்தகை இடத்திற்கு அருகிலுள்ள குடியிருப்புகளுக்கு 300 மீட்டரும், ரயில் பாதைகள், சாலைகள், மின்சாரம் மற்றும் தொலைபேசி லைன்கள் ஆகியவற்றிற்கு 50 மீட்டரும், நடைபாதைகள், கிராம சாலைகளுக்கு 10 மீட்டரும் பாதுகாப்பு தூரம் விட்டு குவாரி செய்ய வேண்டும்.

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10. மாவட்ட ஆட்சித்தலைவர் அல்லது அரசால் அதிகாரம் வழங்கப்பட்ட அலுவலரை குத்தகை இடத்தை பார்வையிடவும், குவாரி பதிவேடுகள், ஆவணங்கள் மற்றும் கணக்கை சரிபார்க்கவும் அனுமதிக்க வேண்டும். இது சம்பந்தமாக அவர்கள்கோரும் அனைத்து விவரங்களையும் வழங்க வேண்டும்.

11. சுற்றுப்புற சூழ்நிலை பாதுகாப்பு, கனிம பாதுகாப்பு, தொழிலாளர் பாதுகாப்பு ஆகியவற்றை கருத்தில் கொண்டு விஞ்ஞான அடிப்படையில் திறமையுடன் முறையாக குவாரி செய்ய வேண்டும்.

12. மாவட்ட ஆட்சித்தலைவர் மற்றும் புலியியல் மற்றும் சுரங்கத்துறை ஆணையர் ஆகியோரால் அதிகாரம் வழங்கப்பட்ட அலுவலரை மேலே பத்தி (5) மற்றும் (10)ல் குறிப்பிட்டுள்ள நிபந்தனைகள் தொடர்பாகவும் மேற்கண்ட அலுவலர்களின் ஆணையை நிறைவேற்றவும் இடத்தை பார்வையிட அனுமதிக்க வேண்டும்.

13. குத்தகை ஒப்பந்தப்பத்திரத்துடன் இணைக்கப்பட்டுள்ள வரைபடத்தில் காட்டியுள்ள இடத்தில் தான் குவாரி செய்ய வேண்டும்.

14. குத்தகை உரிமம் வழங்கப்பட்ட இடத்தின் புல எண், விஸ்தீரணம், கிராமம், குத்தகை காலம், குத்தகைதாரரின் பெயர் ஆகியவற்றைக் காட்டும் அறிவிப்பு பலகை எழுதி குவாரியின் முகப்பில் வைத்து அதனை சரியானபடி பராமரித்து வர வேண்டும்.

15. குத்தகை இடத்தில் எல்லையிலிருந்து 7.5 மீட்டர் தூரத்திற்குள் குவாரி செய்யக் கூடாது.

16. பொது சாலையிலிருந்து குத்தகை இடத்திற்கு செல்ல பாதை வசதி குத்தகைதாரர் தம் சொந்த பொறுப்பில் செய்து கொள்ள வேண்டும்.

17. குத்தகை ஒப்பந்தப்பத்திரத்துடன் இணைத்துள்ள வரைபடத்தில் காட்டியுள்ள குத்தகை இடத்தைச் சுற்றியும் எல்லைக் கற்கள் நட்டு அவற்றை சரியானபடி பராமரித்து வர வேண்டும்.

18. 1959-ஆம் வருடத்திய தமிழ் நாடு சிறு கனிம சலுகை விதிகளின் இணைப்பு- XII மற்றும் XIII -இல் உள்ள படிவங்களில், இசைவாணைச்சீட்டு மற்றும் நடைச்சீட்டினை தயார் செய்து அவற்றில் மாவட்ட ஆட்சித்தலைவரால் அதிகாரம் வழங்கப்பட்ட அலுவலரின் கையொப்ப முத்திரை மற்றும் அலுவலக முத்திரைகள் பெற்று குவாரியிலிருந்து சாதாரண கற்களான அரணை, ஜல்லி, சோலிங் ஆகியவற்றை ஏற்றிச் செல்லும் ஒவ்வொரு வாகனமும் அதனை சோதனை செய்வதற்கு அதிகாரம் பெற்ற அலுவலர் சோதனை செய்யும் போது நடைச்சீட்டைக் காண்பிக்க வேண்டும். இசைவாணைச் சீட்டு மற்றும் நடைச்சீட்டு நகல்களை குவாரியில் வைத்திருக்க வேண்டும். இவற்றிற்கு முறையான கணக்கு பராமரித்து வர வேண்டும். முறையான இசைவாணைச் சீட்டு மற்றும் நடைச்சீட்டுகள் இல்லாமல் கனிமங்களை ஏற்றிச் செல்லும் வாகனங்கள் 1959 ஆம் வருடத்திய தமிழ் நாடு சிறு கனிம சலுகை விதிகள் மற்றும் சுரங்கங்கள் மற்றும் கனிமங்கள் (அபிவிருத்தி மற்றும் ஒழுங்குமுறை) சட்டம், 1957-இன் படி கைப்பற்றப்பட்டு உரிய நடவடிக்கை எடுக்கப்படும். குத்தகைதாரர் மீதும் நடவடிக்கை எடுக்கப்படும்.

19. குத்தகை இடத்தை சாதாரண கற்களான அரணை, ஜல்லி மற்றும் சோலிங் குவாரி செய்ய மட்டும் பயன்படுத்த வேண்டும். குத்தகை உரிம ஆணை அல்லது ஒப்பந்தப்பத்திரத்தில் தவறுதலான கனிம விபரம் குறிக்கப்பட்டிருந்தால் அதனை எந்த நேரத்திலும் திருத்துவதற்கு அதிகாரம் உண்டு. குத்தகைதாரர் அதனடிப்படையில் எந்த ஒரு உரிமையும் கோர முடியாது.

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20. மெருகேற்றுவதற்கும், அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும் பயன்படும் பருவ வடிவத்தில் கல் குவாரி செய்பக் கூடாது.
21. 30 கன சென்டிமீட்டர் அளவுக்கு அதிகமான கல் குவாரி செய்பக்கூடாது.
22. குத்தகை ஒப்பந்தப் பத்திரத்தில் குறிக்கப்படாத வேறு ஏதாவது கனிமம் கிடைத்தால் அதனை சம்பந்தப்பட்ட அலுவலரின் அனுமதியைக் பெறாமல், அதற்குரிய சீனியரேஜ் தொகையை செலுத்தாமல் எடுக்கக்கூடாது. புதிய கனிமம் கிடைத்த விபரத்தை 30: தினங்களுக்குள் தெரிவிக்காவிட்டால், அதற்கு அந்த கனிமத்திற்குரிய சாதாரண சீனியரேஜ் கட்டணத்தைப் போல் 15 மடங்கு வரை மாவட்ட ஆட்சித்தலைவரால் விதிக்கப்படும்.
23. குத்தகை காலம் முடிந்த பிறகு, குத்தகை இடத்திலிருந்து அரணை, ஜல்லி, சோலிங் வெளியில் எடுத்துச் செல்ல குத்தகைதாரருக்கு உரிமையில்லை.
24. குத்தகையை வேறு எவருக்கும் உள் குத்தகைக்கு விடக்கூடாது.
25. குவாரி செய்வதில் இழப்பு ஏற்படின் நஷ்ட ஈடு கேட்கக் கூடாது..
26. குவாரியில் வேலை செய்யும் தொழிலாளர்களுக்கும் மற்றும் இதர நபர்களுக்கும் விபத்து ஏதாவது ஒன்று ஏற்படின் சகல நஷ்டங்களுக்கும் குத்தகைதாரர் பொறுப்பு ஏற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதமும் செலுத்த வேண்டும்.
27. அரசுக்கு செலுத்த வேண்டிய தொகையை உரிய காலத்திற்குள் செலுத்தவில்லையெனில் அத்தொகை 24% அல்லது அரசால் அவ்வப்போது நிர்ணயிக்கப்படும் வீதத்தில் வட்டியுடன் வசூலிக்கப்படும்.
28. அரசுக்கு செலுத்த வேண்டிய பாக்கித் தொகை தமிழ்நாடு வருவாய் வசூல் சட்டம் 1864-இன் கீழ் வசூலிக்கப்படும்.
29. குத்தகை நிபந்தனைகள், 1959-ஆம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், அரசு, புவியியல் மற்றும் சுரங்கத்துறை ஆணையர், மாவட்ட ஆட்சியர் ஆகியோரது ஆணைகள் மீறப்படும் மீறலுக்கு அபராதம் விதிப்பதோடல்லாது குத்தகைதாரர்க்கு நேர் விசாரணை வாய்ப்பளித்து, பின்பு குத்தகை உரிமம் ரத்து செய்யப்படும்.
30. அரசின் அவ்வப்போதைய ஆணைகளுக்கேற்ப நிபந்தனைகள் மாற்றியமைக்கவோ, நீக்கவோ, கூடுதலாக சேர்க்கவோ அதிகாரமுண்டு.
31. மேற்கூறிய நிபந்தனைகளுடன் 1959-ஆம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், சுரங்கங்கள் மற்றும் கனிமங்கள் (அபிவிருத்தி மற்றும் ஒழுங்குமுறை) சட்டம், 1957, அரசு, புவியியல் மற்றும் சுரங்கத்துறை ஆணையர், மாவட்ட ஆட்சியர் ஆகியோரால் அவ்வப்போது பிறப்பிக்கப்படும் ஆணைகளும் குத்தகைதாரரை கட்டுப்படுத்தும்.
32. குத்தகைதாரர் குவாரி / சுரங்கங்களுக்கு பொருந்தக்கூடிய தொழிலாளர் சட்டங்களுக்கு கட்டுப்பட்டு குவாரி செய்ய வேண்டும். தவறினால் சம்பந்தப்பட்ட அரசின் சட்டப்பூர்வமான நடவடிக்கைகளுக்கு குத்தகைதாரர் உள்ளாக வேண்டியிருக்கும்.

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மாவட்ட ஆட்சித்தலைவருக்காக,
கருநர்.

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Doc No 655/2017



தமிழ்நாடு தமில்நாடு TAMILNADU ரூ. 5000

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19 JUN 2017
சுமியப்பகட்டு
சமியப்ப

U 633639

S. RAMAMURTHY, S.V
KARUR-639 001.
L.No: 05/1992

APPENDIX - IV

(See Rule 19 (1) and 22 of TNMMCR-1959)
(Collr. Ref. No.173/ Mines/2012)

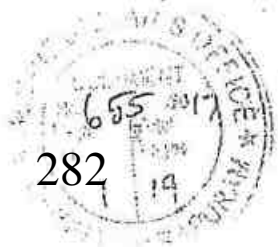
FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

AGREEMENT made this 23rd day of June 2017 between Thiru. S. Kuppasamy, S/o. Samiyappagounder, Saliyangakattupallam, Odaiyam Village, Kangeyam Taluk, Trippur District (hereinafter referred to as 'the registered holder / lessee' which term shall include in these presents where the context so admits include also his heirs, executors administrators, legal representatives and assigns) of the one part and the Governor of Tamil Nadu (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the other part.

WHEREAS, the registered holder holds the lands described in the schedule hereunder written (herein after referred to as the said lands)

AND WHEREAS, the registered holder has made application to the Collector of District of Karur (herein after referred to as "the Collector") seeking grant of quarrying lease for quarrying Rough Stone in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands.

REGISTERED HOLDER / LESSEE
S. Kuppasamy



DISTRICT COLLECTOR,
KARUR.



தமிழ்நாடு தமில்நாடு TAMILNADU ரூ. 5000

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19 JUN 2017

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U 633640

S. RAMAMURTHY, S.V
KARUR-639001.
L.No:05/1992

AND WHEREAS, the Collector acting for and on behalf of the Government has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for Rough Stone in the said land to deposit mining waste thereon by the registered holder.

AND WHEREAS, as the registered holder has deposited with the Collector, the sum of Rs.5000/- (Chalan No.53, Dated:19.06.2017, State Bank of India, Thanthoni) as security against loss or damage which may be incurred by the Government by reason by any of the said lands being rendered and unfit for cultivation by any mining operations therein of the registered holder or by deposit of mining waste thereon by the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder both hereby agree with the Government in the manner following that is to say:

- 01. The registered holder shall be at liberty at all times during the period of the lease, i.e. for five years from 23 .6.2017 to 22 .6.2022 to carry mining operations for Rough Stone in the lands in a proper and workman like manner and to deposit mining waste on the lands and shall at all times the answerable and

REGISTERED HOLDER / LESSEE

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தமிழ்நாடு தமில்நாடு TAMILNADU ரூ. 5000

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9064 குமரசாமி
19 JUN 2017 ச. ராமமூர்த்தி குமாரன்

S. RAMAMURTHY, S.V
KARUR-639001.
L.No: 05/1992

accountable to the Government for all acts and if default by any of his nominees, servants or agents in carrying on such operations or in making such deposits.

02. The registered holder shall pay to the Collector for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands seigniorage on the minor minerals at the rates specified in the Appendix II to the Tamil Nadu Minor Mineral Concession Rules, 1959.

03. The registered holder shall and will keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining 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 working in the said lands and shall allow any officer hereunto authorized by the Commissioner / Director of Geology and Mining, Tamil Nadu from time to time and at any time to examine such accounts and any such plans and shall when so required supply and

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REGISTERED HOLDER / LESSOR
DISTRICT COLLECTOR, KARUR.



தமிழ்நாடு தமிழ்நாடு TAMILNADU ரூ. 5000

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பட்டி

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S. RAMAMURTHY, S.V
KARUR-639 001.
L.No: 05/1992

furnish all such information and returns regarding all or any of the matter aforesaid as the Government shall, from time to time required and direct.

- 04. The Registered holder shall and will at all times, allow any officer authorized by the Commissioner / Director Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the lands where any mining operations may be carried on for the purpose of inspecting the same.
- 05. The registered holder shall forthwith send to the District Collector a report of any accident, which may occur at or in the said lands and also of the discovery of any mineral other than Rough Stone.
- 06. It shall be lawful for the registered holder at any time to cease mining operations under these present provided they shall pay to the Collector for and on behalf of the Government land assessment, cess and seigniorage due to the Government and shall restore the said lands or force, or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these present shall cease and determine.



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REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR,
KARUR

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தமிழ்நாடு தமில்நாடு TAMILNADU

₹ 500

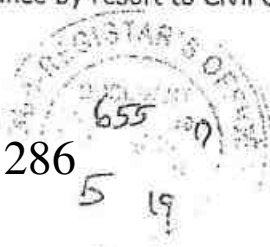
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S. RAMAKRISHNAN, S.V
KARUR-639 001.
L.No: 05/1992

07. In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them in any such case, it shall be lawful for the Collector to so restore any such land, or as the case may be to so fence or fill any such pits or excavation at the expense of the registered holder and to apply the said sum of Rs.5000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling in or to meet thirty times the assessment on the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.



REGISTERED HOLDER / LESS
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Handwritten signature of the District Collector, Karur.



08. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by carrying on of any mining operation or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.
09. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Collector.
10. All lands assessment, cess and seigniorage payable under these present 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 registered by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector give notice in writing to the registered holder of his intension to cancel these presents where upon the same shall stand cancelled but without prejudice to any rights which the Government may have against pattadar in respect of any antecedent claim or breach of covenant or condition.
12. Any notice to be given to the registered holder may be addressed to their last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.
13. Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder there under, the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director / Commissioner of Geology and Mining. In case the registered holder / lessee is not satisfied with the decision of the Director / Commissioner of Geology and Mining, the matter shall be referred to the State Government for decision.
14. The registered holder 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 Explosives Act, 1884 (Central Act IV of 1884).

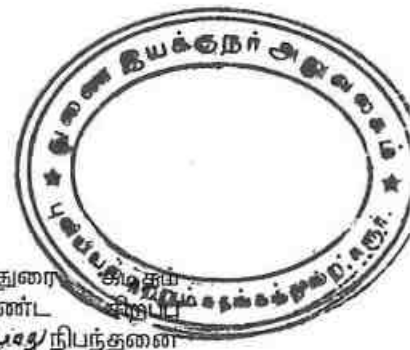
நிபந்தனைகள்:-

1. குத்தகை புலத்தினை அடுத்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.
2. பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ யாதொரு ஃசதமும் இன்றி பாதுகாப்பான முறையில் குவாரிப்பணி செய்ய வேண்டும்.
3. பொதுமக்களின் நலன் கருதி பாதுகாப்பான முறையில் குறைந்த அழுத்தமுள்ள வெடிபொருட்கள் பயன்படுத்தியும், கைத்துளைப்பான் கருவி கொண்டு துளையிட்டும், தொழிலாளர்களின் பாதுகாப்பினை உறுதி செய்ய பாதுகாப்பானதும், அகலமான Benches அமைத்து குவாரிப்பணி செய்ய வேண்டும்.

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[Signature]
REGISTERED HOLDER/LESSEE

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DISTRICT COLLECTOR



4. மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் பரிந்துரை கீழ்க் கீழ்க் SEIAA, TN/F.No.1426/1(a)/EC.No.3848/2015, நாள்.30.5.2017ல் கண்ட நிபந்தனைகளை முறையாக கடைபிடித்து குவாரிப்பணி செய்வதுடன், 6/1/2017 நிபந்தனை 2 ல் கண்டவாறு குவாரிப் பணி ஆரம்பிப்பதற்கு முன்பாக தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரியத்தின் தடையின்மை சான்று பெற்று அதன் பின்னரே குவாரிப்பணி துவங்க வேண்டும். மாசுக்கட்டுப்பாட்டு வாரிய தடையின்மை சான்றிணை குறித்த காலங்களில் புதுப்பிக்க வேண்டும்.
5. குத்தகைதாரர் தனக்கு அளிக்கப்பட்ட குத்தகை பகுதியின் எல்லைகளை தெளிவாக காட்டும் வகையில் கல் நட்டு வண்ணம் இட்டு குத்தகை காலம் முழுமைக்கும் பராமரிக்க வேண்டும்.
6. குத்தகைதாரர் குவாரியின் அருகே குத்தகைதாரர் பெயர், கிராமத்தின் பெயர், வட்டத்தின் பெயர், புல எண். பரப்பு, குத்தகை ஆணை எண். குத்தகை காலம், கனிமத்தின் பெயர், போன்ற விபரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தமது சொந்த செலவில் வைத்து நன்கு பராமரிக்க வேண்டும்.
7. குவாரிக்கு சென்றுவரும் பாதை வசதிகள் குத்தகைதாரர்கள் அவர் தம் சொந்த பொறுப்பிலேயே அமைத்துக் கொள்ள வேண்டும்.
8. குத்தகை வழங்கப்பட்ட பாறையில் குண்டுக்கல், ஐல்லி, அரளை கல், வேலிக்கற்கள், போன்ற சிறுகனிமங்கள் உடைத்தெடுக்க மட்டுமே அனுமதியுண்டு. வெளிநாடுகளுக்கு ஏற்றுமதியாகும் மெருகூட்டும் கனவடிவ கற்கள் வெட்டி எடுக்கக் கூடாது.
9. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகை கற்களுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்பு 2ல் கண்டுள்ளவாறு உரிமவரி செலுத்த வேண்டும். அரசு அவ்வப்போது அறிவிக்கும் உரிமவரி மாற்றங்களுக்கு ஏற்ப எவ்வித ஆட்சேபணை இன்றி செலுத்துதல் வேண்டும்.
10. குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து கொண்டு செல்லப்பட்ட கற்களுக்கு முறையான கணக்குகளும், குழிவாயில் பதிவேடும் முறையாக பராமரித்தல் வேண்டும். அவற்றை சம்பந்தப்பட்ட அலுவலர்கள் தணிக்கைக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.
11. உதவி இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை)-ன் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண். தேதி, புறப்படும் நேரம், செலுத்துமிடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ கொடுக்க வேண்டும். மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தை கைப்பற்றி அபராதம் விதிப்பதோடு, அதற்கு குத்தகைதாரரை பொறுப்பாக்கி கனிம விதிகளின் படி மேல் நடவடிக்கை எடுக்கப்படும்.
12. இந்த ஆணையில் குத்தகை அனுமதி வழங்கப்பட்ட புலத்ததை முழுமையாகவோ, பகுதியாகவோ எவருக்கும் உள் குத்தகைக்கு விடுவதோ அல்லது கிரையம் செய்வதோ கூடாது.
13. குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் இருந்து எவ்வளவு சிறுகனிமங்கள் எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் லாரி/ வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விபரத்தையும் காட்டும் பதிவேட்டிணைப் பராமரித்து வரவேண்டும்.

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REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR,
KARUR.



14. குத்தகைதாரர், தமக்கு குத்தகை வழங்கப்பட்ட பகுதிக்கு அருகில் உள்ள பட்டா நிலத்திற்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப் பணி செய்யப்பட வேண்டும்.
15. வண்டிப்பாதை மற்றும் நடைபாதைகளில் இருந்து 10 மீட்டர் தூரம் தள்ளி குவாரி செய்ய வேண்டும். ரோடுகள், புகைவண்டிப்பாதை, பொதுப்பணித்துறை, வாய்க்கால், பொதுமக்கள் உபயோகத்திற்கான பகுதிகள், மின்சாரம் மற்றும் தொலைபேசி கம்பி செல்லும் பகுதிகள், வழிபாட்டு இடங்கள் மற்றும் பழங்கால சின்னங்கள் உள்ள பகுதிகள் ஆகியவற்றில் இருந்து 50 மீட்டர் பாதுகாப்பு தூரம் விட்டு குவாரி செய்ய வேண்டும்.
16. குத்தகைக்கு விடப்பட்டுள்ள விஸ்தீரணத்தில் மட்டுமே குத்தகைதாரர் குவாரி செய்ய வேண்டும். அதற்கான கூடுதலான விஸ்தீரணத்தில் குவாரி செய்வது தெரியவந்தால் அபராத நடவடிக்கை மேற்கொள்வதுடன் குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.
17. குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகை இரத்து செய்யவோ, செய்யப்பட்ட தவறுதலுக்கு அபராத நடவடிக்கை எடுத்து தண்டம் விதிக்கவோ அல்லது கிரிமினல் வழக்குத் தொடுக்க மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ரத்து செய்யப்பட்டால் காப்புத் தொகை உட்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயமாக்கப்படும்.
18. குத்தகைதாரர் தமிழ்நாடு சிறுவகைக்கனிம சலுகை விதிகள் 1959ல் கண்டுள்ள விதிகளுக்கும் மற்றும் அரசு அவ்வப்போது அறிவிக்கும் சட்டதிட்டங்களுக்கும் உட்பட்டு குவாரிப்பணிகள் செய்ய வேண்டும்.
19. குவாரி குத்தகை உரிமம் காலாவதியான பின்பு எக்காரணத்தை முன்னிட்டும் மீண்டும் புதுப்பிக்கவோ அல்லது கால நீட்டிப்போ செய்து தரப்பட மாட்டாது.
20. வெடிபொருள் சட்டம் 1884ல் தெரிவிக்கப்பட்ட சரத்துக்கள்படி குறைந்த அளவு வெடிபொருளை உபயோகித்து கற்கள் வெளியே சிதறாமலும், சத்தம் அதிகம் ஏற்படாமலும், பொதுமக்களுக்கும், கால்நடைகளுக்கும், எவ்வித பாதிப்பும் இன்றியும் கல்குவாரி பணி செய்யப்பட வேண்டும்.
21. வெடிபொருள்கள் அரசு உரிமம் பெற்ற விற்பனைதாரரிடம் மட்டுமே பெற்று வெடிப்பதற்கு உரிமம் / அங்கீகாரம் பெற்ற வெடிப்பாளர்களை (Blaster / Mines mate) கொண்டு கல்குவாரியில் வெடி வைக்க வேண்டும்.
22. குழந்தை தொழிலாளர்கள் எவரையும் வேலைக்கு அமர்த்துதல் கூடாது.
23. Any other conditions stipulated by other Statutory / Government authorities shall be complied.
24. If any illicit quarrying is found in the area in S.F.Nos.759/5 (1.40.0 hecets), 764/3 (1.14.0 hecets), 765/3 (0.48.0 hecets), 766/1 (Part) (0.65.0 hecets), 766/2 (1.14.0 hecets) and 767/1 (0.11.5 hecets) of Anjur Village, Aravakurichi Taluk, Karur District before the date of execution of lease deed this lease deed is liable to be cancelled and criminal action will be initiated.

சிறப்பு நிபந்தனைகள்:-

- 1) புல எண். 759/1 மற்றும் 764/4 ஆகியவற்றில் உள்ள பட்டா மண் பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியிட்டு குவாரி பணி செய்ய வேண்டும்.

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மேற்கூறியபிட்ட நிபந்தனைகள், சிறப்பு நிபந்தனைகள் மற்றும் கனிம சட்டம் விதிகளை மீறியுள்ளது உறுதிபடும் தருணத்தில் விதிமுறைகளுக்கு உட்பட்டு குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள் ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள், மாநில சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.

As per the Approved Mining Plan, the total production of Rough stone for five years lease period is 45,200 cubic meter. Hence, based on the approved Mining Plan, for the purpose of calculating stamp duty the anticipated seigniorage fee is Rs.20,34,000/- (Rupees Twenty Lakhs and Thirty Four Thousand Only) for the entire lease period of 5 years.

THE SCHEDULE

1. Name of the District : Karur
2. Name of the Taluk : Aravakurichi
3. Name of the Village : Anjur
4. Name of the Sub Registration District : Chinnatharapuram
5. Lease Period : 05 years

From 23.6.2017 to 22.6.2022

Survey Number	Total Extent Hects.	Area Assessment Rs.	BOUNDARIES			
			North By SF No.	South by SF No.	East by SF No.	West by SF No.
759/5	1.40.0	Rs.2,465/- (Rs.100/- per hect, per year)	759/4	757 <	765/3 ✓	759/1 ✓
764/3	1.14.0		764/2	767/1,2,3,4	764/4 ✓	765/2,3
765/3	0.48.0		765/2	766/1,2 ✓	764/3 ✓	759/4,5
766/1 (Part)	0.65.0		765/3	766/1(P) ✓	766/2 ✓	757
766/2	1.14.0		765/3 ✓	756 ✓	766/3, 767/1 ✓	766/1
767/1	0.11.5		764/3 ✓	767/2 ✓	767/2 ✓	766/2
	4.92.5					

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IN WITNESS WHERE OF, Thiru.S.Kuppusamy, S/o.Samiyappa, under, Saliyangattupallam, Udaiyam Village, Kangeyam Taluk, Trippur District, the registered holder / lessee' and Thiru.G.Govindaraj, I.A.S., District Collector, Karur acting for and on behalf of and by the order and direction of the Governor of TamilNadu have hereunto set their hands.



[Signature]
DISTRICT COLLECTOR,
KARUR.

REGISTERED HOLDER / LESSEE:
Signed by the above named in the presence of

[Signature]
1. G. HANUNDA JOKARAN
No. 12, M. Chalapalayam
K. Pannagar, P.O.
Karur, D.P.

Signed by the above named in the presence of

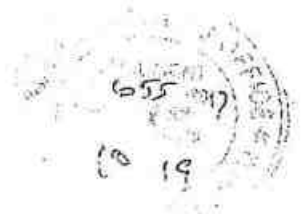
1. *[Signature]*
(Dr. S. VEDIAPPAN)
ASSISTANT DIRECTOR
GEOLOGY AND MINING
KARUR.

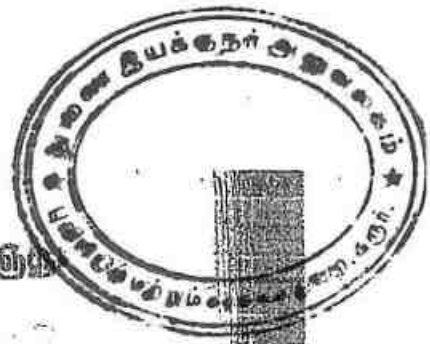
2. *[Signature]*
(R. SELLANAD)
No. 19, M. Chalapalayam
K. Pannagar, P.O.
Karur, D.P.

2. *[Signature]*
(K. KARUNAKRISHNAN)
Special Revenue Inspector
(Mines)
Karur.

Showing Story:- S. Anningam s/o. S. Saravama Muthaligan
pannagar Chinnathottam Arangapalayam L.No. A.80/KRR/93

[Signature]





11

சுமார்

11. 19. 85

பரப்பு: 6000000 4 ச.மீ.

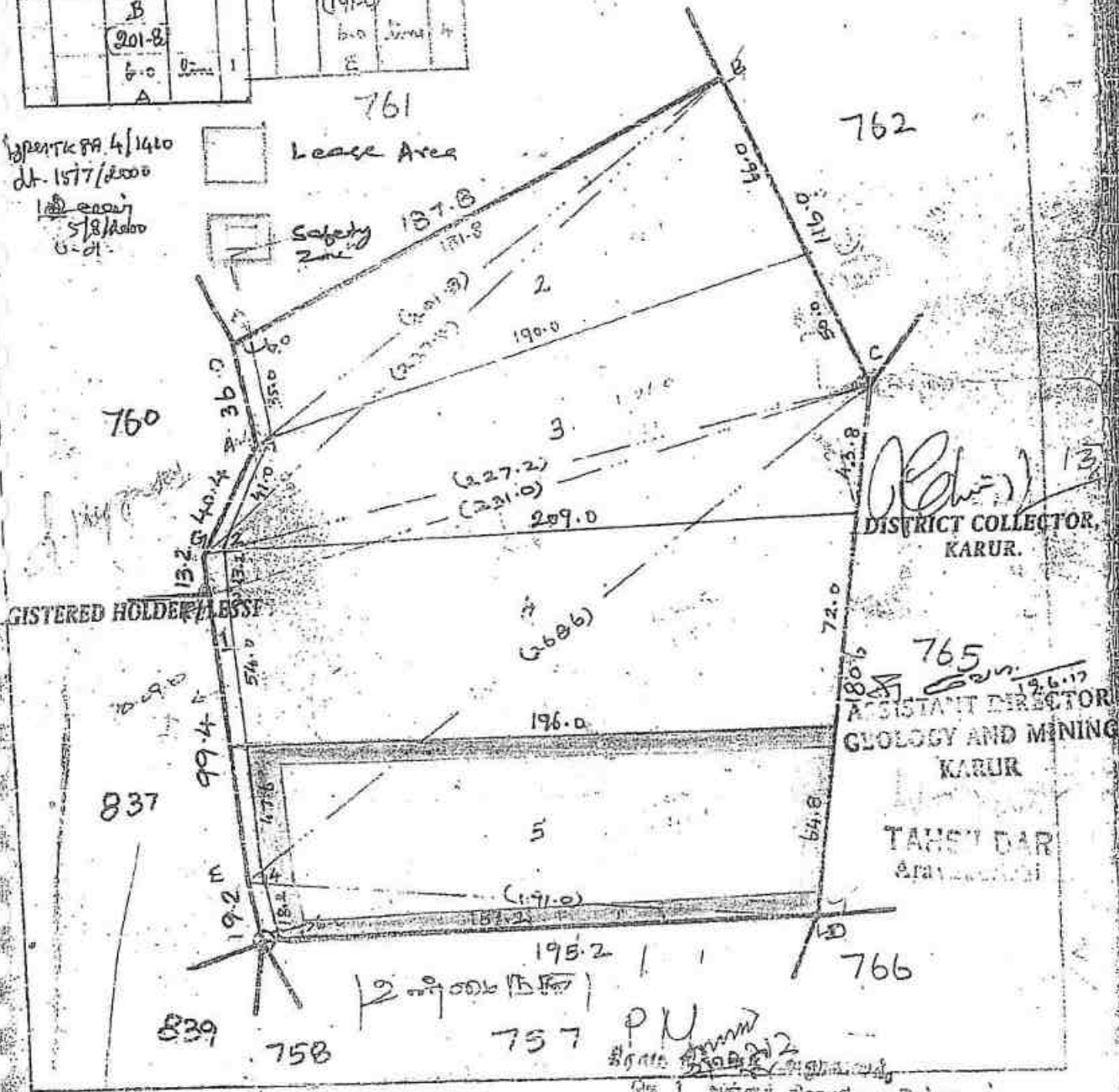
பெயர்: சிவசுப்பிரமணியன்

புள்ளி எண்: 759

C	(231.0)	6.0	line 3
F	(227.2)	6.0	line 2
G	(201.8)	6.0	line 1
B	(191.0)	6.0	line 4
A			

REGISTERED HOLDER'S OFFICE
 655 237
 11. 19. 85

பெயர்: சிவசுப்பிரமணியன்
 புள்ளி எண்: 4/1410
 த. 1577/2000
 பரப்பு: 518/2000
 உ.த.



(Signature)
 DISTRICT COLLECTOR,
 KARUR.

765
 19.6.17
 ASSISTANT DIRECTOR,
 GEOLOGY AND MINING
 KARUR

TASKY DAR
 ஏராளமாக

அளவு: 1: 2000

292

சுற்று சித்தலன்
 ஜி. பகவதர்
 13.9.1985

REGISTERED HOLDER/LESSEE

(Signature)
 23.9.85

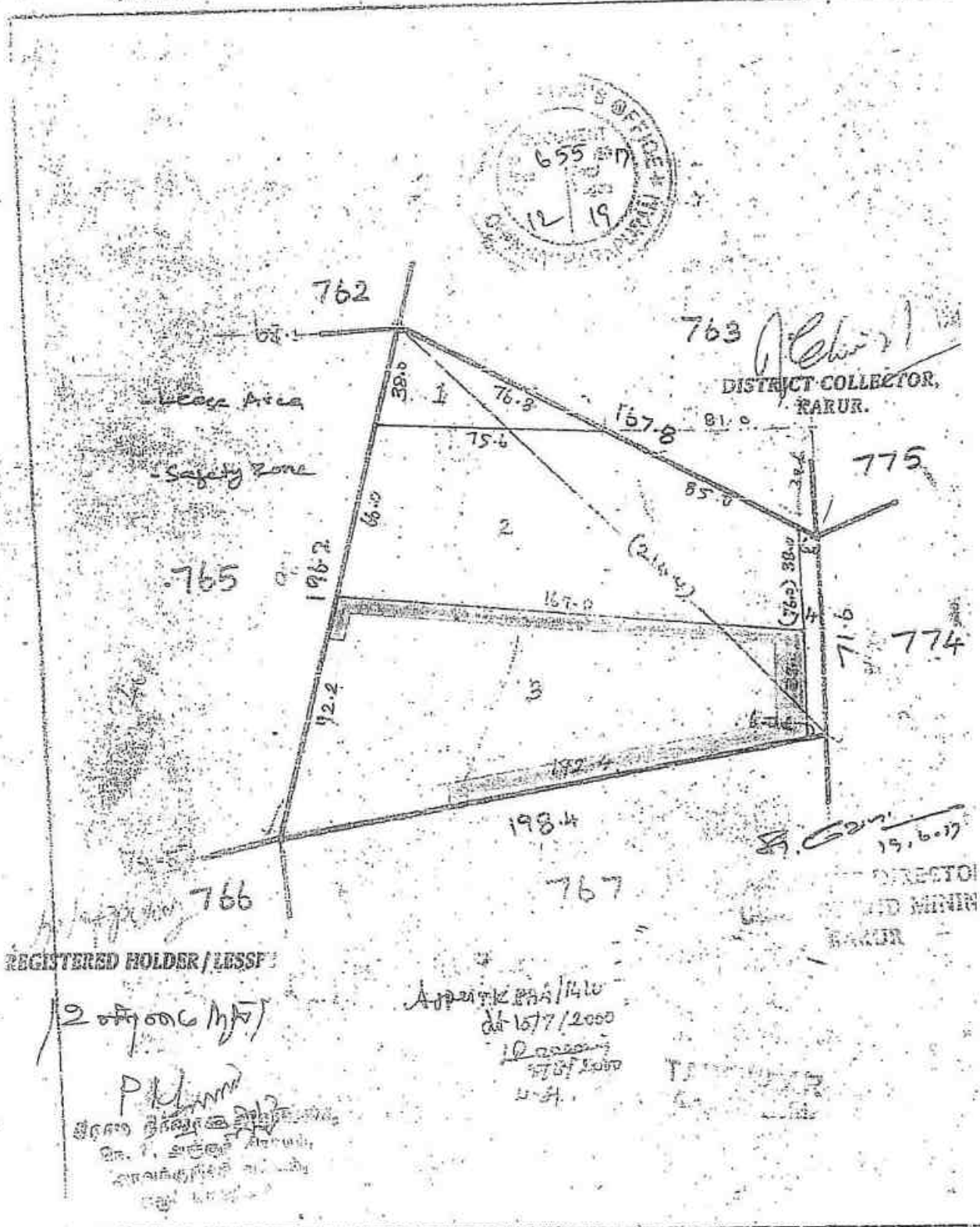


சீரமைப்பு பணிகள்

சா.பெ.அ. 764

சீரமைப்பு பணிகள்

பரம்பல்: 2 ஏ. 31.0



DISTRICT COLLECTOR, RARUR.

DIRECTOR OF MINING, RARUR.

REGISTERED HOLDER / LESSOR

சீரமைப்பு பணிகள்

P. K. ...

Appar. K. P. A. / 1410
dt-15/7/2000

சீரமைப்பு பணிகள்

சா.பெ.அ. 764

சீரமைப்பு பணிகள்

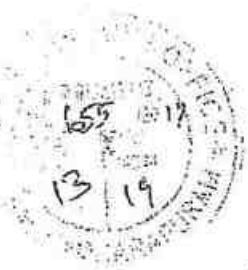
சீரமைப்பு பணிகள்



13

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Handwritten notes in Kannada at the top right, including '1000' and '1 1/2 14.0'.



- Lease Area
- Safety Zone

REGISTERED HOLDER / LESSEE

759

Handwritten text in Kannada, including 'P.M.' and other illegible characters.

DISTRICT COLLECTOR, KARUR.

Handwritten signature and date '19.6.17' above the text 'DIRECTOR OF MINING'.

ASSENT NO. 14/10
dt 15.7.2000
5/8/2000
0.21

757

74 B

766

767

294

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Handwritten notes at the bottom right.



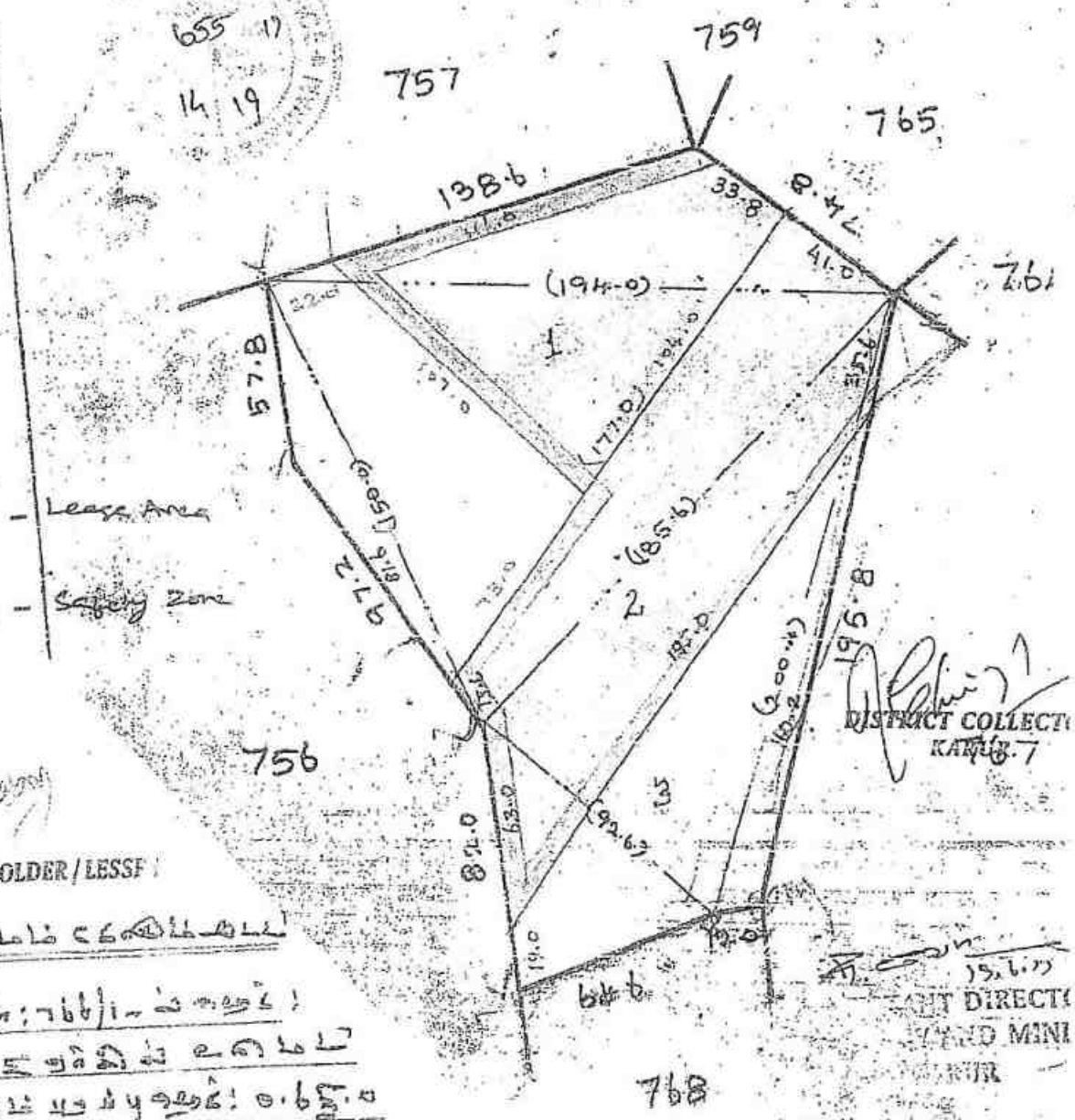
கரு: சி. ராமன்

அரவக்குறிச்சி

465700 766

பயி: 100000 3

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14 19



REGISTERED HOLDER / LESSOR

உலகநகர்

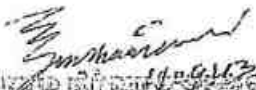
465700/1 - 1.34.5 ஏக்கர்

1.34.5 ஏக்கர் உலகநகர்

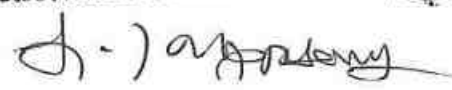
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766/2 - 1.14.0 ஏக்கர்

1/4/2013

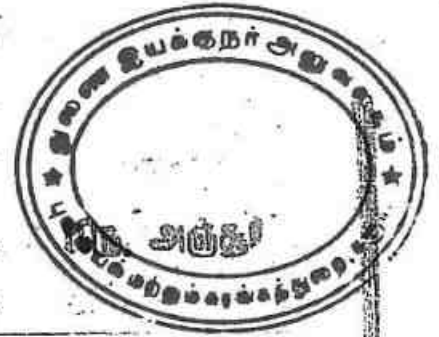

 FIRKA SURVEYOR
 KARUR DISTRICT
 ARAVAKURICHI

295 SAHSILDAR
 ARAVAKURICHI



REVENUE DIVISIONAL OFFICER,
 KARUR

2000



காரைக்கால் காவலர்.

அரசாங்க அரங்கம்

பெண்: 767

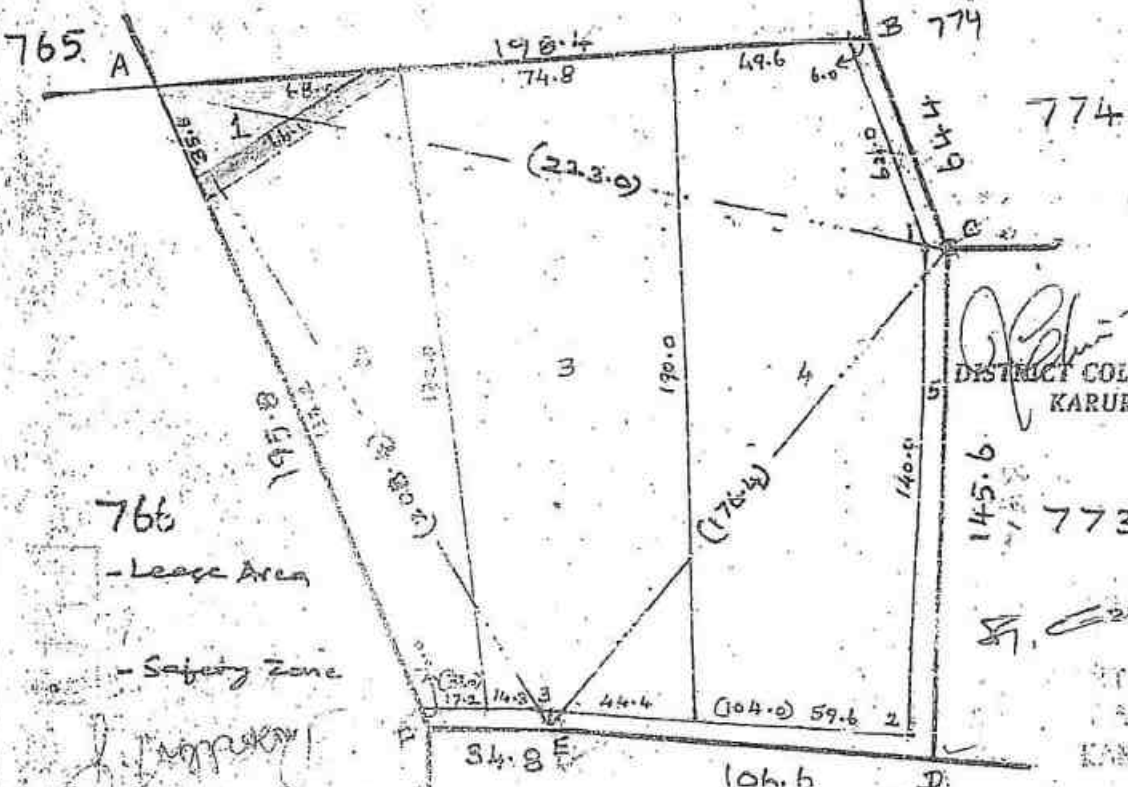
பெண்: 767

655

15 19

764

765



DISTRICT COLLECTOR, KARUR.

18.6.17
DIRECTOR OF MINING, KARUR.

REGISTERED HOLDER / LESSOR

2 பிள்ளைகள்/பிள்ளை

P. Y. ...
31.3.2012

768

As per KA 4/1410
dt. 15.7.2000
Let to
5/8/2000
U-21.

A	(208.4)	
B	6.0	Line 3
E	(106.6)	
D	6.0	6.0 2
A	(223.0)	
C	6.0	Line 1

உத்தரவு
16.9.1928

அளவு 297 2000

A. J. ...

655/2017/BK1


- 295 -

16



Presented in the Office of SUB REGISTRAR GRADE I of Chinnadarapuram and fee of Rs. 10300 paid between hours of 3M and _____ on 13/07/2017 by

1 Left Thumb




S. Jayaraman

Additions As per the recitals of the document

Execution Admitted by

1 Left Thumb



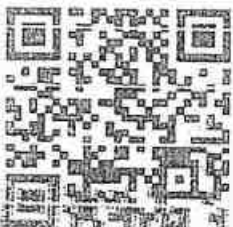
S. Jayaraman

Additions As per the recitals of the document

Claim Admitted by

I have satisfied my self as to the execution of the Instrument by Thiru Thiru. G.Govindaraj, I.A.S., District Collector, Karur. who is exempted from Personal Appearance under Section 88(1) of the Registration Act.

Identified by

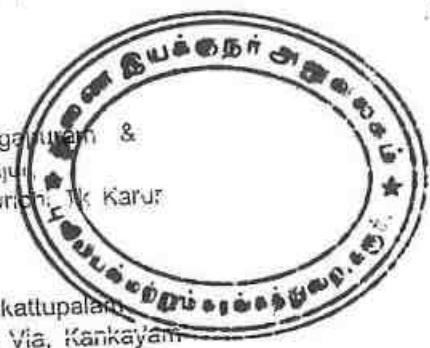


655 17
16 19

Endorsement Sheet no. 1 of 2

298
S. Jayaraman

- 297 -



Name : Sadasivam, K

S/o Kumarasamy

Pandilingaluram &
Post Arqur
Aravakurichi, Tk Karur
Dt

Name : Palanisamy, S

S/o Samiyappagounder

Saliyankattupalam
Muthur Via, Kankayam
Tk Tiruppur Dt

13th day of July 2017

[Signature]
SUB REGISTRAR GRADE I
Chinnadarapuram

Registered as No 655 of 2017 of Book I

Date : 13/07/2017

[Signature]
SUB REGISTRAR GRADE I
Chinnadarapuram



655 7

17 19



Endorsement Sheet no. 2 of 2

299 *[Signature]*



இந்திய அரசாங்கம்
 Government of India
 Unique Identification Authority of India
 பதிவேட்டி எண்/Enrolment No.: 2189/81706/00950

To
 சமீப்பன் குப்புசாமி
 Samiappan Kuppusamy
 S/O Samiappagounder
 95
 SALANKATTUPALLAM
 THOTIYAPALAYAM
 Muthur
 Tiruppur Muthur
 Tamil Nadu - 638105
 9842955498

Download Date: 02/06/2017

Generation Date: 12/05/2017



உங்கள் உடனடி எண் / Your Unique ID No. :

3901 3161 7273

எனது உடனடி எண், எனது அடையாளம்



இந்திய அரசாங்கம்
 Government of India



சமீப்பன் குப்புசாமி
 Samiappan Kuppusamy
 சிந்தை எண் / DOB: 25/11/1958
 ஆண் / MALE



3901 3161 7273

எனது உடனடி எண், எனது அடையாளம்



Government of India



- 1. அடையாளத்திற்கான சான்று. குடியரிமைக்கு அல்ல.
- 2. அடையாள சான்றை ஆன்லைன் ஆதரவுகளைக் குவியாகப் பெறவும்.
- 3. இது எங்கடிரானிக் செயல்புறமே மூலம் துரிதமாக உபயோகமாகும்.

This is a proof of identity, not of citizenship.
 To establish identity, authenticate online.
 This is electronically generated letter.

- 1. உடனடி நாடு முழுவதிலும் செல்லுபடியாகும்.
- 2. வசூல்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள உடனடி உதவிகளாக இருக்கும்.
- 3. உடனடி is valid throughout the country.
- 4. உடனடி will be helpful in availing Government and Non-Government services in future.



பெரிய செய்தி
 Unique Identification Authority of India

முகவரி:
 S/O: சமீப்பன் குப்புசாமி, 95,
 சமீப்பன் குப்புசாமி,
 சிந்தை எண்/பாடையம்,
 முத்தூர், திருப்பூர்,
 தமிழ் நாடு - 638105

Address:
 S/O: Samiappagounder 95,
 SALANKATTUPALLAM,
 THOTIYAPALAYAM, Muthur,
 Tiruppur,
 Tamil Nadu - 638105

3901 3161 7273



help@uidai.gov.in



www.uidai.gov.in

Samiappan Kuppusamy



300 *Samiappan Kuppusamy*

-301-



இந்திய அரசாங்கம்
Government of India
 சதாசிவம் குமாரசாமி
 Sadasivam Kumarasamy
 பிறந்த நாள் / DOB : 17/01/1945
 ஆண்பால் / Male




9036 6516 1532

- சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India
 முகவரி:
 22 குமாரசாமி, 22,
 பாண்டிளிங்கபுரம், அஞ்சுர்,
 பாண்டிளிங்கபுரம் போஸ்டு,
 கர்வாழி, கொடமுடி, கரூர்,
 தமிழ் நாடு, 638151

Address:
 S/O: Kumarasamy, 22,
 PANDILINGAPURAM, ANJUR,
 PANDILINGAPURAM POST,
 Karvazhi, Kodumudi, Karur, Tamil
 Nadu, 638151




9036 6516 1532

1947 1801 322 1947 help@uidai.gov.in www.uidai.gov.in

K. A. Anand

भारत सरकार
GOVERNMENT OF INDIA
 சா பழனிசாமி
 S. Palanisamy
 பிறந்த நாள் / DOB : 03/08/1953
 ஆண் / MALE




8505 8167 7478

- சாதாரண மனிதனின் அதிகாரம்

भारत सरकार
GOVERNMENT OF INDIA
 S/O சாமிசாமிசுப்பையன், 89,
 சாலைக்கிழக்குப் பாதை,
 தோட்டியப்பலையம், ஒத்தன்,
 திருப்பூர், தமிழ் நாடு, 638105

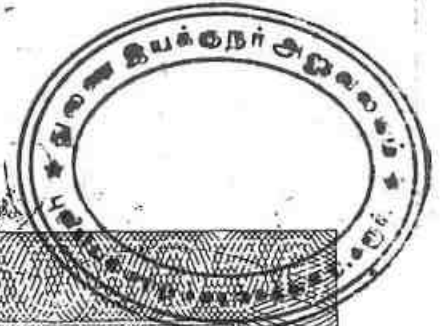
Address:
 S/O Samiyappasupender, 89,
 Salarakkizhupalem,
 Thodiyappalayam, Mullur,
 Tiruppur, Tamil Nadu, 638105




1947 1801 322 1947 help@uidai.gov.in www.uidai.gov.in P.O. Box No.1947, Bangalore-560 001



301
S. Anand



தமிழ்நாடு தமிழ்நாடு TAMILNADU

₹ 50.

UB 009614

2348
28.2.07

K. S. Srinivasan
K. சிண்ணசாமிசுந்தர

S. இய்யாசாமி

கலை விதி முத்திரைதான் கிட்டுப்பணையாளர்
சின்னதூரநாயர், கஞ்சர் மாவட்டம்
நெல்லை. எண்: 646/அ/92 தேதி 22-5-92

சின்னதூரநாயர்

TOTAL SEIGNIORAGE AMOUNT (5 Years) : Rs. 4,32,000/-
SECURITY DEPOSIT : Rs. 5,000/-
AREA ASSESSMENT (5 Years) : Rs. 2,285/-

(Proceedings of the District Collector, Karur Rc.B/597/G&M/2006 dated 26.02.2007)

APPENDIX-V
(See Rule 33)

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS BY LESSEE IN RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT.

AGREEMENT made this... 16th ... day... March of 2007 between Thiru S.Palanisamy, S/o. Samiappa Gounder, Saliyankattupallam, Muthur Post, Erode Taluk, Erode District (hereinafter referred as "the registered holder" which term shall where the context so admits include also their heirs, executors, administrators, legal representatives and assigns) of the first part and

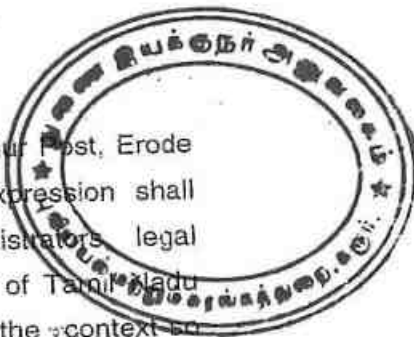
Correction Nil
Insertion Nil

K. S. Srinivasan
DISTRICT COLLECTOR
KARUR.

S. Palanisamy
REGISTERED HOLDER
(LESSEE)

S. Palanisamy

REGISTERED HOLDER



T. S. Kuppusamy S/o. Samiappa Gounder, Saliyankattupallam, Muthur Post, Erode Taluk, Erode District (herein after referred to as "the lessee" which expression shall where the context so admits include his heirs, executors, administrators, legal representatives and assigns) of the second part and the Governor of Tamil Nadu (hereinafter referred to as "the Government" which expression where the context so admits, include also his successors in office and assigns) of the third part.

Whereas the registered holder hold the lands described in the Schedule hereto and intends to lease out to the lessee of the said lands for the purpose of quarrying ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY in the said lands and to deposit quarrying waste in the said lands and has lodged with Collector the lease and accurate map or sketch of the said lands.

AND WHEREAS the lessee or tenant of the registered holder has made application to the Collector of the District of Karur (hereinafter referred to as "the Collector") seeking grant of quarrying lease for ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY in the said lands and to deposit quarrying waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands.

AND WHEREAS the Collector, acting for and on behalf of the Government, has granted a quarrying lease to the lessee or tenant of the registered holder and allowed him to commence quarrying operations for ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY in the said lands and to deposit quarrying waste thereon by the lessee or tenant of the registered holder

AND WHEREAS the Collector is prepared to allow the said registered holder or lessee to commence quarrying operations and to deposit quarrying waste in or on the said lands described in the Schedule for a period of Five years from 15th day of ... month ... 2007 to 15th day of ... month ... 2012 upon the registered holder and the lessee entering into the agreement herein contained.

AND WHEREAS the lessee has deposited with the Collector, the sum of Rs.5,000/- (Rupees five thousand only) as Security for the due performance or the covenants, agreements and provisos or damage which may be incurred by the Government by reason of any of the said lands described in the schedule hereto being

Correction: Nil

Insertion: Nil

[Signature]

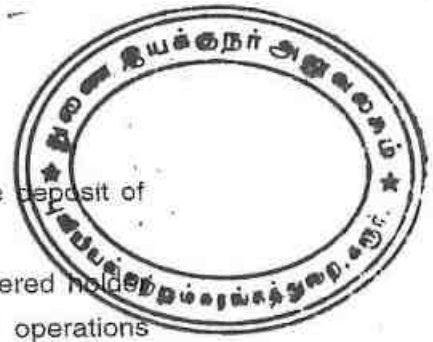
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

[Signature]
REGISTERED HOLDER
(LESSEE)

303 *[Signature]*

207



rendered unfit for cultivation by the quarrying operations therein or by the deposit of quarrying waste thereon by either the registered holder or the lessee.

AND WHEREAS the lessee has at the request of the registered holder and in consideration of such approval by the Collector of the quarrying operations as herein before recited agreed to join in these presents for the purpose of entering into covenants, agreements and provisos hereinafter contained as surety for the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder and lessee do hereby jointly and severally and each of them doth individually hereby covenant and agree with the government as follows:

1. To carry on quarrying operations during the said term in a proper and workmen like manner and to deposit quarrying waste on the lands described in the schedule hereto and to answer and to account at all reasonable times to the Government for all acts and defaults committed by any servants, agents or workmen employed by the registered holder or lessee in carrying on such operations or in making such deposit.

2 To pay on the 15th day of March, 2008 next and on the 15th day of March every succeeding year during so long as the operations as aforesaid are carried on, into the Government Treasury to the credit of the Government in addition to the land assessment for the time being payable in respect of the said lands seigniorage on the minerals quarried at the rates prescribed by the Government from time to time.

3. To abide by the rules prescribed by the Government from time to time regarding quarrying of ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY.

4. To keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder or the lessee from the said lands and also the number of persons employed in carrying on the said quarrying operations therein and to prepare and maintain from time to time when so directed by the said Collector complete and correct plans of all mines and working in the said lands and to allow any officer hereunto authorised by the Commissioner and Director of Geology and Mining, Chennai from

Correction : Nil

Insertion : Nil

[Signature]
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

[Signature]
REGISTERED HOLDER
(LESSEE)

304
[Signature]

309-



time to time and at all times to examine such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matter aforesaid as the Government may, from time to time, require and direct ;

5. To allow any officer authorised by the Commissioner and Director of Geology and Mining, Chennai in that behalf from time to time and at all times to enter upon any part of the said lands where any mining operations may be carried on for the purpose of inspecting the same.

6. To forthwith send to the Collector a report of any accident which may occur at or in the said lands and also of the discover therein of any mineral other than ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING.

7. Not to claim any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any quarrying operations or by the deposit of quarrying waste unless thirty times of the assessment thereon has been deducted under proviso 2 hereunder..

PROVIDED ALWAYS and it is hereby further agreed by and between the parties as follows:-

1. That it shall be lawful for the registered holder or lessee as the case may be at any time to cease quarrying operations under these presents provided the registered holder or lessee shall pay the Government or the Collector the land assessment, cess and seigniorage payable by the registered holder or the lessee under these presents upto the end of the year in which the registered holder or the lessee shall cease such quarrying operations and shall restore the said lands fence or fill in abandoned pits and excavations therein if required by the Collector as next hereinafter provided and upon, the registered holder or the lessee so doing these presents shall cease and determine.

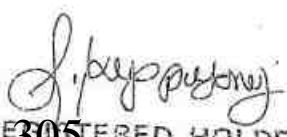
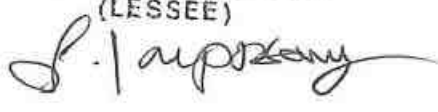
2. That in case the registered holder shall relinquish the whole or part of the said lands in case of the expiry of sooner determination of this agreement then and in any such case, The registered holder in the case of relinquished and the registered holder and the lessee in other cases shall restore said lands or the area relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation

Correction * N/A

Insertion. @ N/A


DISTRICT COLLECTOR
KARUR.


REGISTERED HOLDER


REGISTERED HOLDER
305 (LESSEE)




and shall securely and permanently fence or fill in all abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in and in case the registered holder or the lessee shall fail or neglect to restore any such lands with the registered holder or the lessee be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit, or excavation which the registered holder or the lessee shall be required to so fence, or fill them and in any such case, it shall be lawful for the Collector to so restore any such lands, or as the case may be, to so fence or fill in any such pit or excavation at the expense of the registered holder and to apply the said sum of Rs.5,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation.

If however, the amount of deposit is not sufficient to cover the cost of such restoration of fencing or filling as the case may be or to meet thirty times the assessment in the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

3. That all area assessment, cess and seigniorage payable under these presents shall recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, or any subsisting statutory modification thereof, as if the same were arrear of land revenue.

4. That in the event of any breach of the registered holder or any of the conditions of these presents it shall be lawful for the Government to levy enhanced seigniorage subject to the maximum of five times of the normal rate or for the Collector to give notice in writing to the registered holder of their intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the registered holder in respect of any antecedent claim or breach of covenant or condition.

5. That any notice to be given to the registered holder may be addressed to their last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

Correction : *RF*

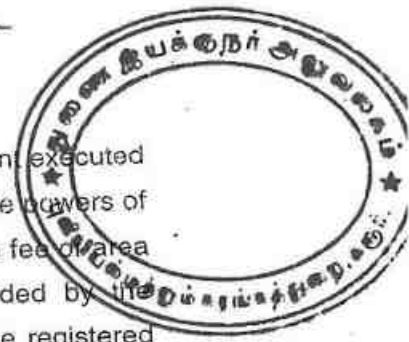
Insertion, *RF*

[Signature]
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

[Signature]
306
REGISTERED HOLDER
(LESSEE)

[Signature]



6. Should any question or dispute arise regarding an agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder thereunder, the amount or payment of the seigniorage fee of area assessment made payable thereby, the matter in issue shall be decided by the Commissioner and Director of Geology and Mining, Chennai. In case the registered holder/lessee is not satisfied with the decision of the Commissioner and Director of Geology and Mining, the matter shall be referred to the State Government.

7. 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).

OTHER CONDITIONS

1) The permission granted to the lessee to quarry ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY in the said patta land is valid for from.....16th.....day of.....March.....2007 to.....15th.....day of.....March....., 2012.

2) The lessee should register the agreement deed in the concerned Sub-Registrar Office, at the expense of the lessee within 30 days from the date of execution of the agreement.

3) The lessee shall remove or transport the ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING ONLY from the lease area only after payment of area assessment, seigniorage fee or dead rent whichever is higher at the rates prescribed from time to time in Appendix-II to the Tamil Nadu Minor Mineral Concession Rules, 1959 and after obtaining transport permit and despatch slips from the District Collector or the Officer authorised by him in this behalf.

4) The lessee should keep correct accounts showing the quantities and other particulars of all minerals obtained from the leasehold area and maintain registers at the quarry site.

5) The lessee should send monthly report to the Deputy Director of Geology and Mining, Karur furnishing the particulars of the quantities of Minerals quarried, transported etc., before 5th day of every month.

Correction: # NE

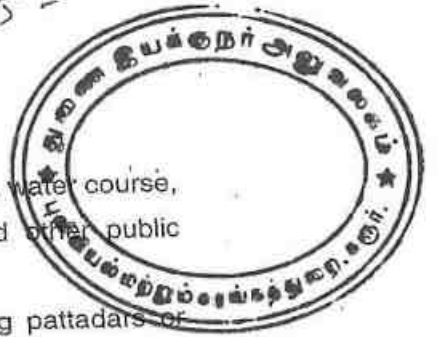
Insertion: # NE

[Signature]
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

[Signature]
REGISTERED HOLDER
(LESSEE)

[Signature]



6) The lessee shall not disturb nearby habitations, buildings, water course, banks or water tanks, rivers, trees, roads, cart tracks, foot path and other public properties while quarrying in the leasehold area.

7) The lessee shall not cause hindrance to the adjoining pattadars of public while quarrying in the leasehold area.

8) A safety distance of 500 metres to the nearby habitations, and 50 metres to the roads, railway lines, and electric and Telephone lines and 10 metres to foot paths, village roads, should be left while quarrying.

9) The lessee should allow any officer authorised by the District Collector or any officer authorised by him in this behalf or any other officer authorised by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.

10) The lessee shall carry out the quarrying operations in skilful, scientific and systematic manner keeping in view of the proper safety of the labour, conservation of minerals and preservation of environmental ecology.

11) The lessee shall allow any officer authorised by the District Collector and Commissioner and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned to conditions (4) and (10) above and also carry out the directions issued to the satisfaction of the above said authorities.

12) No quarrying and activities connected there to shall be done before the execution of lease deed and its registration at the cost of the lessee.

13) The lessee should restrict his quarrying operation strictly within the permitted area as defined in the sketch.

14) The lessee should maintain at his cost proper sign boards indicating the Survey numbers, Years of the lease, Name of the lessee and the lease period to the satisfaction of the District Collector/Commissioner and Director of Geology and Mining and maintain it at all time at the quarry site.

15) No working shall be made within a distance of 7.5 metres of the boundaries of the permitted area.

16) The lessee should make his own arrangements to form the approach road from the public road to the place of his quarry.

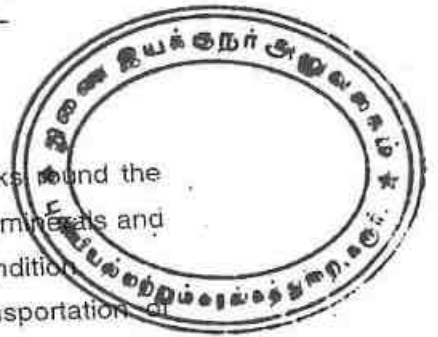
Correction : Nil

Insertion : Nil

[Signature]
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

[Signature]
REGISTERED HOLDER
308 (LESSEE)
[Signature]



17) The lessee shall, at his own cost, erect boundary marks round the area shown in the plan annexed to the lease deed and in which he works minerals and at all times maintain and keep such boundary marks in good repair and condition.

18) The lessee shall remove, or allow removal and transportation of ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING from the area where quarrying is permitted only after obtaining bulk transport permit and fascimiled despatch slips in the forms prescribed in Appendices XII and XIII to Tamil Nadu Minor Mineral Concession Rules, 1959 from the officer authorised in this behalf by the District Collector. The registered holder or his men in turn shall issue the fascimiled despatch slips to the vehicles used for removal or transportation of ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING furnishing the particulars in the despatch slips specifically indicating the vehicle number, the quantity of ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING allowed to be transported by the vehicle by using that despatch slip and the time of issue of the despatch slips to the vehicle. All the vehicles used for transporting ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING from the said lands shall be in possession of the individual despatch slips for the quantity of the ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING available in the vehicle at all the times of transportation of the ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING by the vehicle. Proper accounts should be maintained for permit and despatch slips obtained, issued etc.

19) The lessee shall use the said lands only for the purpose of quarrying ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING specified in the quarry lease. If any error or wrong description of the mineral is found in the order granting the quarrying lease or in the lease deed, it is liable to be corrected at any time and the lessee shall not claim any right whatsoever based on any such error or wrong description of the minerals found in the order granting quarrying lease or in the lease deed.

20) The lessee should not quarry stones in block which can be used for polishing and export purposes.

21) The lessee should not quarry stones more than 30 Cubic Centimetre in size.

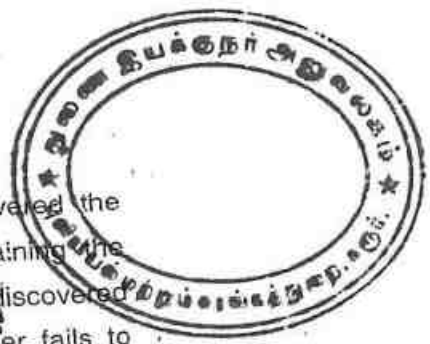
Correction : Nil

insertion : Nil

DISTRICT COLLECTOR
KARUR.

REGISTERED HOLDER
REGISTERED HOLDER
(LESSEE)

309



22) If any mineral not specified in the lease deed is discovered the registered holder shall not win or dispose of such mineral without obtaining the permission of the authority empowered to grant lease for quarrying of the discovered minerals and without payment of seigniorage fee. If the registered holder fails to intimate the Collector the discovery of such new minerals within a period of 30 days from the date of discovery of the mineral, the Collector may levy enhanced seigniorage fee upto 15 times of ordinary seigniorage fee.

23) The lessee is not entitled to remove the ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING from the said land after expiry of the period of the quarrying lease granted.

24) The lessee shall not sublet the lease to anybody.

25) The lessee shall not claim compensation from the Government for the losses if any incurred by him in quarrying.

26) The lessee shall be held responsible for accidents if any happened to the labourers and others while quarrying and Government shall not be held responsible for this.

27) The lessee shall be held responsible for all losses due to improper working of the quarry during and after the period of lease and he should pay the penalty to be levied for this.

28) Simple interest at the rate of 24% per annum or at the rates prescribed by the Government from time to time shall be levied, if the amount due to Government is not paid within the due date.

29) The arrears of any amount payable shall be recovered under the provisions of the Tamil Nadu Revenue Recovery Act, 1864.

30) In case of breach by the lessee or his transferee or assignee of any of Tamil Nadu Minor Mineral Concession Rules, 1959 or of the conditions of the lease, the Government/the Commissioner and Director of Geology and Mining /the District Collector without prejudice to any other penalty which may be therein imposed in respect of such breach, may cancel the lease after granting an opportunity of hearing to the said person.

Correction: *[Handwritten initials]*

Insertion: *[Handwritten initials]*

[Handwritten Signature]
DISTRICT COLLECTOR
KARUR.

[Handwritten Signature]
REGISTERED HOLDER

[Handwritten Signature]
REGISTERED HOLDER
(LESSEE)

310 *[Handwritten Signature]*



31) The terms and conditions are also subject to such further modifications, deletion and additions alterations as may be ordered by the Government from time to time.

32) The lessee shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of ROUGH STONE SUCH AS ARALAI, JELLY & SHOLING removed at the rates prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959. Besides seigniorage or dead rent the lessee has to pay area assessment. The lessee has also to pay any other amount prescribed by the Government from time to time.

33) The lessee shall comply with provisions of Labour Laws applicable to stone quarry. Any contravention of the provisions shall attract legal proceedings of the appropriate Government.

34) The lessee should leave a safety distance of 10 metres for the cart track running on the southern side of the area granted for quarry lease.

35) The lessee should leave a safety distance of 10 metres for the public path in SF Nos. 759/1 and 764/4.

36) Besides the above said conditions, the lessee shall abide by the conditions laid down in Tamil Nadu Minor Mineral Concession Rules, 1959 and Mines and Minerals (Development and Regulation) Act, 1957 and the orders of the Government, Commissioner and Director of Geology and Mining and Collector to be issued from time to time.

THE SCHEDULE

Name of Taluk: Aravakurichi

Name of Village: Anjur

S.F. NO.	Extent in Hectares	Assessment	BOUNDARIES			
			NORTH	SOUTH	EAST	WEST
759/5	1.40.0	Rs. 100/- per hectare per annum	S.F.No.759/4	S.F.No.757	SF.No.765	S.F.No.759/1
764/3	1.14.0		S.F.No.764/2	S.F.No.767	SF.No.764/4	S.F.No.765

Correction: No

Insertion: No

J. Uthappa
DISTRICT COLLECTOR
KARUR.

[Signature]
REGISTERED HOLDER

J. Uthappa
REGISTERED HOLDER
(LESSEE)
311
J. Uthappa



765/3	0.48.0	S.F.No.765/3	S.F.No.766	SF.No.766	S.F.No.759
766/2	1.14.0	S.F.No.766/1	S.F.No.766/3	SF.No.764, 765, 767	S.F.No.766
767/1	0.11.5	S.F.No.764	S.F.No.767/2	SF.No.767/3	S.F.No.766
767/2(p)	0.29.0	S.F.No.767/1	S.F.No.767/5	SF.No.767/3	S.F.No.766
Total	4.56.5				

IN WITNESS Whereof Thiru S.Palanisamy, registered holder and Thiru S.Kuppusamy the lessee, Thiru.T.N.Venkatesh I.A.S., District Collector, Karur acting for and on behalf of and by the order and direction of the Governor of Tamil Nadu have hereunto set their hands.

Signed by the above named

S. Palanisamy

REGISTERED HOLDER

Witness

- Sundaram* R.SUNDARAM 12/47, Thaimarudur, Sivagiri, Erode, DT
- S.K. Subramani* S.K. Subramani Sabaganbalayallam muthur PO 638105

Signed by the above named

S. Kuppusamy

REGISTERED HOLDER (LESSEE)

Witness

- Sundaram* R.SUNDARAM, 12/47, Thaimarudur, Sivagiri, Erode, DT
- S.K. Subramani* Sabaganbalayallam muthur PO 638105

Signed by the above named

T.N. Venkatesh 27/22

DISTRICT COLLECTOR, KARUR.

Witness

1. *Jeeva*
DEPUTY DIRECTOR,
GEOLOGY AND MINING,
KARUR.

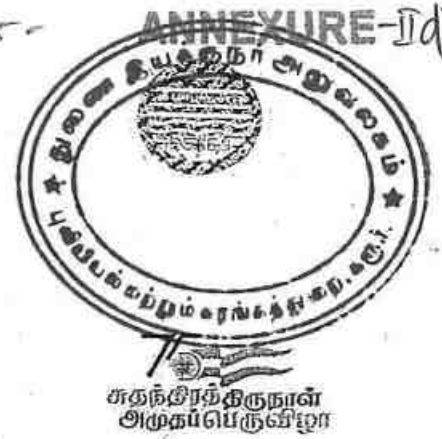
2. *M. Srinivasan*
M. SRINIVASAN
ASSISTANT GEOLOGIST
Office of the Deputy Director,
GEOLOGY & MINING,
KARUR.

S. Palanisamy



TAMILNADU POLLUTION CONTROL BOARD

325



Category of the Industry :

RED

CONSENT ORDER NO. 2208244919289 DATED: 22/04/2022.

PROCEEDINGS NO.F.0803KAR/RS/DEE/TNPCB/KAR/A/2022 DATED: 22/04/2022

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT -M/s. S KUPPUSAMY ROUGH STONE QUARRY , S.F.No. 759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1, ANJUR 2 PARTS village, Pugalur Taluk and Karur 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.0803KAR/RS/DEE/TNPCB/KAR/W&A/2017 DATED: 16/11/2017.
2. Unit's application for RCO through OCMMS on 14/4/2022.
3. IR.No : F.0803KAR/RS/AEE/KAR/2022 dated 21/04/2022.

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.S KUPPUSAMY ROUGH STONE QUARRY,
S.F.No. 759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1,
ANJUR 2 PARTS village,
Pugalur Taluk,
Karur 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 June 22, 2022

RAVICHANDRAN
KANDASAMY

Digitally signed by
RAVICHANDRAN KANDASAMY
Date: 2022.04.22 18:40:02 +05'30'

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
KARUR

313



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.

Table with 4 columns: Sl. No., Description, Quantity, Unit. Rows include Product Details (Rough Stone), By-Product Details (Nil), and Intermediate Product Details (Nil).

- 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.

Table with 5 columns: Stack No., Point Emission Source, Air pollution Control measures, Stack height from Ground Level in m, Gaseous Discharge in Nm3/hr. Section II includes Fugitive/Noise emission details for various activities like soil removal, drilling, and blasting.

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- 329 -



TAMILNADU POLLUTION CONTROL BOARD

Special Additional Conditions:

- i. The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.
- ii. The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The unit shall operate all the APC measures continuously and efficiently so as to achieve the AAQ/Emission standards prescribed by the Board.
2. The unit shall adhere to Ambient Noise level standards prescribed by the Board.
3. The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
4. No change in mining technology or scope of working shall be made without prior permission approval of the SEIAA, Chennai
5. The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from SEIAA vide Lr.No SEIAA/F.No1426/I(a)/EC No 3848/ 2015 dated: 30.05.2017.
6. The unit shall continue to develop green belt all along the boundary of the quarry lease area.
7. The unit shall not use "use and throwaway plastics" such as plastic sheets used for food wrapping , spreading on dining table etc., plastic plates , plastic coated tea cups, plastic tumbler , water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm, stainless steel, glass, porcelain plates/cups/cloth bag, jute bag etc.,

RAVICHANDRAN
KANDASAMY

Digitally signed by
RAVICHANDRAN KANDASAMY
Date: 2022.04.22 18:40:59 +05'30'

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
KARUR

To
The Proprietor,
M/s.S KUPPUSAMY ROUGH STONE QUARRY,
S.Kuppusamy,
Saliyangattupalam,
Odayam Village,
Kangeyam Taluk,
Tiruppur District,
Pin: 638105

Copy to:

1. The Commissioner, K.PARAMATHI-Panchayat Union, Pugalur Taluk, Karur 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, Salem for favour of kind information.
4. File

315



TAMILNADU POLLUTION CONTROL BOARD

331-



சுருந்திரந்திரருநாள்
அமுதப் பெருவீழா

Category of the Industry :

RED

CONSENT ORDER NO. 2208144919289 DATED: 22/04/2022.

PROCEEDINGS NO.F.0803KAR/RS/DEE/TNPCB/KAR/W/2022 DATED: 22/04/2022

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. S KUPPUSAMY ROUGH STONE QUARRY , S.F.No. 759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1, ANJUR 2 PARTS village, Pugalur Taluk and Karur 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.0803KAR/RS/DEE/TNPCB/KAR/W&A/2017 DATED: 16/11/2017.
2. Unit's application for RCO through OCMMS on 14/4/2022.
3. IR.No : F.0803KAR/RS/AEE/KAR/2022 dated 21/04/2022.

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.S KUPPUSAMY ROUGH STONE QUARRY,
S.F.No. 759/5, 764/3, 765/3, 766/1(P), 766/2 & 767/1,
ANJUR 2 PARTS Village ,
Pugalur Taluk ,
Karur 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 June 22, 2022

RAVICHANDRAN
KANDASAMY Digitally signed by
RAVICHANDRAN KANDASAMY
Date: 2022.04.22 18:42:18 +05'30'
District Environmental Engineer,
Tamil Nadu Pollution Control Board,
KARUR



TAMILNADU POLLUTION CONTROL BOARD



SPECIAL CONDITIONS

- 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
Product Details			
1.	Rough Stone	45200	Cu.m in Five years
By-Product Details			
1.	Nil	0	
Intermediate Product Details			
1.	Nil	0	

- 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
Effluent Type : Sewage			
1.	Sewage	0.08	On Industrys own land
Effluent Type : Trade Effluent			
1.	Nil	0.0	Nil

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TAMILNADU POLLUTION CONTROL BOARD



Special Additional Conditions:

The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The unit shall not generate trade effluent at any stage of its manufacturing process.
2. The unit shall treat and dispose the sewage generated from their premises through septic tank and soak pit arrangements.
3. The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
4. No change in mining technology or scope of working shall be made without prior permission approval of the SEIAA, Chennai
5. The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from SEIAA vide Lr.No SEIAA/F.No1426/1(a)/EC No 3848/ 2015 dated: 30.05.2017.

RAVICHANDRAN
KANDASAMY
 District Environmental Engineer,
 Tamil Nadu Pollution Control Board,
 KARUR

Digitally signed by
 RAVICHANDRAN KANDASAMY
 Date: 2022.04.22 18:42:44 +05'30'

To
 The Proprietor,
 M/s.S KUPPUSAMY ROUGH STONE QUARRY,
 S.Kuppusamy,
 Saliyangattupalam,
 Odayam Village,
 Kangeyam Taluk,
 Tiruppur District,
 Pin: 638105

Copy to:

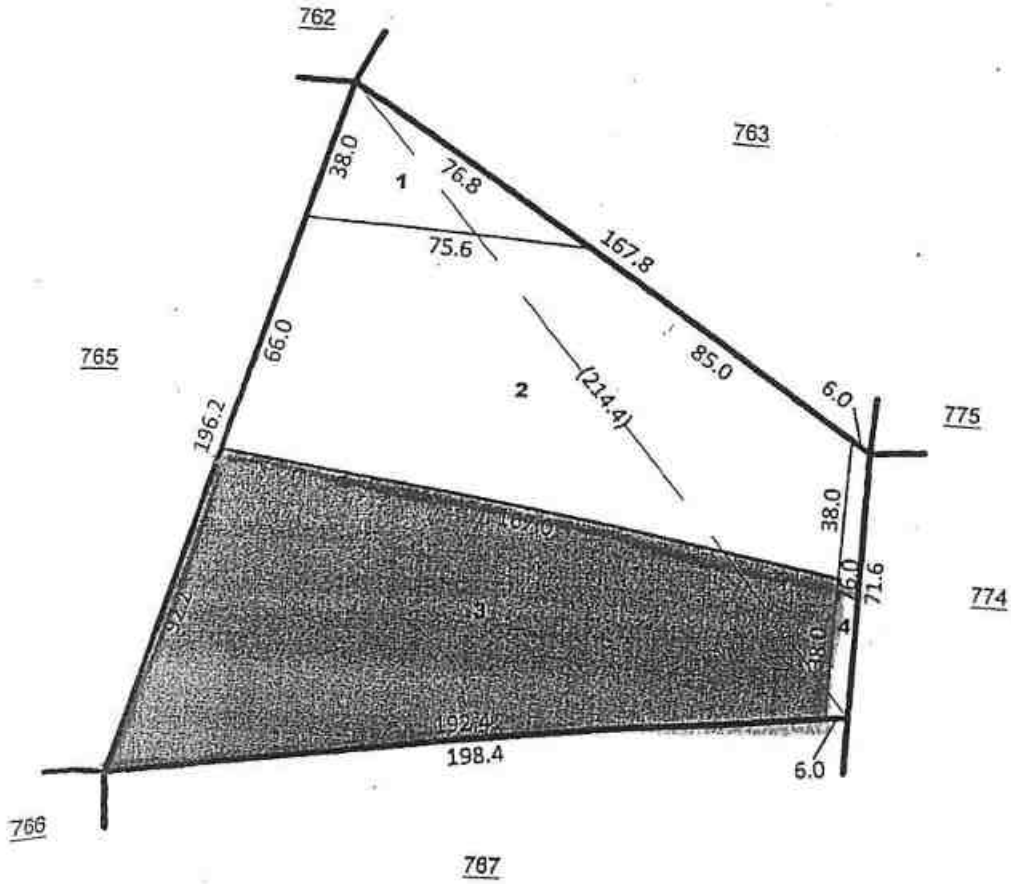
1. The Commissioner, K.PARAMATHI-Panchayat Union, Pugalur Taluk, Karur District.
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Salem for favour of kind information.
4. File

: கருர்
: புகளூர்

புல எண் : 764

- 239 -

கிராமம் : அஞ்சூர் (1)
பரப்பு : ஹெக்டேர் 2 ஏர் 31.00



LEASE APPLIED AREA

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி

புல எண்	ஹெக்டேர் ஏர்ஸ்	ஏக்கர் சென்ட்
764/2	1.14.00	231

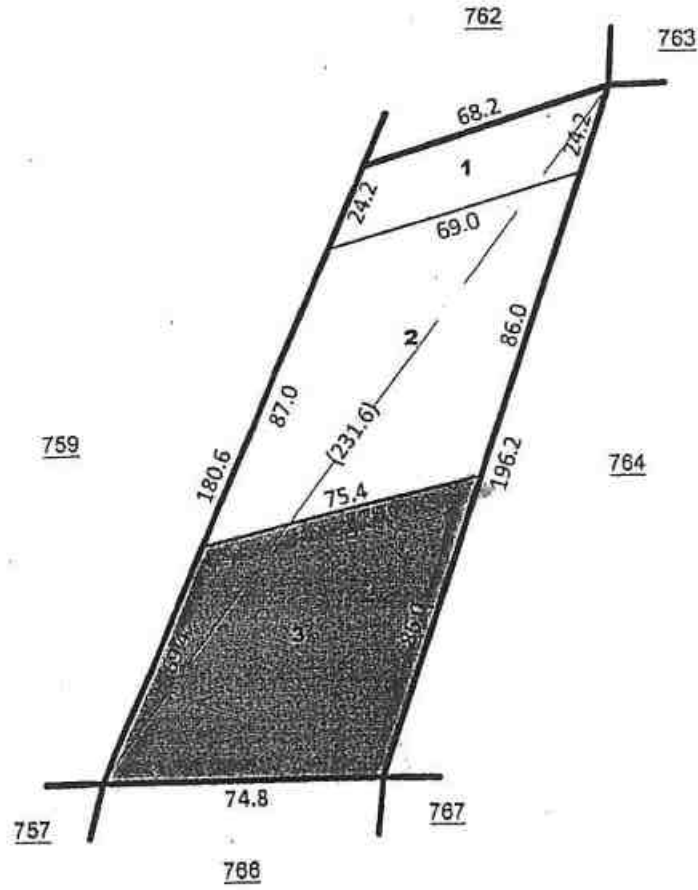
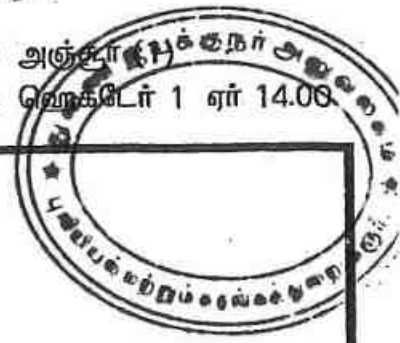
குறுநிலை அளவிராம நிர்வாக அலுவலர்
தென்னிசூல
1. அஞ்சூர் கிராமம்
புகளூர் வட்டம், கருர் மாவட்டம்

அளவு - 1 மி.மீ : 2000 மி.மீ

: களநர்
: புகளநர்

புல எண் : 765

339 - கிராமம் : அஞ்சூர் (7) களநர் அலுவலகம்
பரப்பு : ஹெக்டேர் 1 ஏர் 14.08



LEASE APPLIED AREA

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி

புல எண்	ஹெக்டர்ஸ்	ஏக்கர் சென்ட்
765/3	0.48.00	1.103

குறுகிட்டாளவர்
தென்லிவை

320

கிராம நிர்வாக அலுவலர்
1. அஞ்சூர் கிராமம்
புகளநர் வட்டம், களநர் மாவட்டம்

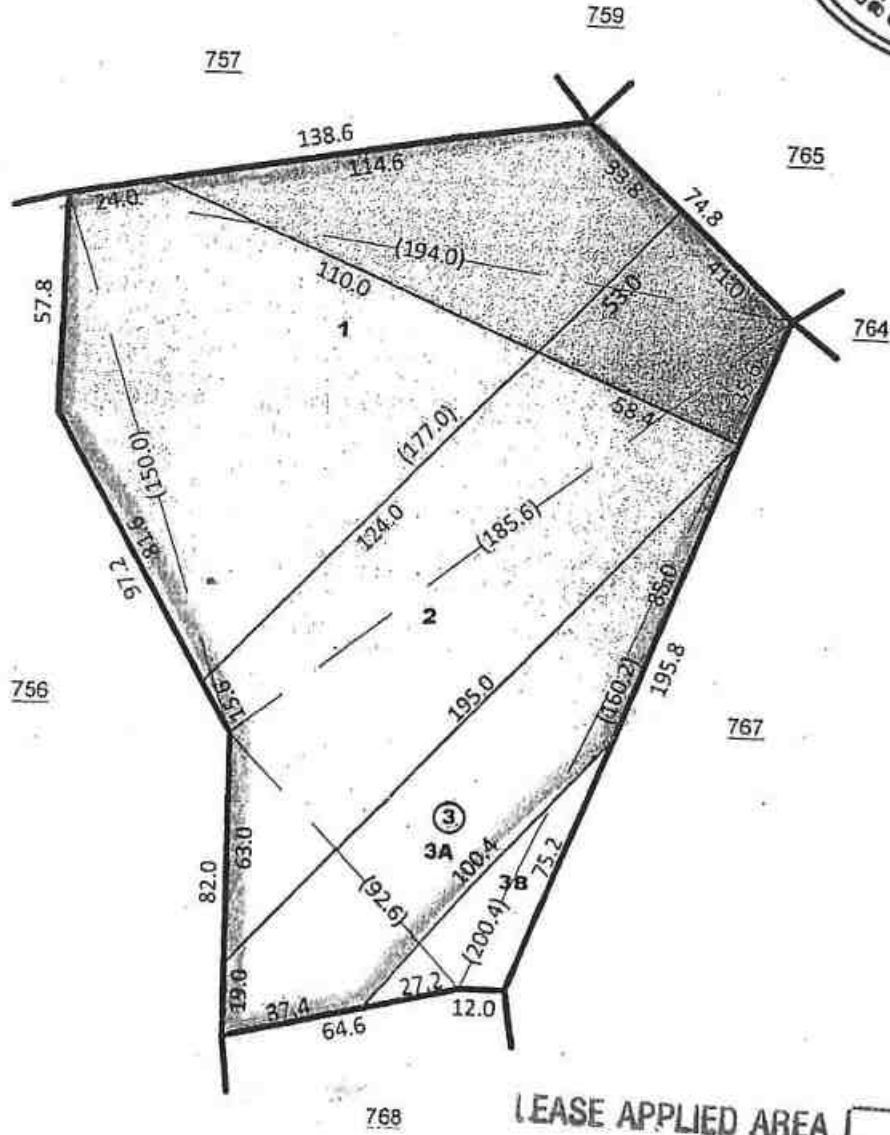
அளவு - 1 மி.மீ : 2000 மி.மீ

: கருநர்
: புகளூர்

புல எண் : 766

341-

கிராமம் : அஞ்சூர் (1)
பரப்பு : ஹெக்டேர் 3 ஏர் 09.00



LEASE APPLIED AREA

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி

புல எண்	ஹெக்ட ஏர்ஸ்	ஏக்கர் சென்ட்
766/1	0.42.26	1.04
766/2	0.25.50	0.63

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி

புல எண்	ஹெக்ட ஏர்ஸ்	ஏக்கர் சென்ட்
766/1	0.42.26	1.04
766/2	0.25.50	0.63
766/3A	0.47.38	1.17

குறுஜேட்டி அளவார்
திருவள்ளூர்

Thiruvalluvar
கிராம தீர்வாக அளவார்
1, அஞ்சூர் கிராமம்
புகளூர் வட்டம், கருநர் மாவட்டம்.

321

அளவு - 1 மி.மீ : 2000 மி.மீ

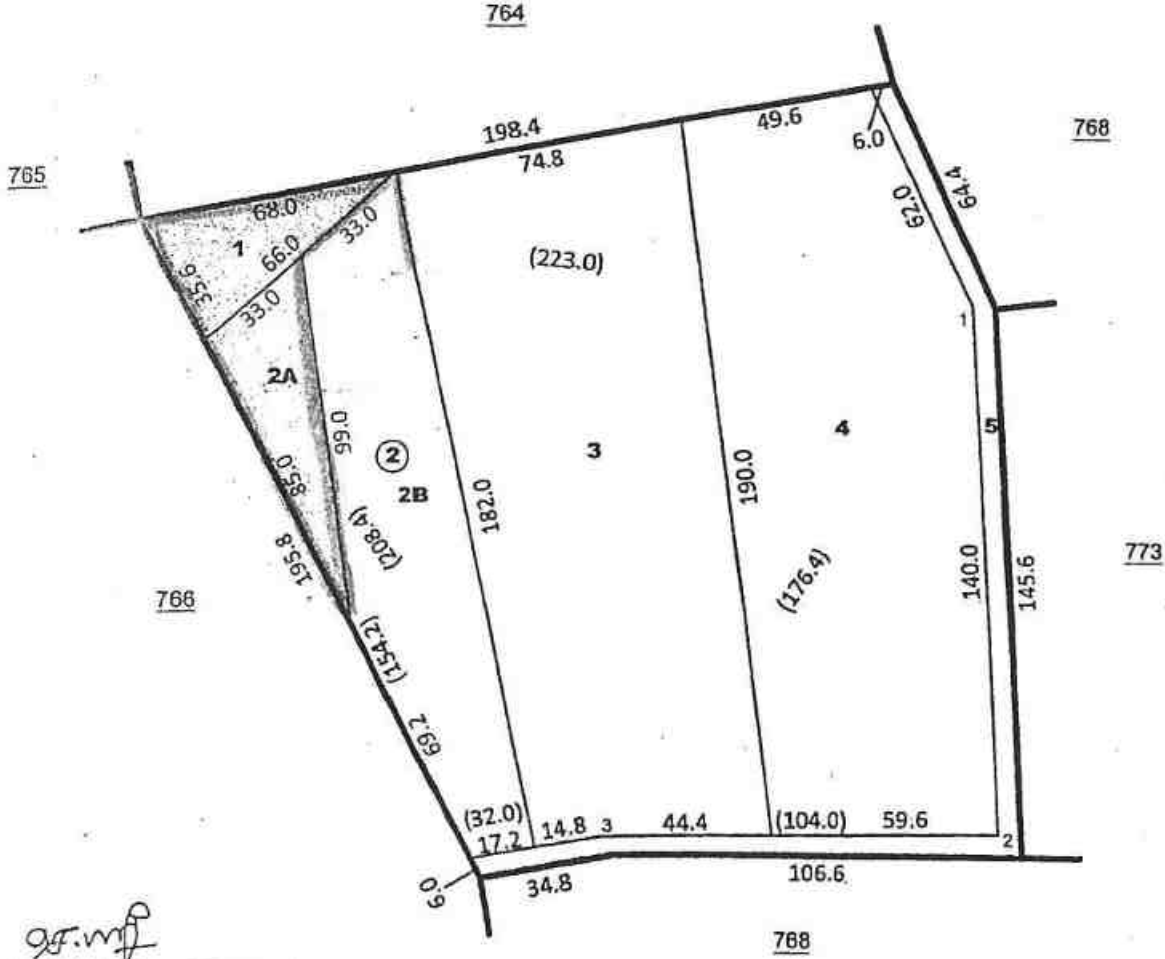
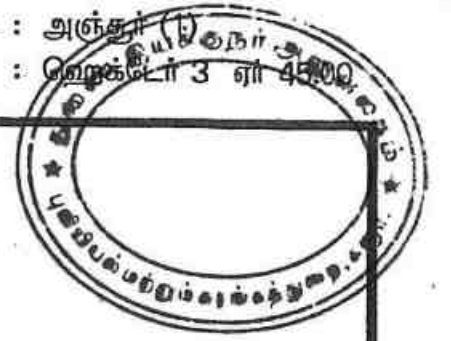
J. Jayaraman

புல எண் : 767

புல எண் : 767

343-

கிராமம் : அஞ்சல் (1) கிராமம்
பரப்பு : நெற்கீட்டர் 3 ஏர் 4300



ச.வி
குறுவட்ட அளவார்
தென்னிடை

LEASE APPLIED AREA

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி

புல எண்	நெற்கீட்டர் ஏர்ஸ்	ஏக்கர் சென்ட்
767A	0.11.50	0.283

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி

புல எண்	நெற்கீட்டர் ஏர்ஸ்	ஏக்கர் சென்ட்
7672A	0.13.35	0.33

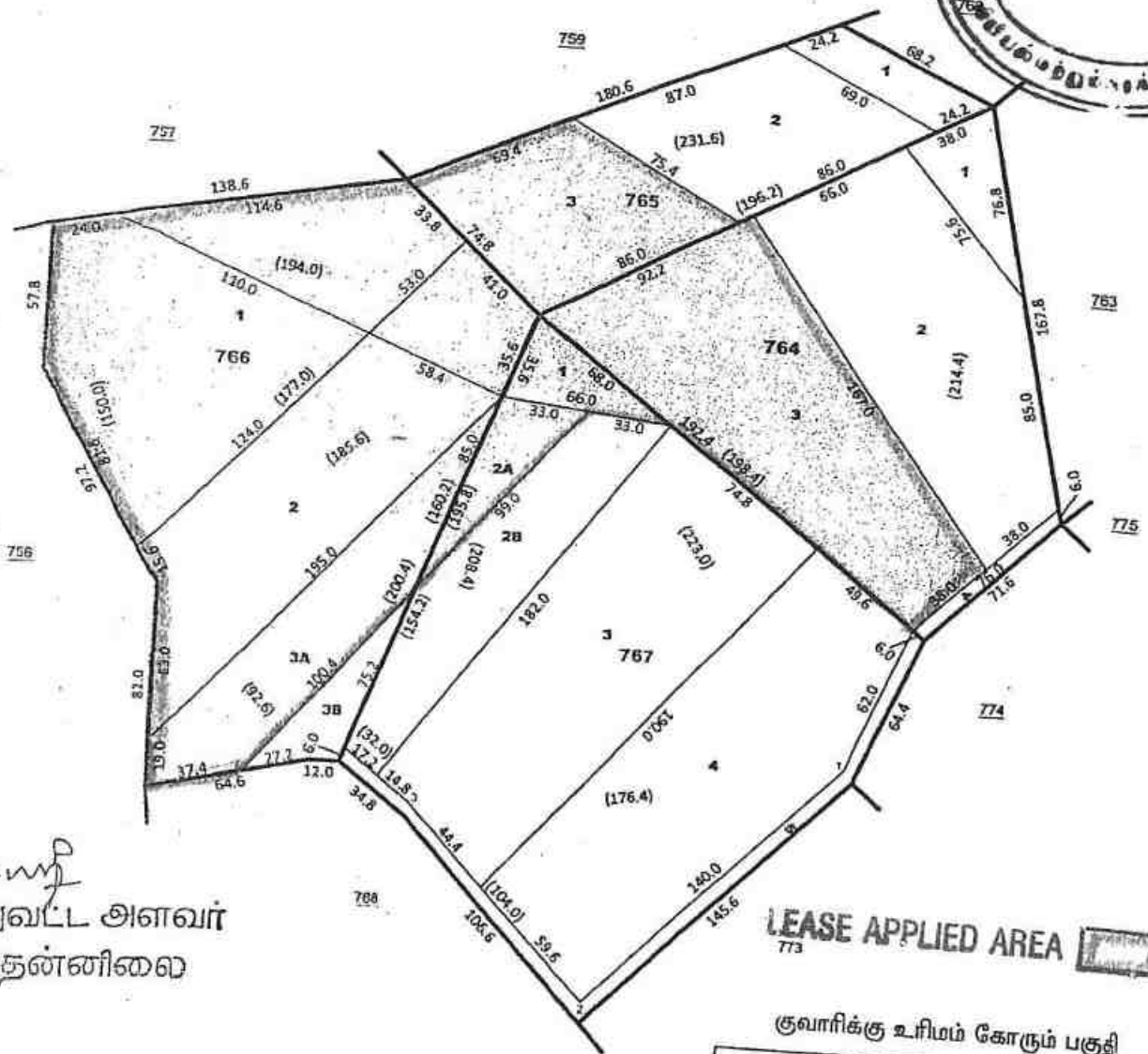
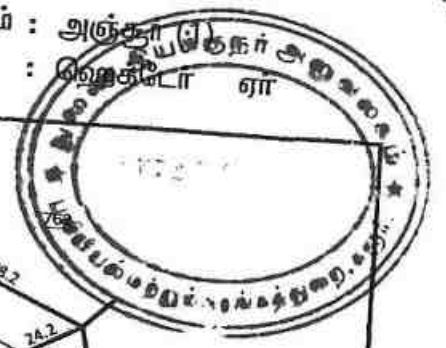
சிராம நிர்வாக அலுவலர்
1, அஞ்சல் கிராமம்
புல எண் 767, கரூர் மாவட்டம்

புல எண் : 764,765,766,767

புல எண் : 764,765,766,767

கிராமம் : அஞ்சல்

பரப்பு : ஹெக்டேர்



ச.வி
தறுவட்ட அளவர்
தென்னிலை

LEASE APPLIED AREA

குவாரிக்கு உரிமம் கோரும் பகுதி

- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி
764/3 நெறக் 1.14.00 = ஏக் 2.81.50 சென்ட்
765/3 நெறக் 0.48.00 = ஏக் 1.18.50 சென்ட்
767/1 நெறக் 0.11.50 = ஏக் 0.28.50 சென்ட்
- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி
766/1 பகுதி நெறக் 0.42.25 = ஏக் 1.04.50 சென்ட்
குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி
766/1 பகுதி நெறக் 0.92.25 = ஏக் 2.28.00 சென்ட்
- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்பட்ட பகுதி
766/2 பகுதி நெறக் 0.25.50 = ஏக் 0.63.00 சென்ட்
- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி
766/2 பகுதி நெறக் 0.88.50 = ஏக் 2.18.50 சென்ட்
- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி
766/3A நெறக் 0.47.35 = ஏக் 1.17.00 சென்ட்
- குவாரிக்கு உரிமம் கோரும் பகுதியில் வெட்டி எடுக்கப்படாத பகுதி
767/2A நெறக் 0.13.35 = ஏக் 0.33.00 சென்ட்

புல எண்	நெறக் ஏர்ஸ்	ஏக்கர் சென்ட்
764/3	1.14.00	2.81½
765/3	0.48.00	1.18½
766/1	1.34.50	3.32
766/2	1.14.00	2.81½
766/3A	0.47.35	1.17
767/1	0.11.50	0.28½
767/2A	0.13.35	0.33
மொத்தம்	4.82.70	11.92

தறுவட்ட அளவர்
தென்னிலை

அளவு - 1 மி.மீ : 2000 மி.மீ

ச.வி

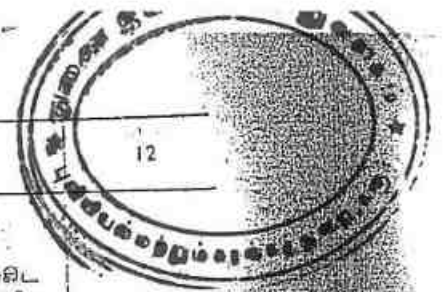
1	2	3	4	5	6	7	8	9	10	11
							கு. னை. தொ. ஏர்ஸ். கு. னை.			
4	753-4	ர	4	...	8-5	7	1 09	0 69.5	0 76	171 கு. சந்தான கோபாலன்.
								2 19.0	2 29	
...	754	ர	4	...	8-5	7	1 09	0 24.0	0 26	171 கு. சந்தான கோபாலன்.
...	755	அ	4	...	...	...	...	0 43.5	...	...
...	756	அ	4	...	...	...	...	0 84.0	...	...
...	757	அ	4	...	...	...	...	1 62.5	...	...
...	758	அ	4	...	...	...	...	0 87.0	...	...
...	759	ர	4	...	8-5	7	1 09	4 91.0	5 34	1124 உ. வெங்கிட சுப்பிரமணிய அய்யர் மற்றும் ஏழு பேர்களும். *
...	760	ர	4	...	8-5	7	1 09	1 23.5	1 34	818 ரா. குமரப்ப கவுண்டர் (1), மு. சாமியப்ப கவுண்டர் (2).
...	761	ர	4	...	8-5	7	1 09	1 32.5	1 44	634 வெ. வெங்கிட சுப்பிரமணிய அய்யர்.
...	762	ர	4	...	8-5	7	1 09	1 57.5	1 71	1143 உ. வெங்கிட சுப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *
...	763	ர	4	...	8-5	7	1 09	3 70.0	4 02	1143 உ. வெங்கிட சுப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *
...	764	ர	4	...	8-5	7	1 09	2 31.6	2 51	1143 உ. வெங்கிட சுப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *



* விவரப்பட்டியலைப் பார்க்கவும்.

சிராம நிர்வாக அலுவலர்
1. அஞ்சல் சிராமம்
முன்னாள் வட்டம், தஞ்சை மாவட்டம்.

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	2	3	4	5	6	7	8	9	10	11	12	
						கு. எப	திற. ஏர்ஸ்	கு. எப				
765	765	ர	4		8-5	7	1 09	1 14-0	1 24	1143	உ. வெங்கிட கப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *	
766	766	ர	4		8-5	7	1 09	3 09-0	3 36	1143	உ. வெங்கிட கப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *	
767	767	ர	4		8-5	7	1 09	3 45-6	3 73	1143	உ. வெங்கிட கப்பிரமணிய அய்யர் மற்றும் ஒன்பது பேர்களும். *	
768	1	768-பா	ர	4		8-5	7	1 09	0 15-0	0 16	273	மா. சேமலையப்ப கவுண்டர்.
	2	-பா	ர	4		8-5	7	1 09	0 37-0	0 40	138	த. குப்புசாமி கவுண்டர்.
	3	-பா	ர	4		8-5	7	1 09	0 17-0	0 19	64	மு. கருப்பண கவுண்டர்.
	4	-பா	ர	4		8-5	7	1 09	0 29-0	0 32	523	மு. முத்துசாமி கவுண்டர்.
	5	-பா	ர	4		8-5	7	1 09	0 15-0	0 16	64	மு. கருப்பண கவுண்டர்.
	6	-பா	ர	4		8-5	7	1 09	0 09-5	0 10	1066	மு. முத்துசாமி கவுண்டர் மற்றும் நான்கு பேர்களும். *
	7	-பா	ர	4		8-5	7	1 09	0 04-5	0 06	138	த. குப்புசாமி கவுண்டர்.
	8	-பா	ர	4		8-5	7	1 09	0 27-0	0 29	273	மா. சேமலையப்ப கவுண்டர்.
	9	-பா	ர	4		8-5	7	1 09	0 38-0	0 96	603	சே. ராமசாமி நாடார்.
	10	-பா	ர	4		8-5	7	1 09	0 17-5	0 19	64	மு. கருப்பண கவுண்டர்.
	11	-பா	ர	4		8-5	7	1 09	0 19-5	0 21	523	மு. முத்துசாமி கவுண்டர்.
	12	-பா	ர	4		8-5	7	1 09	0 48-5	0 53	273	மா. சேமலையப்ப கவுண்டர்.
	13	-பா	ர	4		8-5	7	1 09	0 09-0	0 10	273	மா. சேமலையப்ப கவுண்டர்.

சதுரக் கிணறு-1.

* விவரப்பட்டியலைப் பார்க்கவும்.

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(2 மார்ச்சு 2011)
 சிராம் நிர்வாக அலுவலர்
 1, அஞ்சல் சிராமம்
 புதினாம்பட்டி, கரூர் மாவட்டம்

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தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

வட்டம் : புகளூர்

மாவட்டம் : கரூர்

வருவாய் கிராமம் : அஞ்சூர்

பட்டா எண் : 1591

உரிமையாளர்கள் பெயர்

மகன்

குப்புசாமி

1. சாமியப்பகவுண்டர்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
766	1	1 - 34.50	1.50	--	--	--	--	12-10-2014
		1 - 34.50	1.50					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 14/07/001/01591/10186 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 23-05-2022 அன்று 08:54:07 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

பாவட்டம் : கரூர்

வட்டம் : புகளூர்

வருவாய் கிராமம் : அஞ்சூர்

பட்டா எண் : 1231

உரிமையாளர்கள் பெயர்

சாமியப்ப கவுண்டர்

மகன்

குப்புச்சாமி

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
759	5	1 - 34.00	1.55	--	--	--	--	----- 12-10-2014
764	3	1 - 14.00	1.25	--	--	--	--	----- 12-10-2014
765	3	0 - 48.00	0.55	--	--	--	--	----- 12-10-2014
766	2	1 - 14.00	1.25	--	--	--	--	----- 12-10-2014
767	1	0 - 11.50	0.15	--	--	--	--	----- 12-10-2014
		4 - 21.50	4.75					

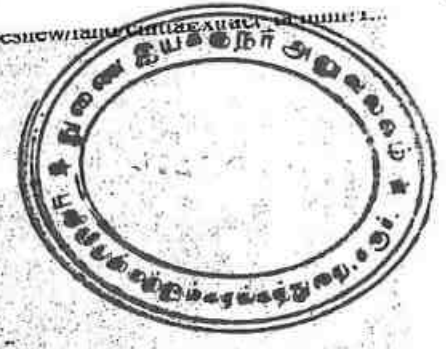
குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 14/07/001/01231/10187 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 27-04-2022 அன்று 10:53:25 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

வட்டம் : புகளூர்

மாவட்டம் : கரூர்

பட்டா எண் : 2287

வருவாய் கிராமம் : அஞ்சூர்

உரிமையாளர்கள் பெயர்

மகன்

குப்புசாமி

1. சாமியப்பகண்டர்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
766	3A	0 - 47.35	0.52	-	-	-	-	2022/0105 /14/097904-2022 /14/07/000051SD -- 29-05-2022
		0 - 47.35	0.52					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 14/07/001/02287/20149 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 04-06-2022 அன்று 07:59:13 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

[Handwritten signature]



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

வட்டம் : புகளூர்

மாவட்டம் : கரூர்

பட்டா எண் : 2288

வருவாய் கிராமம் : அஞ்சூர்

உரிமையாளர்கள் பெயர்

குப்புசாயி

1. சாமியப்பகவுண்டர்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
767	2A	0 - 13.35	0.15	--	--	--	--	2022/0105 /14/099140--2022 /14/07/000052SD -- 29-05-2022
		0 - 13.35	0.15					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 14/07/001/02288/20150 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 04-06-2022 அன்று 08:03:31 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

(Handwritten signature)



PHOTOCOPY OF THE APPLIED LEASE AREA

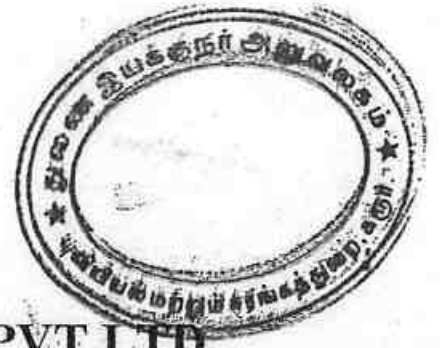
Field photos in respect of rough stone and Gravel quarry lease in S.F.No: 764/3, 765/3, 766/1, 766/2, 766/3A, 767/1 & 767/2A - Patta land – over an extent of 4.82.70 hectares – Anjur

Village – Pugalur Taluk - Karur District - Tamil Nadu State belongs to

Mr. S. Kuppusamy.



S. Kuppusamy 331



M/S.HANUMAN EXPLOSIVES PVT.LTD.,

Survey No.898,Chinnamaruthur Village, Dharapuram Taluk, TIRUPUR (Dt), Tamil Nadu
Licence No: E/SC/TN/22/714(E97779), E/SC/TN/22/737(E97783), E/SC/TN/22/734(E97787),
E/SC/TN/22/733(E97791), E/SC/TN/22/736(E97794), E/SC/TN/22/735(E97797).

To:
S.Kuppusamy,
95 Saliyankattupallam,
Thottipalayam Muthur,
Kangeyam Taluk,
Tiruppur district.

REF : your letter dated.

SUB : regarding blasting work using explosives in your proposed quarry.

Sir,

We have having explosives license I form 22 holding No: E/SC/TN/22/734(E97787) situated in survey SF NO.898,Chinnamaruthur, Pichaikalpatty village, Dharapuram(Tk), Tiruppur(Dt). Our office functions at address 278/J2,Karur main road,Mulanur, Dharapuram(Tk), Tiruppur(Dt), Tamil Nadu.

We are enacting 2 explosives vans for transporting detonators and class 2 separately for our magazine to our work site and well experienced and licensed blasters and shot firer for safe blasting without untoward incident.

We are willing to undertake work on contract basis at your SF NO 764/3(1.14.00Ha), 765/3(0.48.00Ha), 766/1(1.34.50Ha), 766/2(1.14.00), 766/3A(0.47.35), 767/1(0.11.50Ha) and 767/2A(0.13.35) total 4.82.70 in Anjur Village, Pugalur(TK), Karur(DT).

Thanking you.

Date:20-02-2023

ENCLOSURE

1.LICENCE COPY

FOR HANUMAN EXPLOSIVES

For M/S HANUMAN EXPLOSIVES PVT. LTD.

M. Suresh
AUTHORISED SIGNATORY

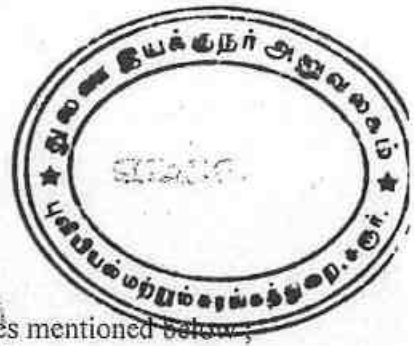
J. Jayaraman



Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Disclaimer : This page gives the latest action taken by this organization on your application. This page is made available for the information of concerned applicant/licensee. It is not intended to replace the original documents found under the seal and signature of an appropriate officer of Petroleum & Explosives Safety Organization, shall be used. A hard copy printout made to secure this information. However, PESO will not be responsible for any misuse of the information by unauthorised persons including the

Handwritten signature: J. Jeyaraj



किसीभीएकसमयमेंलाइसेंसक्षमतानिमित्तलिखितवर्ग तथामात्रासेअधिकनहींहोगी।

The licence capacity at any one time shall not exceed the kinds and quantities mentioned below;

संख्या No	विस्फोटक Explosive(s)	वर्ग Class	प्रभाग Div	उप-प्रभाग Sub Div	क्षमता Capacity	इकाई Unit
1	Nitrate Mixture	2	0	0	1500	Kg.
2	Detonating Fuse	6	2	0	15000	Mtrs
3	Safety Fuse	6	1	0	5000	Mtrs
4	Detonators	6	3	0	30000	Nos.

किसीएककलेंडरमासमेंखरीदेजानेवालेविस्फोटककीमात्रा (अनुच्छेद 3 (ख) और (ग))

केअधीनअनुसूचितकेलिएलागू) : 15 गुना

Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] : 15 times as above.

यहअनुज्ञप्ति दिनांक 31 मार्च 2023 तक प्रवृत्त रहेगी।

This Licence shall remain valid till 31st day of March 2023.

अनुज्ञप्तिकेआगामीनवीकरणहेतुकृपयाविस्फोटकनियम, 2008 केनियम 112

केअंतर्गतप्रक्रियाकापालनकरें। कृपयापावतीदें।

For further revalidation (if required), please follow the procedure under Rule 112 of Explosives Rules, 2008. Receipt of this letter may please be acknowledged.

भवदीय | Your's faithfully

(पी.सी.नीराज | P. SEENIRAJ)

उपमुख्यविस्फोटकनियंत्रक | Deputy Chief Controller of Explosives

कृतेसंयुक्तमुख्यविस्फोटकनियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपिप्रेषित | Copy Forwarded to:

1. District Magistrate, TIRUPUR, Tamil Nadu with reference to his Noc No: R.Dis No.5846/2017/C2 Dated: 11/12/2017
2. Superintendent of Police, TIRUPUR, Tamil Nadu.

कृतेसंयुक्तमुख्यविस्फोटकनियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिकजानकारीजैसेआवेदनकीस्थिति, शुल्कआदिकेलिएहमारीवेबसाइट <http://peso.gov.in> देखें।)

(For more information regarding status, fees and other details please visit our website

<http://peso.gov.in>)



Cert No. MR/SZ/592

भारत सरकार/Government of India

खान अधिनियम, 1952/Mines Act, 1952

खनन परीक्षा बोर्ड/Board of Mining Examinations

खनन मेट सक्षमता प्रमाण-पत्र

MINING MATE'S CERTIFICATE OF COMPETENCY

(केवल ओपेनकास्ट खानों तक सीमित)

(Restricted to mines having opencast workings only)

(धात्विकीय खान विनियम, 1961 के अन्तर्गत)

(Under the Metalliferous Mines Regulations, 1961)

श्री सुपुत्र
जिनकी जन्म तिथि है, को अपनी
आयु, स्वस्थता, सदाचार, साक्षरता और धात्विकीय खानों में काम करने के विहित अनुभव का सन्तोषजनक प्रमाण केन्द्र पर आयोजित
प्रस्तुत करने एवं दिनांक को
विहित परीक्षा में उत्तीर्ण होने पर एतद्वारा केवल ओपेनकास्ट खानों तक सीमित मेट सक्षमता प्रमाण-पत्र प्रदान किया जाता है।

Shri CHANDRASEKARAN D son of DURAISAMY
born on 05th MAY, 1976 (SEVENTY SIX) having given satisfactory evidence of his age,
medical fitness, good character, literacy and prescribed experience of working in metalliferous
mines and having passed the prescribed examination held at GVTC, C.N.HALLI, TUMKUR
centre on 23.03.2015 is hereby granted MINING MATE'S CERTIFICATE OF
COMPETENCY restricted to mines having opencast workings only.

बाए हाथ चिह्न
Left hand thumb impression

अंचल सचिव
खनन परीक्षा बोर्ड
Zonal Secretary
Board of Mining
Examinations

अंचल सचिव
खनन परीक्षा बोर्ड
दक्षिणी अंचल, बंगलूर
Zonal Secretary
Board of Mining Examination
Southern Zone, Bengaluru.

Rakesh Gupta
अध्यक्ष
खनन परीक्षा बोर्ड
Chairman
Board of Mining
Examinations

Signed and Scaled
Date 16/07/2015

J. Jayaram



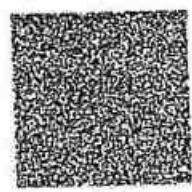
புதிது அடையாளம் / Enrollment No. : 0000/00830/00187

To
KUPPUSAMY S
குப்புசாமி சா
S/O: Samiappagounder,
95,
SALIANKATTUPALLAM,
THOTIYAPALAYAM,
VTC: Muthur, PO: Muthur,
Sub District: Kangayam, District: Tiruppur,
State: Tamil Nadu, PIN Code: 638105,
Mobile: 9842955498

79573484



KF795734842FI



உங்கள் ஆதார் எண் / Your Aadhaar No. :

3901 3161 7273

எனது ஆதார், எனது அடையாளம்

நுகர்வோர் அடையாளத்திற்கான சான்று, குடியிருப்பும் அல்ல
உபயோகப்பாள் OR குறியீடு ஆப்லைன் XML / ஆப்லைன்
அங்கீகாரத்தைப் பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்.

INFORMATION

Aadhaar is a proof of identity, not of citizenship.
Verify identity using Secure QR Code / Offline XML / Online Authentication.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- பல்வேறு அரசு மற்றும் அரசு சாரா சேவைகளை எளிதில் பெற ஆதார் உதவுகிறது.
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் புதுப்பிக்கவும்.
- mAadhaar செயலியைப் பயன்படுத்தி உங்கள் ஸ்மார்ட் போனில் ஆதாரை எடுத்துச் செல்லுங்கள்.
- Aadhaar is valid throughout the country.
- Aadhaar helps you avail various Government and non-Government services easily.
- Keep your mobile number & email ID updated in Aadhaar.
- Carry Aadhaar in your smart phone – use mAadhaar App.



உதவி அடையாளம்
Government of India



குப்புசாமி சா
KUPPUSAMY S
பிறந்த நாள் / DOB: 25/11/1958
ஆண்மாம் / Male

Issue Date: 03/12/2013

3901 3161 7273

எனது ஆதார், எனது அடையாளம்

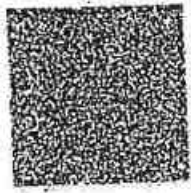


உதவி அடையாளம்
Government of India



Print Date: 25/11/2021

முகவரி: S/O: சாமிப்பாண்டி, 95, சாலிங்கட்டிப்பல்லம்,
தோதியாபாளையம், முத்து, திருப்பூர், தமிழ் நாடு.
638105
Address: S/O: Samiappagounder, 95,
SALIANKATTUPALLAM,
THOTIYAPALAYAM, Muthur, Tiruppur, Tamil
Nadu. 638105



3901 3161 7273

1947 help@uidai.gov.in www.uidai.gov.in

K. Jayaraman

- 325 -



File No.DMG-P/4/2022-DMG



**GOVERNMENT OF TELANGANA
DEPARTMENT OF MINES AND GEOLOGY**

**CERTIFICATE OF REGISTRATION
AS RECOGNIZED QUALIFIED PERSON
TO PREPARE MINING PLAN**

[Under Rule 14(2) of Granite Conservation and Development Rules 1999 & Rule 7(B) of Telangana State Minor Mineral Concession Rules, 1966]

Sri A. Allimuthu, S/o Arumugam, D.No.1/231, Pattakarnavalavu, Chinnamuthiyampatti, Puduppalayam Post, Edapaddi Taluk, Salem District, Tamil Nadu-636306 whose photograph and signature is affixed herein above, having given evidence of his qualification and experience is hereby granted recognition under Rule 14(2) of Granite Conservation & Development Rules, 1999 and Rule 7(B) of Telangana State Minor Mineral Concession Rules, 1966 as Recognized Qualified Person (RQP) to prepare Mining Plan.

Registration Number : RQP/DMG/HYD/85/2022

This Recognition is valid for period of (10) years with effect from 26.04.2022.

This certificate will liable to be withdrawn/cancelled in the event of furnishing the wrong information/documents in the Mining Plan submitted by the Recognized Qualified Person.

Place: Hyderabad,
Date: 26.04.2022.



DIRECTOR OF MINES AND GEOLOGY

D Ronald Rose
4-2022 09:41:13
pproved

[Handwritten signature]
338

JW RE
ERODE

Inspector - P
339

MUTHUR

TOWARDS
VELLAKOIL

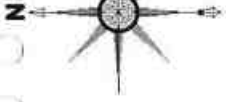
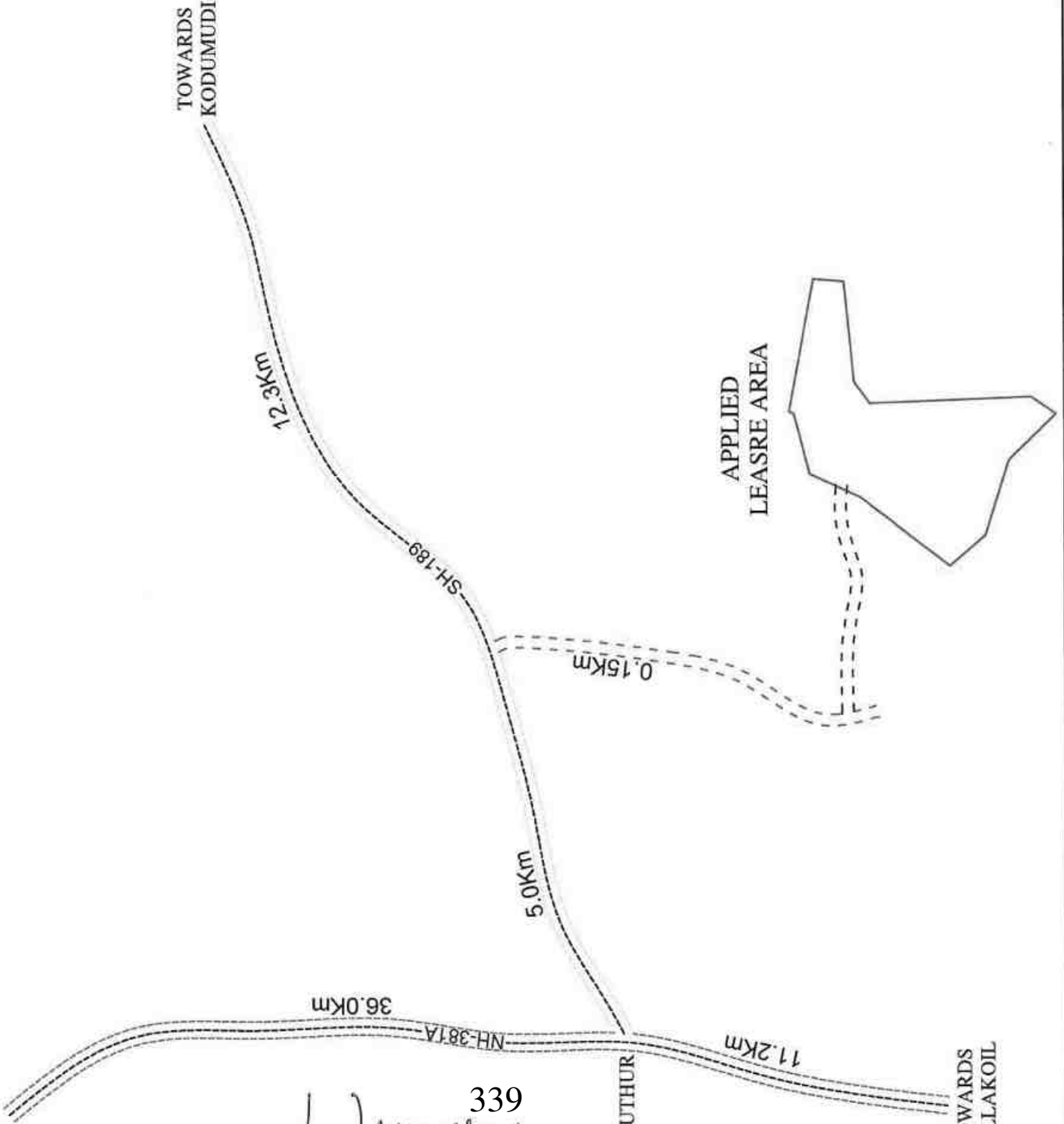







PLATE NO-I

APPLICANT:
MR.P.SAMBATH KUMAR,
 S/O. PALANISAMY,
 DOOR NO:98,
 MUTTUR,KANGAYAM,
 TIRUPPUR DISTRICT.

LEASE APPLIED AREA:
 S.F.NO : 759/2 (P),761/2(P),761/3(P),
 762/2, 762/3,763/2 &763/3
 EXTENT : 4.81.50Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

INDEX

-  MINE LEASE AREA
-  APPROACH ROAD
-  CART ROAD
-  SH -189 ROAD
-  NH - 381A ROAD

KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

A. Allimuthan

A.ALLMUTHAN, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 ROP/DMG/HIS/25/2022



11°3'13.51"N



77°46'49.20"E

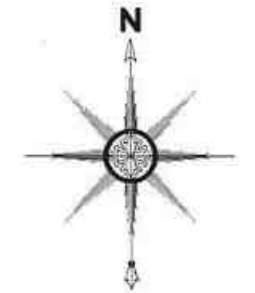
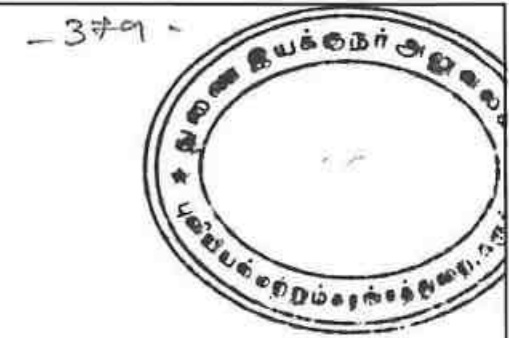


PLATE NO-IA

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

INDEX

MINE LEASE AREA : ●
 TOPO SHEET NO : 58-E/16
 LATITUDE : 11°3'02.77"N to 11°3'13.51"N
 LONGITUDE : 77°46'49.20"E to 77°47'0.88"E

LOCATION PLAN
NOT TO SCALE

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE
 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

A. Allimuthu
A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

[Handwritten signature]

11°3'13.51"N

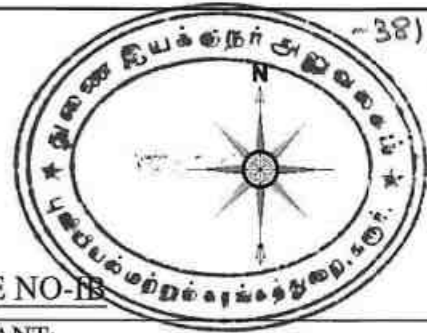


PLATE NO-18

APPLICANT:
Mr.S.KUPPUSAMY,
S/o.SAMIAPPAGOUNDER,
Door No.95, SALIANKATTUPALLAM,
THOTIYAPALAYAM,
MUTHUR, KANGEYAM TALUK,
TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
S.F.NO : 764/3, 765/3, 766/1, 766/2,
766/3A, 767/1 & 767/2A
EXTENT : 4.827Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

TOPO SHEET NO : 58-E/16

LATITUDE : 11°3'02.77"N to 11°3'13.51"N

LONGITUDE : 77°46'49.20"E to 77°47'0.88"E

MINE LEASE AREA



10KM RADIUS



CONVENTIONAL SYMBOLS

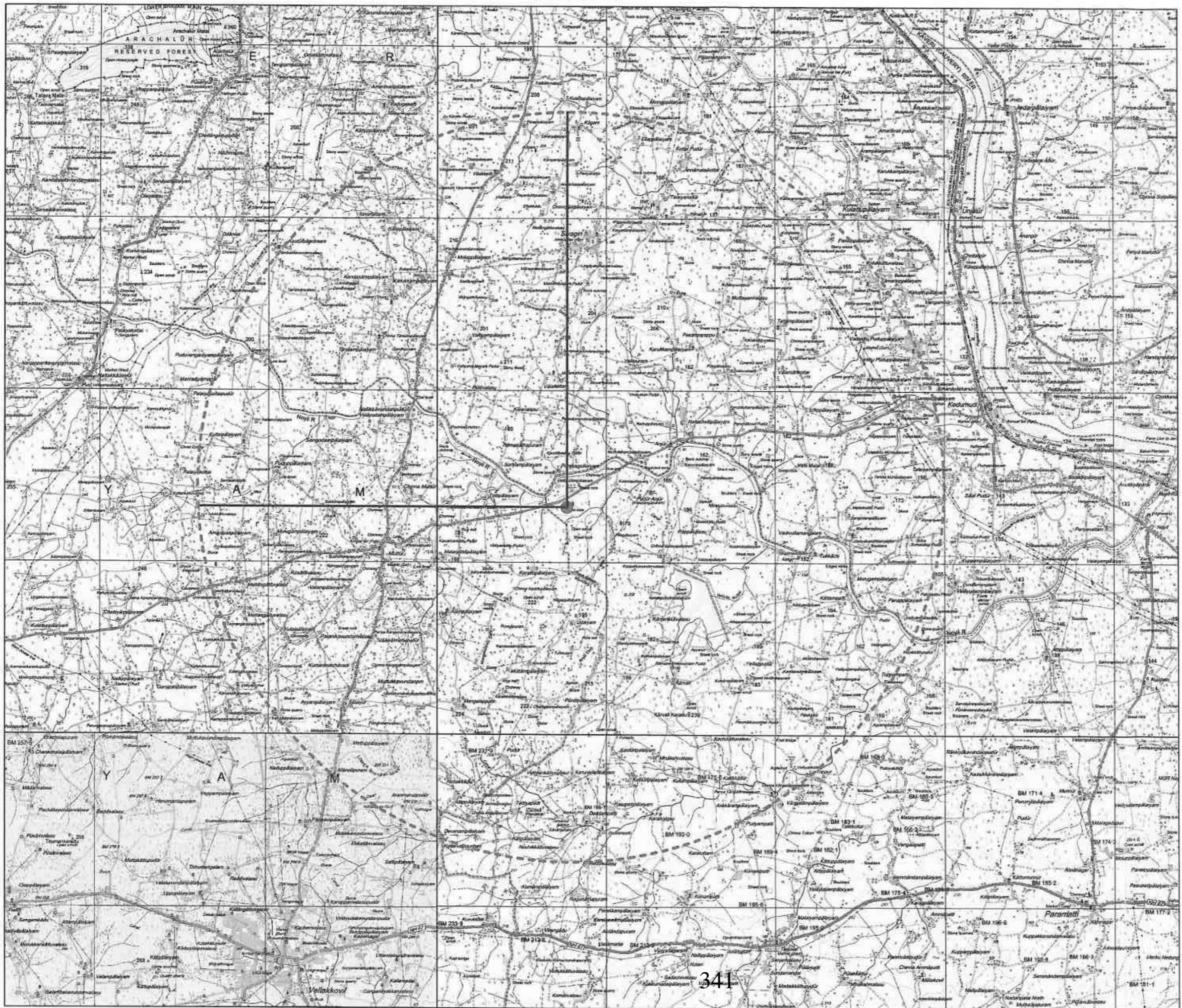
Express highway with toll with bridge with access roads	
Roads, marked according to importance	
Roads, double carriageway according to importance	
Unimproved road, Cart track, Path road with paved foot path	
Drains with arch to feet, unlined Canal	
Drain, masonry or rock lined, earthen, tile	
River any with water channel, with and without dam, Tail race	
Submerged rocks, Shoal, Barren, Rock	
Islets, wet, inland, Tidal wet, Spring, Tanks, perennial, dry	
Contourment, road or rail, with, above ground	
Railways, broad gauge, meter, gauge, with station, underground	
Runways, other gauges, roads, single with, double, other	
Isolated line or tramway, Kin, Clating with tunnel	
Canals with, with sluices, locks, access, dams	
Sea level (1/100) (2/100) (3/100) (4/100) (5/100)	
Trees or Village, isolated, scattered, Fert	
Road junction, temporary, Tower, Antenna	
Towers, Church, Church, Mosque, Light, Tank, Cross	
Lightning, Lightning, Storm, lightning, lightning, lightning	
Mine, Mine, mine, Mine, Mine	
Poles, poles, other, Poles, poles, Poles, other, poles	
Areas, isolated, isolated, surveyed, sea	
Boundary, International	
State, International, International	
Boundary, other, surveyed, unsurveyed	
Height, triangulated, station, spot, approximate	
Spot mark, position, survey, canal	
Foot office, Telegraph office, Communication	
Road house or inspection, barometer, Check house, Police station, W	
Camp, ground, Forest, reserved, protected	
Special names, administrative, locality, or town	
Hospital, Dispensary, Veterinary Hospital, Dispensary	
Amusement, hospital, Tourist	
Place, bar, with poles, surveyed, with poles, unsurveyed	

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

A. Allimuthu
A.ALLIMUTHU, M.Sc., M.PHIL.,
RECOGNISED QUALIFIED PERSON
RQP/DMG/HYD/85/2022



77°46'49.20"E

341

S. Jayaraj

11°3'13.51"N

TOWARDS
KODUMUDI

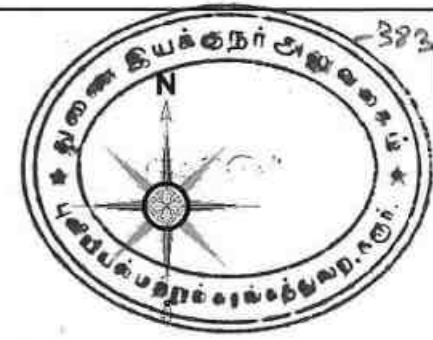


PLATE NO-IC

APPLICANT:
Mr.S.KUPPUSAMY,
S/o.SAMIAPPAGOUNDER,
Door No.95, SALIANKATTUPALLAM,
THOTIYAPALAYAM,
MUTHUR, KANGEYAM TALUK,
TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
S.F.NO : 764/3, 765/3, 766/1, 766/2,
766/3A, 767/1 & 767/2A

EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

INDEX

MINE LEASE AREA	
SAFETY DISTANCE	
APPROACH ROAD	
CART ROAD	
SH - 189 ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING PIT	

TOPO SHEET NO : 58-E/16

LATITUDE : 11°3'02.77"N to 11°3'13.51"N

LONGITUDE : 77°46'49.20"E to 77°47'0.88"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

A. Allimuthu
A.ALLIMUTHU, M.Sc., M.PHIL.,
RECOGNISED QUALIFIED PERSON
RQP/DMG/HYD/85/2022

S. Kuppusamy

TO AR 3
MUTHUR

77°46'49.20"E



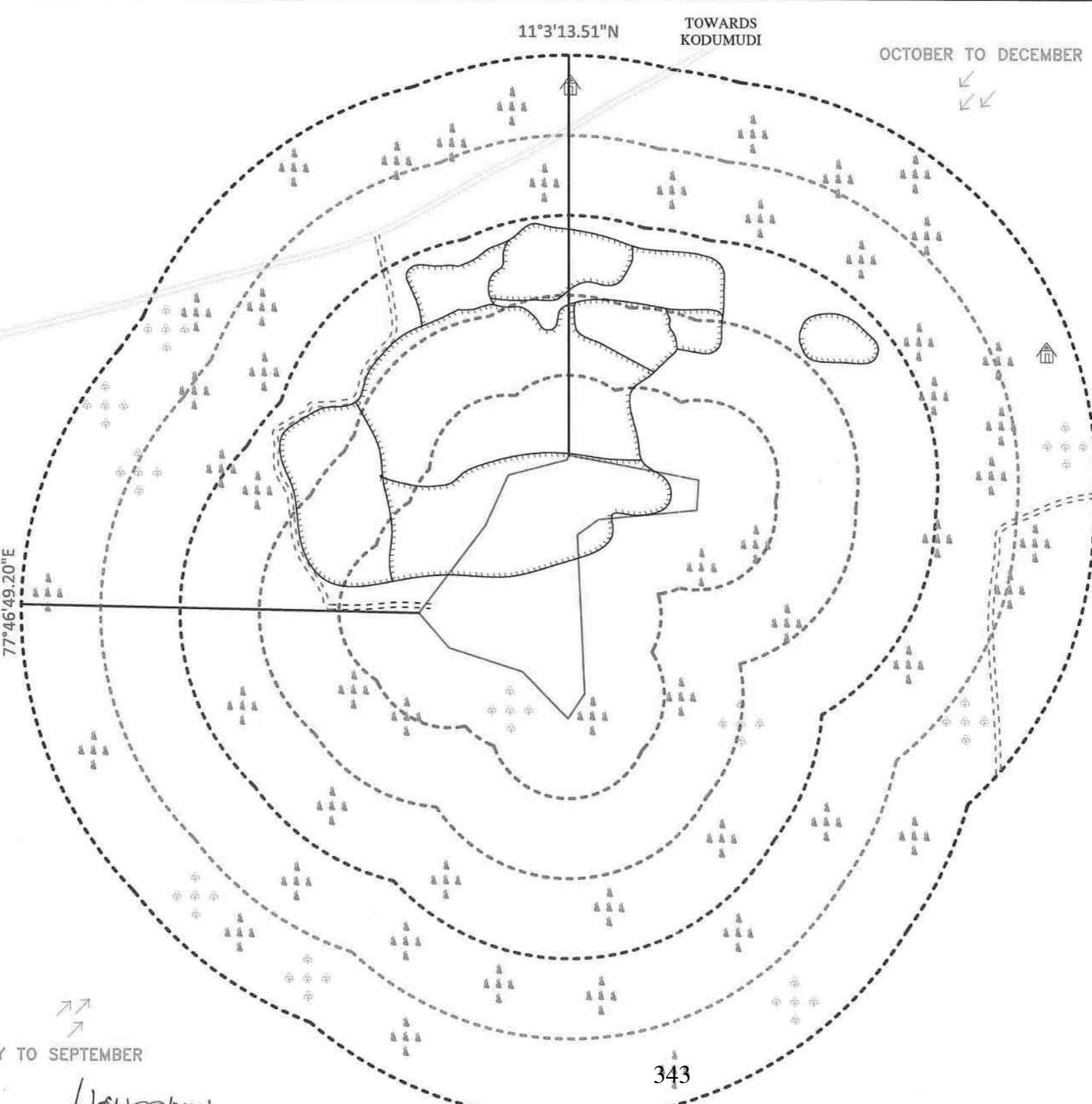


PLATE NO: ID
 APPLICANT
Mr.S.KURUSAMY,
 S/o.SAMI RAJAGOUNDER,
 Door No.95, SAI ANKATLIPALAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
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 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

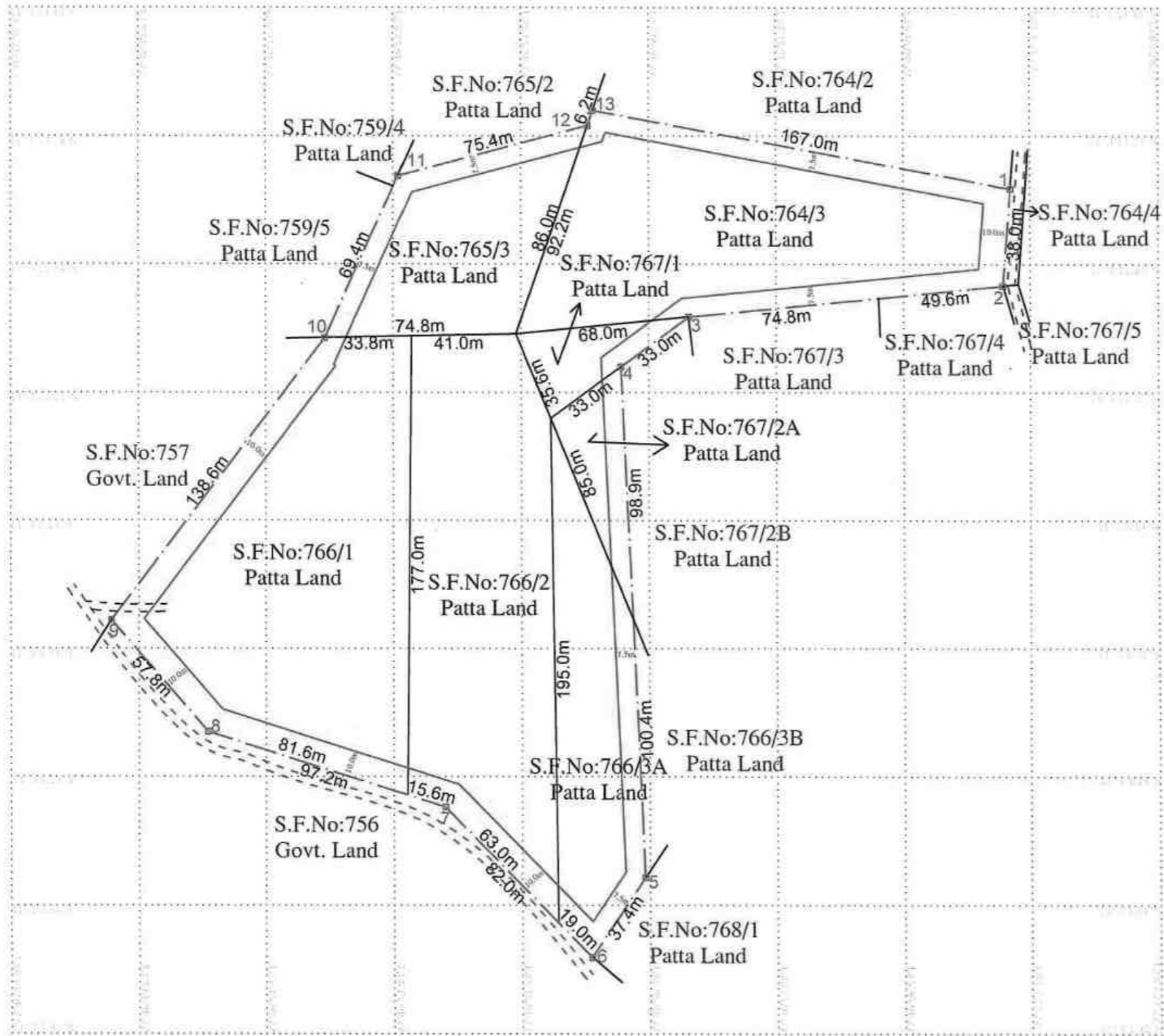
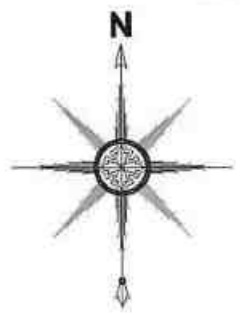
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APPROACH ROAD	
CART ROAD	
SH - 189 ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING PIT	
SHRUBS & TREES	
HABITATION	
WIND DIRECTION	

TOPO SHEET NO : 58-E/16
 LATITUDE : 11°3'02.77"N to 11°3'13.51"N
 LONGITUDE : 77°46'49.20"E to 77°47'0.88"E

ENVIRONMENTAL PLAN
 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
 A. Allimuthu
 A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

77°46'49.20"E
 JULY TO SEPTEMBER



Pillar No	Latitude	Longitude
1	11° 3'12.47"N	77°47'0.88"E
2	11° 3'11.23"N	77°47'0.78"E
3	11° 3'10.88"N	77°46'56.70"E
4	11° 3'10.25"N	77°46'55.81"E
5	11° 3'3.77"N	77°46'56.05"E
6	11° 3'2.77"N	77°46'55.36"E
7	11° 3'4.69"N	77°46'53.49"E
8	11° 3'5.67"N	77°46'50.44"E
9	11° 3'7.10"N	77°46'49.20"E
10	11° 3'10.66"N	77°46'52.00"E
11	11° 3'12.70"N	77°46'52.97"E
12	11° 3'13.32"N	77°46'55.42"E
13	11° 3'13.51"N	77°46'55.49"E

PLATE NO-II

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGAYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A

EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

INDEX

MINE LEASE AREA	
SAFETY DISTANCE	
APPROACH ROAD	
CART & PATTI ROAD	
BOUNDARY PILLAR STONES	

MINE LEASE PLAN
 SCALE- 1:2000

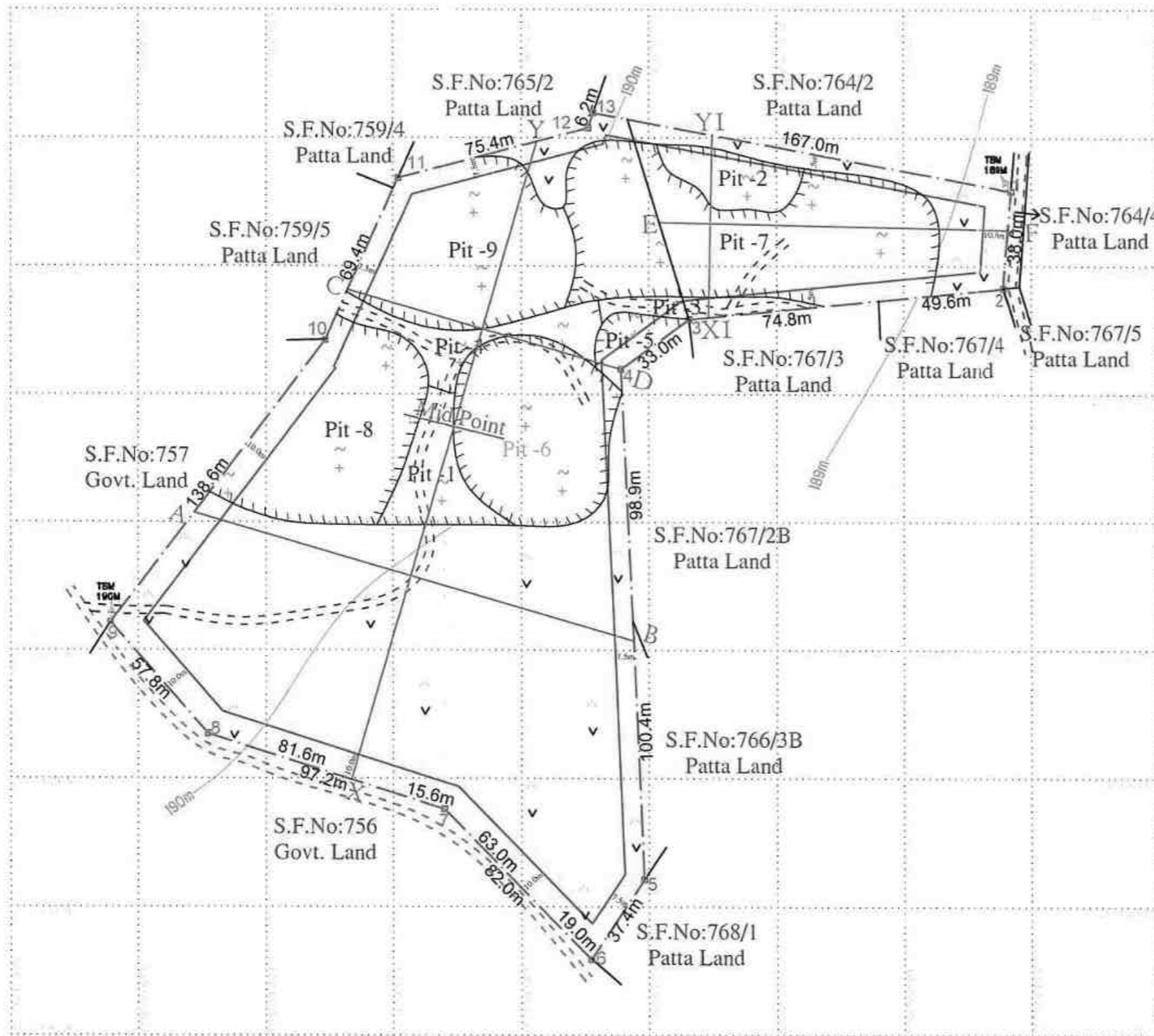
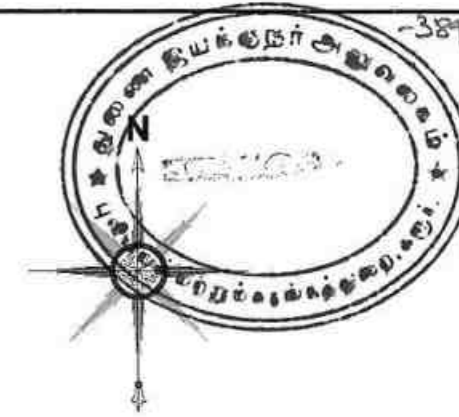
Prepared By:

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A. Allimuthu

A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Kuppusamy



EXISTING PIT DIMENSIONS

Pit Levels	Length in (m)	Width in (m)	Depth in (m)
1	53	22	3
2	20	45	4
3	8	60	6
4	15	95	7
5	25	20	10
6	71	61	12
7	48	140	13
8	82	58	15
9	62	76	16

PLATE NO-III

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

INDEX

- MINE LEASE AREA
- SAFETY DISTANCE
- APPROACH & MINE HAUL ROAD
- CART & PATA ROAD
- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
- CONTOUR LINES
- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT

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

A. Allimuthu
 A.ALLIMUTHU, M.Sc., M.PHIL,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Kuppusamy

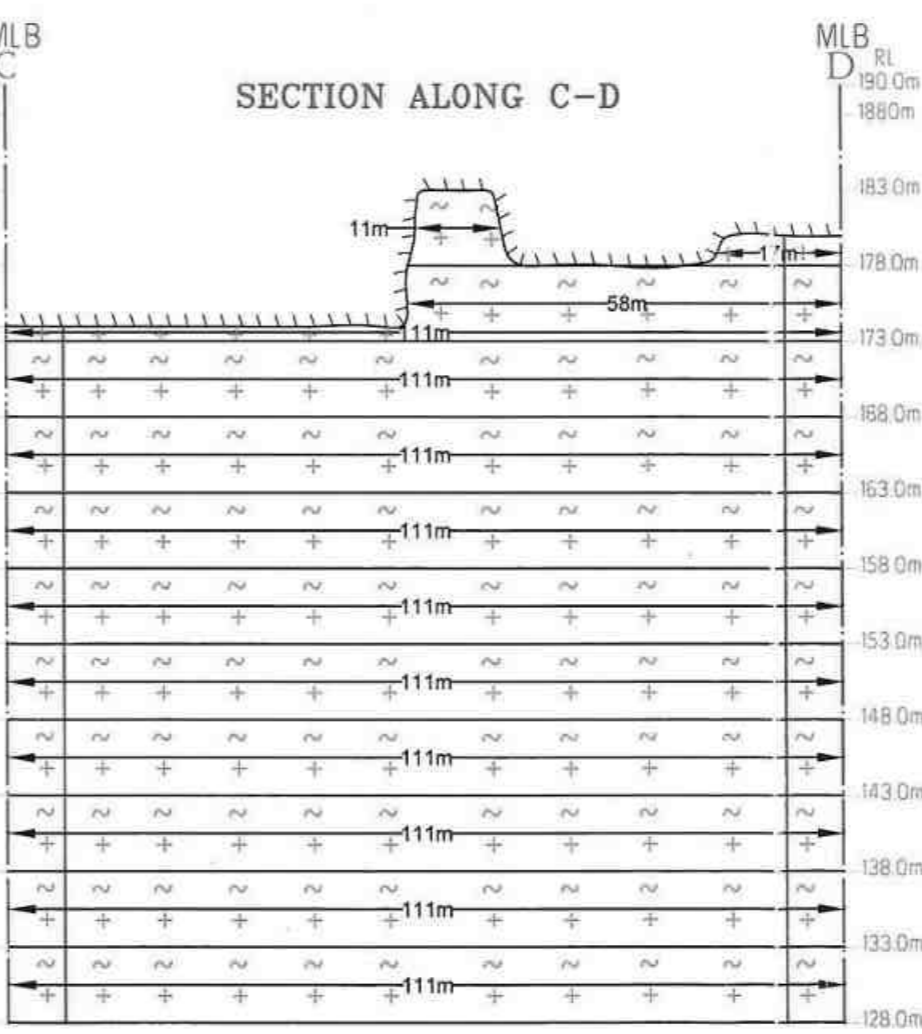
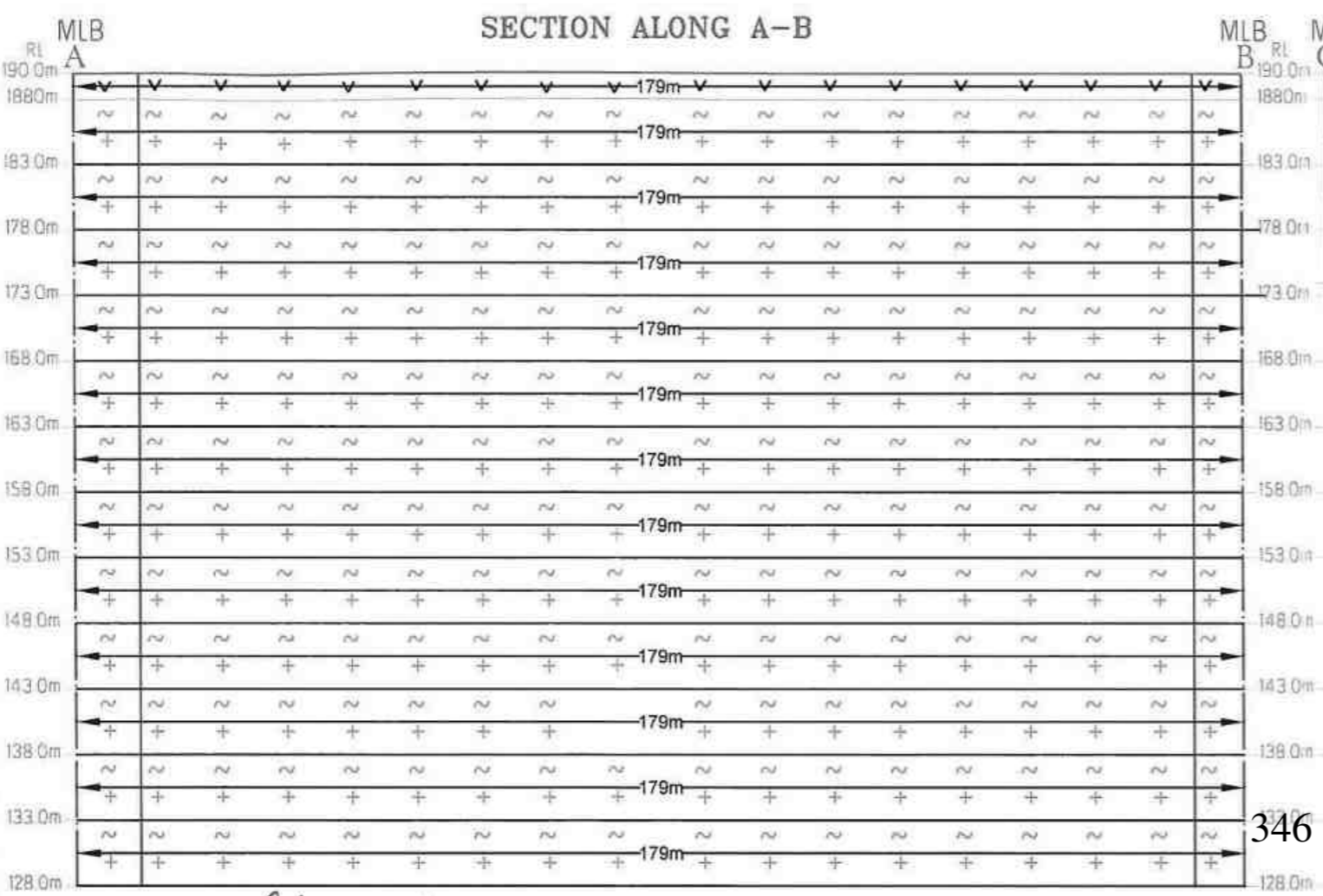
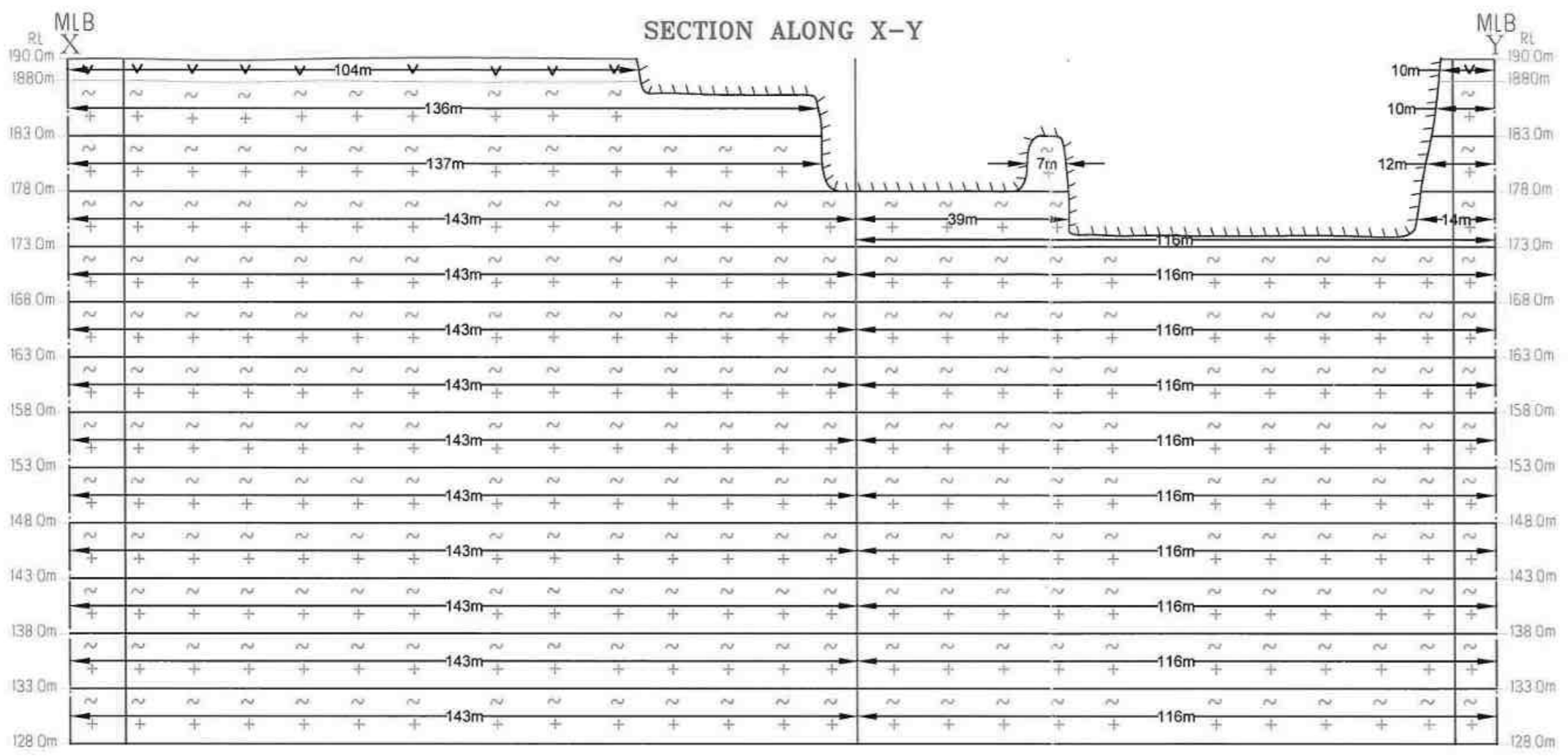


PLATE NO-III A

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGAYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
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 EXTENT : 4.82.7Hect,
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 TALUK : PUGALUR,
 DISTRICT : KARUR.

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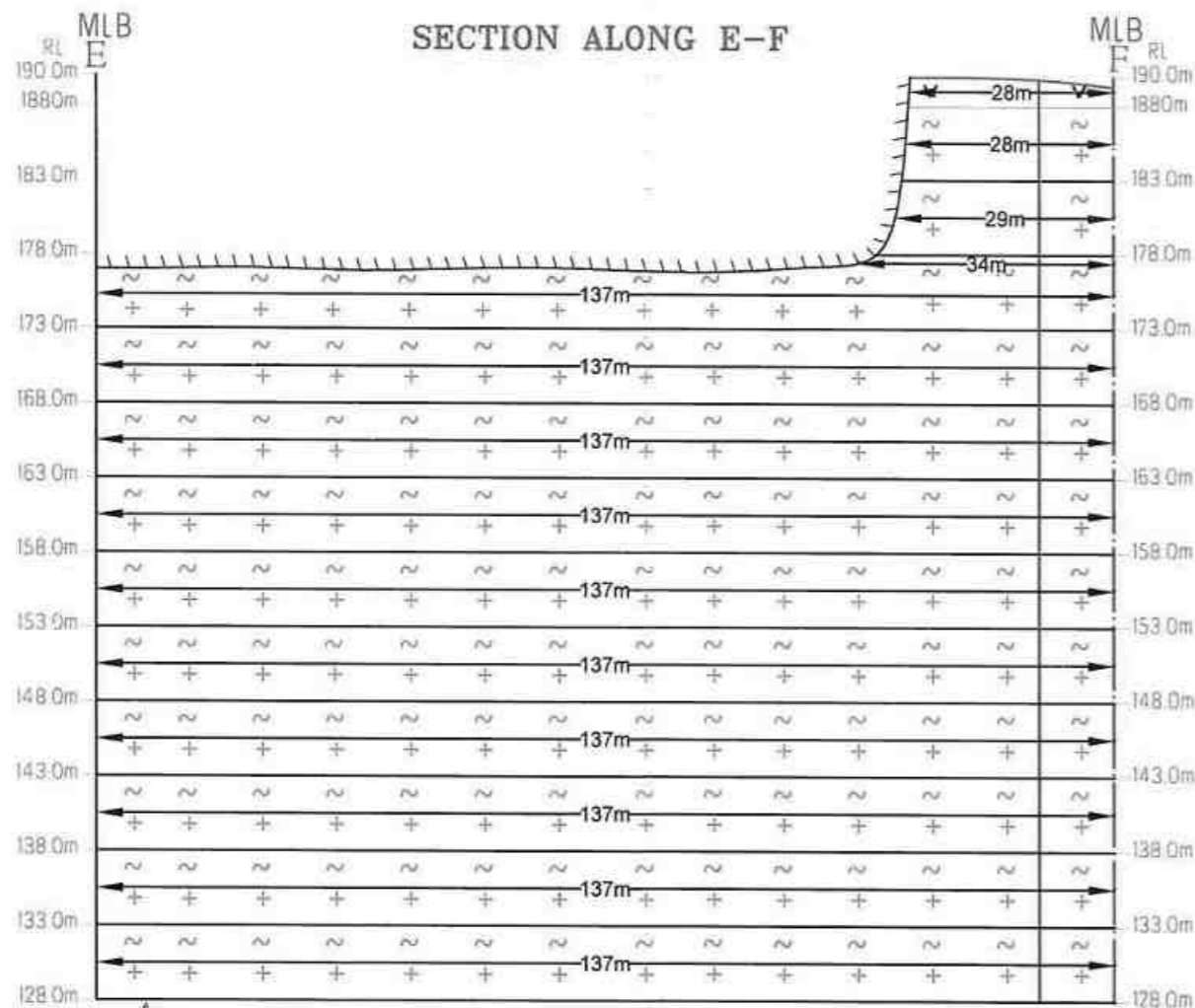
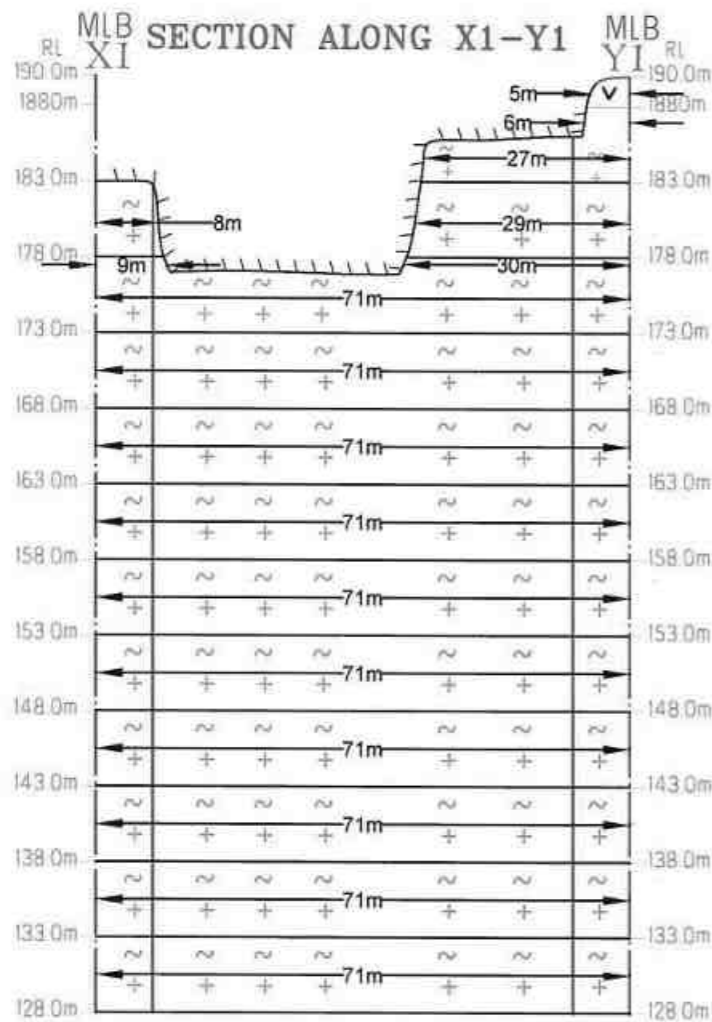
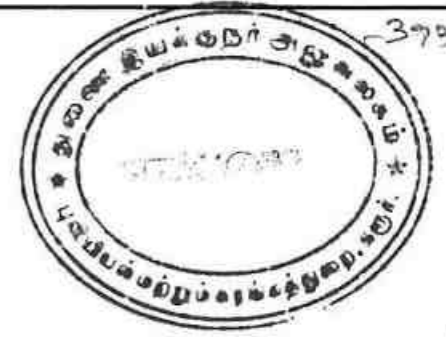
MINE LEASE AREA	
SAFETY BOUNDARY	
GRAVEL	
ROUGH STONE	
EXISTING PIT	

GEOLOGICAL SECTIONS
 SECTION HOR 1: 1000 & VER 1: 500

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE
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 TO THE BEST OF MY KNOWLEDGE

A. Allimuthu
A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Kuppusamy



S. S. Kuppusamy

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	104	179	2	37232	.....	37232
	II	136	179	5	121720	121720	.....
	III	137	179	5	122615	122615	.....
	IV	143	179	5	127985	127985	.....
	V	143	179	5	127985	127985	.....
	VI	143	179	5	127985	127985	.....
	VII	143	179	5	127985	127985	.....
	VIII	143	179	5	127985	127985	.....
	IX	143	179	5	127985	127985	.....
	X	143	179	5	127985	127985	.....
	XI	143	179	5	127985	127985	.....
	XII	143	179	5	127985	127985	.....
	XIII	143	179	5	127985	127985	.....
TOTAL				62	1561417	1524185	37232
XY-CD	I	10	9	2	180	.....	180
	II	10	9	5	450	450	.....
	III	19	11	3	627	627	.....
	III	19	28	2	1064	1064	.....
	IV	53	58	4	12296	12296	.....
	IV	116	111	1	12876	12876	.....
	V	116	111	5	64380	64380	.....
	VI	116	111	5	64380	64380	.....
	VII	116	111	5	64380	64380	.....
	VIII	116	111	5	64380	64380	.....
	IX	116	111	5	64380	64380	.....
	X	116	111	5	64380	64380	.....
	XI	116	111	5	64380	64380	.....
XII	116	111	5	64380	64380	.....
XIII	116	111	5	64380	64380	.....
TOTAL				62	606913	606733	180
X1Y1-EF	I	5	28	2	280	.....	280
	II	6	28	2	336	336	.....
	II	27	28	3	2268	2268	.....
	III	37	29	5	5365	5365	.....
	IV	39	34	1	1326	1326	.....
	IV	71	137	4	38908	38908	.....
	V	71	137	5	48635	48635	.....
	VI	71	137	5	48635	48635	.....
	VII	71	137	5	48635	48635	.....
	VIII	71	137	5	48635	48635	.....
	IX	71	137	5	48635	48635	.....
	X	71	137	5	48635	48635	.....
	XI	71	137	5	48635	48635	.....
XII	71	137	5	48635	48635	.....
XIII	71	137	5	48635	48635	.....
TOTAL				62	486198	485918	280
GRAND TOTAL					2654528	2616836	37692

347

PLATE NO-III B

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGAYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

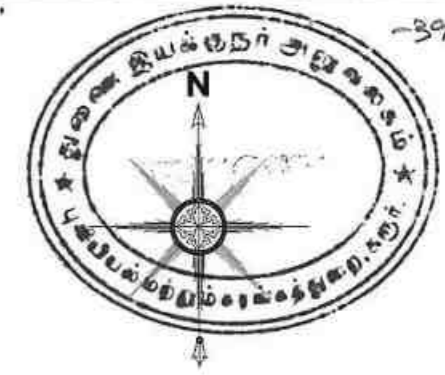
INDEX

- MINE LEASE AREA
- SAFETY BOUNDARY
- GRAVEL
- ROUGH STONE
- EXISTING PIT

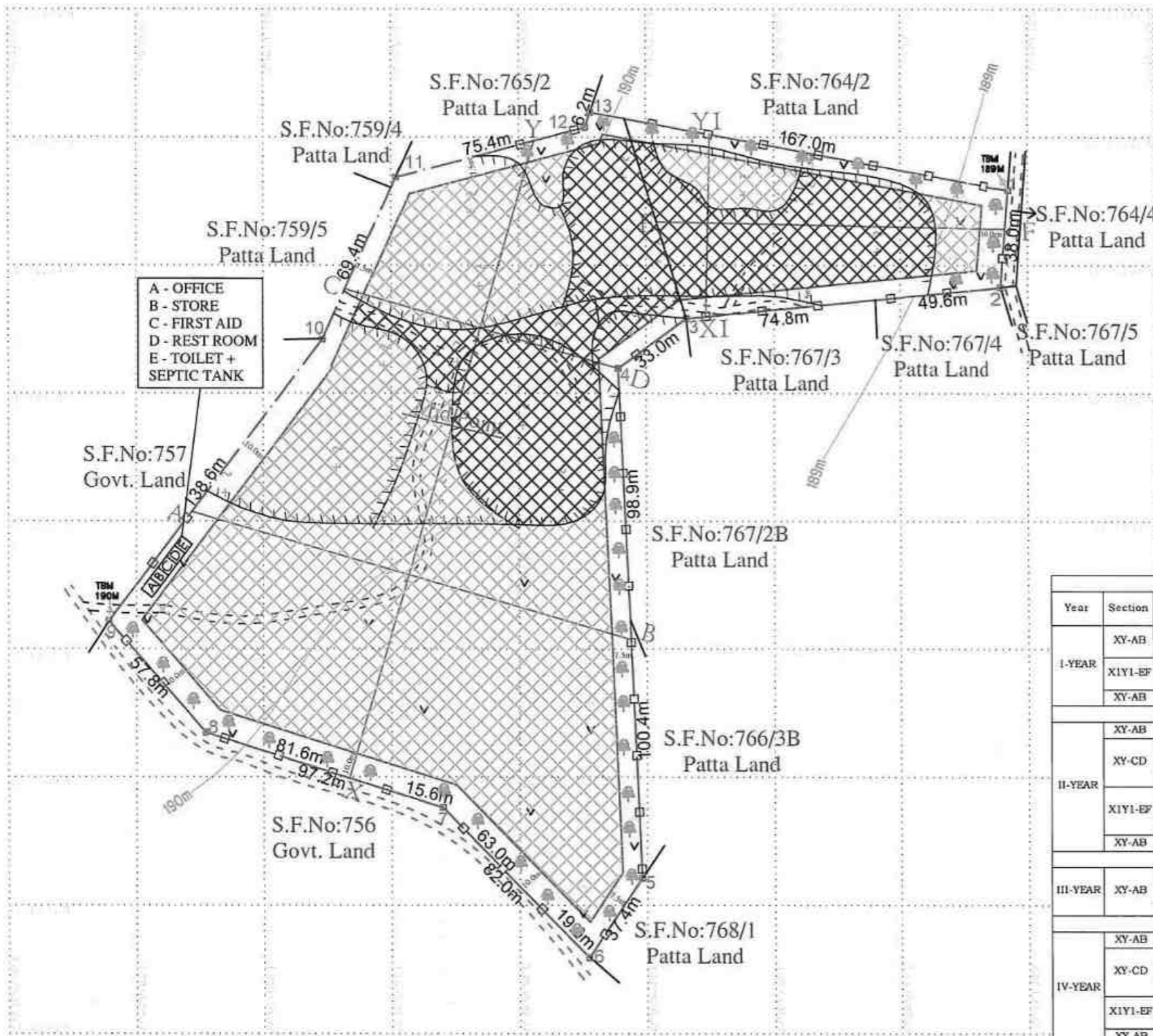
GEOLOGICAL SECTIONS
 SECTION HOR 1 : 1000 & VER 1 : 500

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE
 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

A. Animud.
 A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022



395



- A - OFFICE
- B - STORE
- C - FIRST AID
- D - REST ROOM
- E - TOILET + SEPTIC TANK

- 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

Plantation Proposed for VI-Year

YEARWISE PRODUCTIONS RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
I-YEAR	XY-AB	I	94	161	2	30268	.....	30268
		II	124	157	5	97340	97340	.....
	XIY1-EF	I	28	18	2	1008	.....	1008
		II	18	16	5	1440	1440	.....
	XY-AB	III	70	147	5	51450	51450	.....
TOTAL						181506	150230	1276
II-YEAR	XY-AB	III	50	147	5	36750	36750	.....
		III	7	11	5	385	385	.....
	XY-CD	IV	39	38	4	5928	5928	.....
		IV	92	67	1	6164	6164	.....
	XIY1-EF	III	14	12	5	840	840	.....
		IV	11	12	1	132	132	.....
XY-AB	IV	32	115	4	14720	14720	.....
XY-AB	IV	121	137	5	82885	82885	.....
TOTAL						147804	147804	0
III-YEAR	XY-AB	V	116	127	5	73660	73660	.....
		VI	111	117	5	64935	64935	.....
		VII	40	107	5	21400	21400	.....
TOTAL						159995	159995	0
IV-YEAR	XY-AB	VII	66	107	5	35310	35310	.....
		V	92	62	5	28520	28520	.....
	XY-CD	VI	87	52	5	22620	22620	.....
		VII	82	42	5	17220	17220	.....
	XIY1-EF	V	22	110	5	12100	12100	.....
		VI	12	105	5	6300	6300	.....
XY-AB	VIII	71	97	5	34435	34435	.....
TOTAL						156505	156505	0
V-YEAR	XY-AB	VIII	30	97	5	14550	14550	.....
		IX	96	87	5	41760	41760	.....
		X	91	77	5	35035	35035	.....
	XY-CD	VIII	77	32	5	12320	12320	.....
		IX	72	22	5	7920	7920	.....
	XY-AB	X	67	12	5	4020	4020	.....
XY-AB	XI	86	67	5	28810	28810	.....
	XII	81	57	5	23085	23085	.....
XY-AB	XIII	76	47	5	17860	17860	.....
TOTAL						185360	185360	0
GRAND TOTAL						831170	799894	3276

PLATE NO-IV

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
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- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
- CONTOUR LINES
- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT
- FENCING

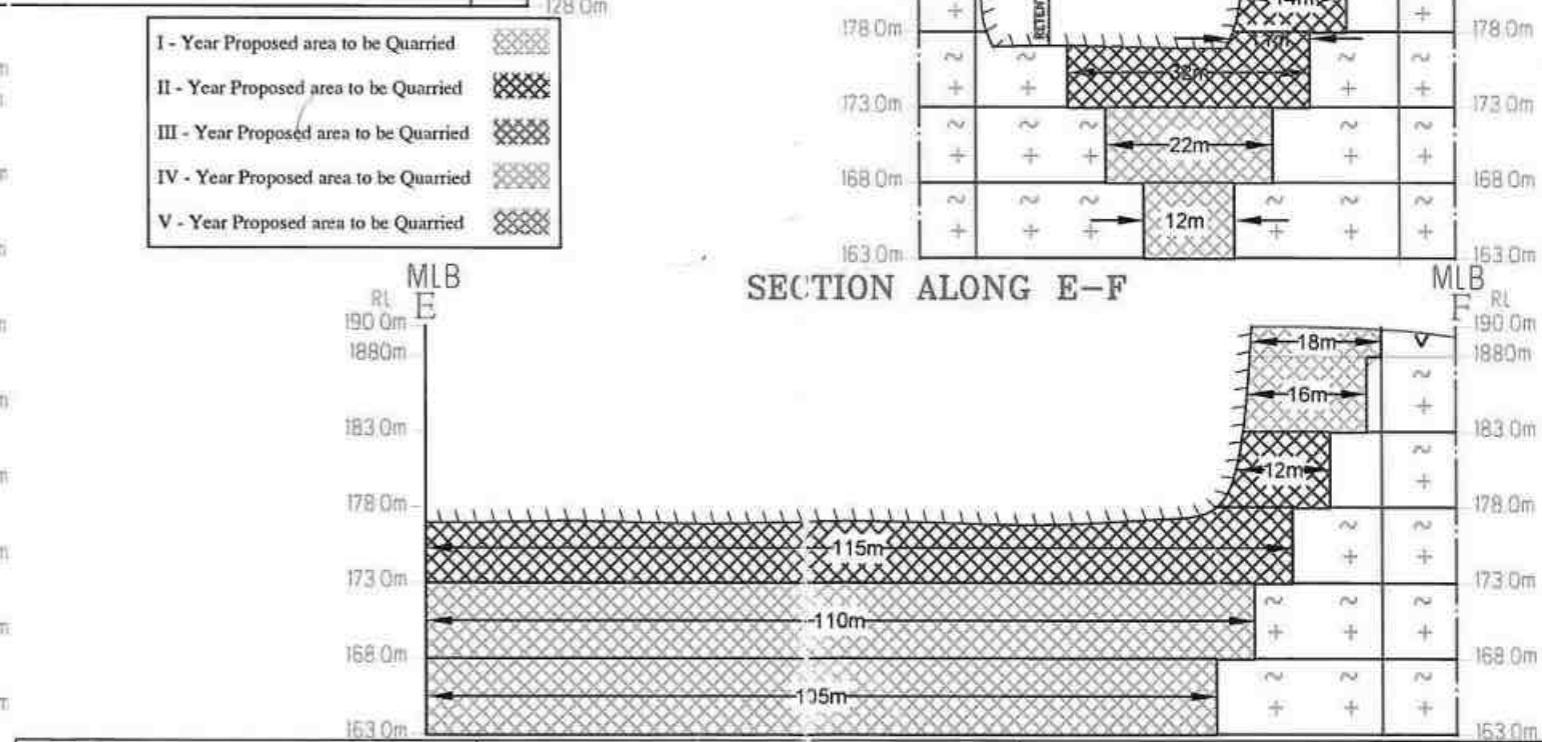
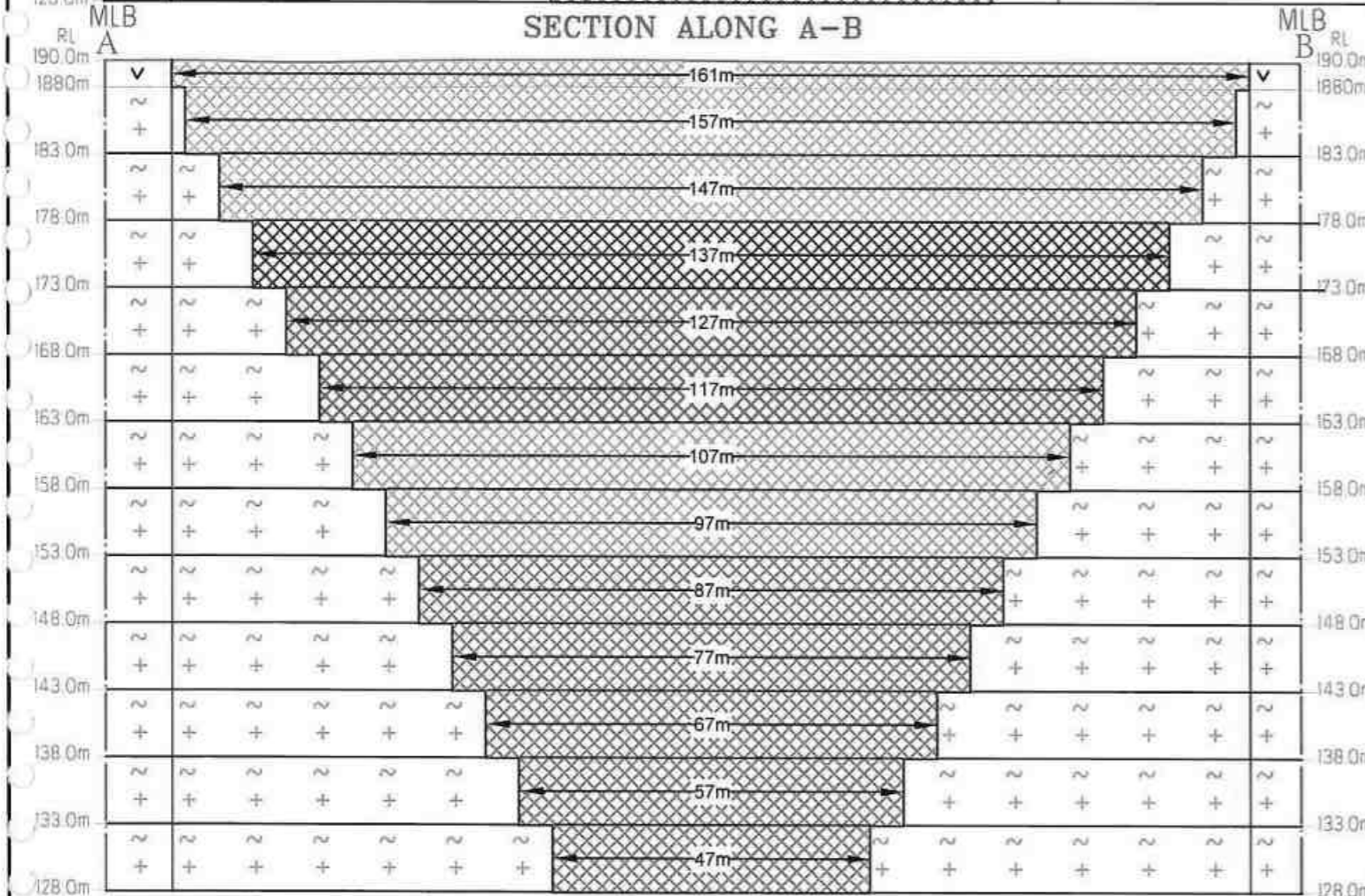
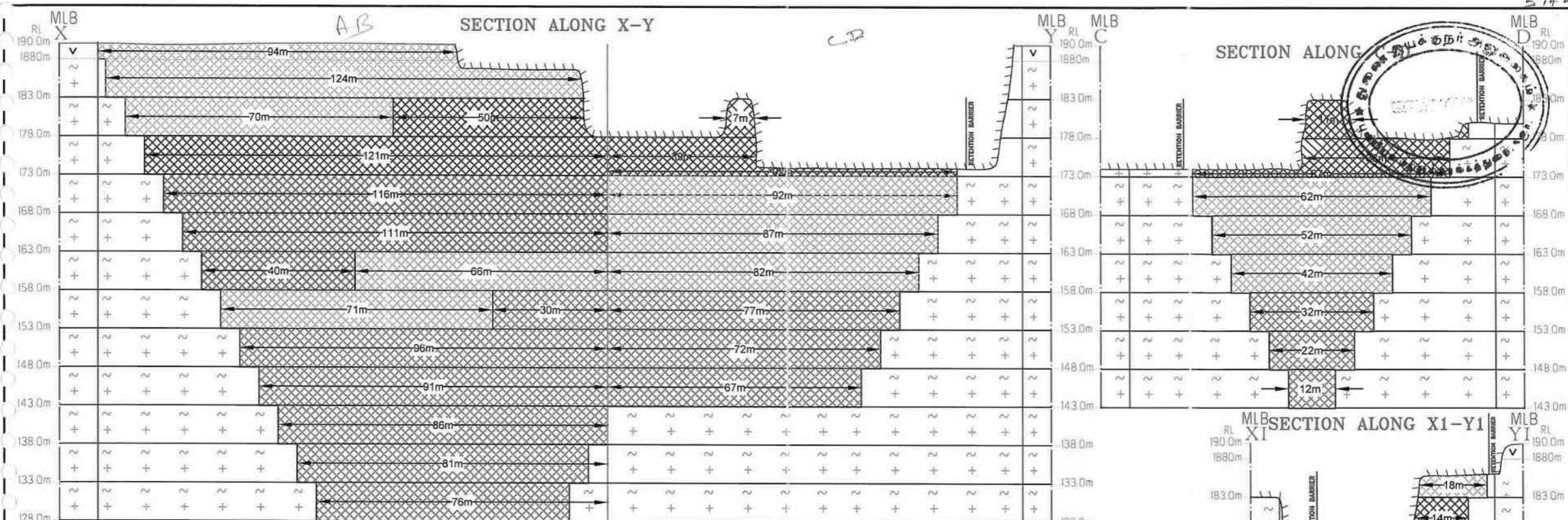
YEARWISE DEVELOPMENT & PRODUCTION PLAN
 SCALE PLAN 1 : 2000

Prepared By:

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A. Allimuthu
 A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Kuppusamy



INDEX	
MINE LEASE AREA	
SAFETY BOUNDARY	
GRAVEL	
ROUGH STONE	
PROPOSED BENCH	
EXISTING PIT	

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
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EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

PLATE NO-IVA

YEAR WISE PRODUCTION SECTIONS
 SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE
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A. Allimuthu

A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Jayaramy

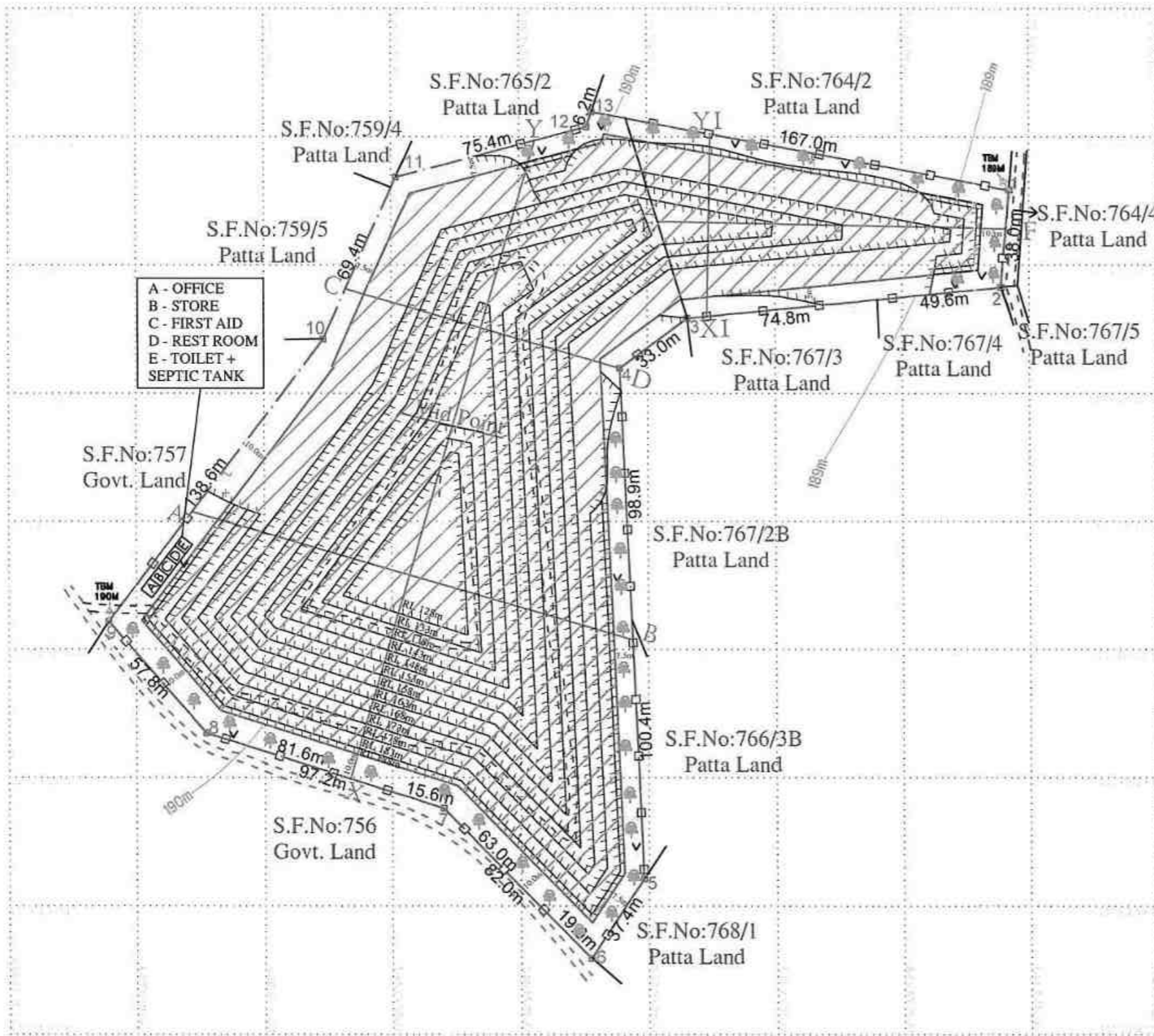
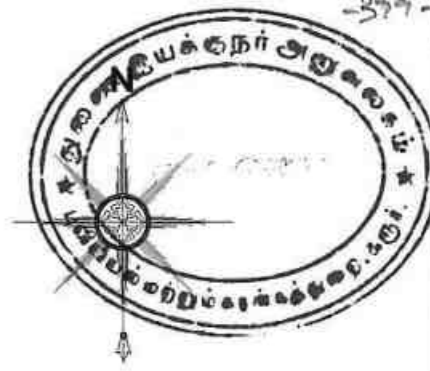


PLATE NO-V

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

INDEX

- MINE LEASE AREA
- SAFETY DISTANCE
- APPROACH & MINE HAUL ROAD
- CART & PATTI ROAD
- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
- CONTOUR LINES
- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT & PROPOSED BENCH
- FENCING

DESCRIPTION	PRESENT AREA (Hect)	AREA IN USE DURING THE QUARRYING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	2.40.70	3.94.50	
INFRASTRUCTURE	NIL	0.02.00	
ROADS	0.04.00	0.15.00	
UN-UTILIZED AREA	2.38.00	0.10.70	...
GREEN BELT	NIL	0.60.50	
GRAND TOTAL	4.82.70	4.82.70	...

Plantation Proposed for VI-Year

MINE LAYOUT PLAN AND LAND USE PATTERN
 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
 A. Allimuthu
 A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Kuppusamy



PLATE NO-VI

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

INDEX

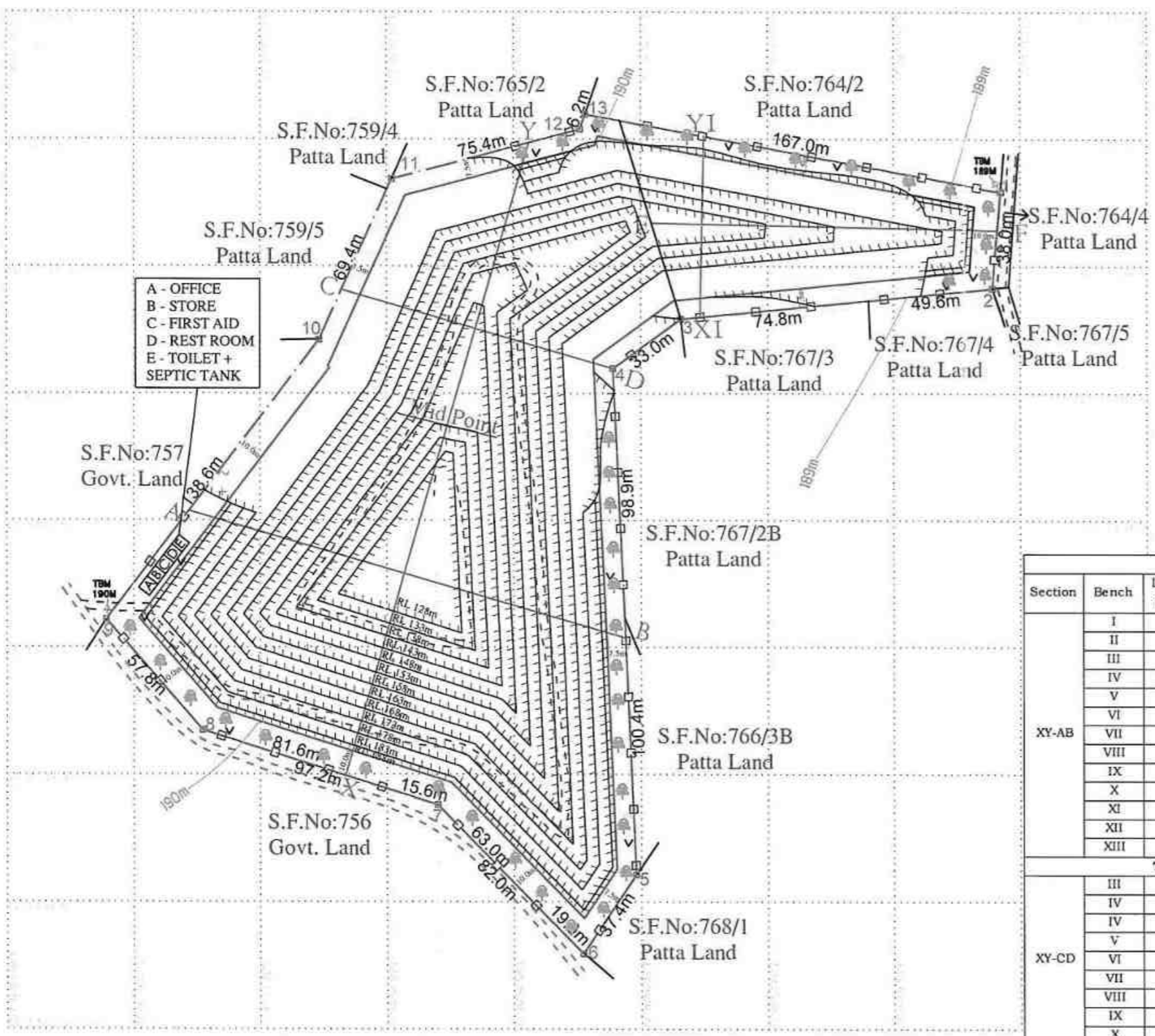
- MINE LEASE AREA
- SAFETY DISTANCE
- APPROACH & MINE HAUL ROAD
- CART & PATA ROAD
- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
- CONTOUR LINES
- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT & PROPOSED BENCH
- FENCING

CONCEPTUAL 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

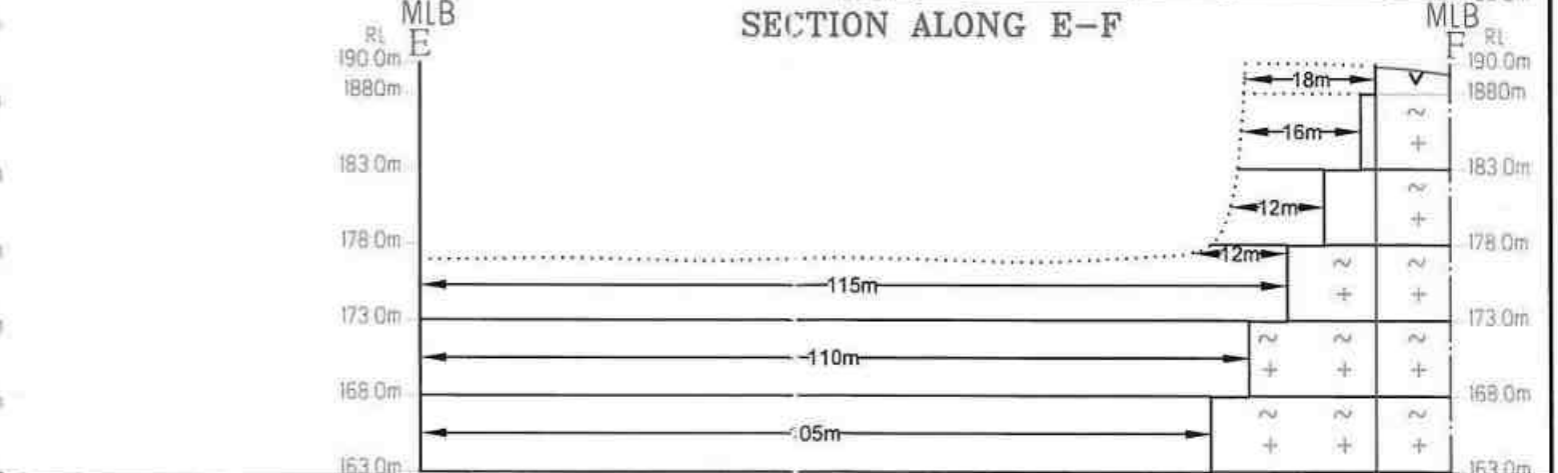
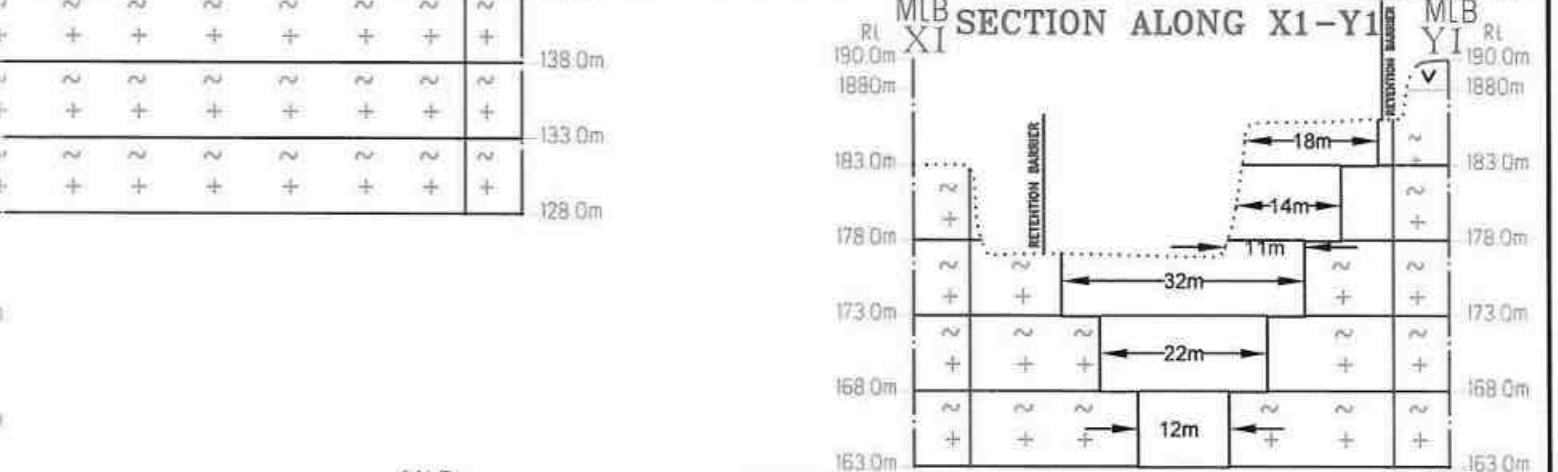
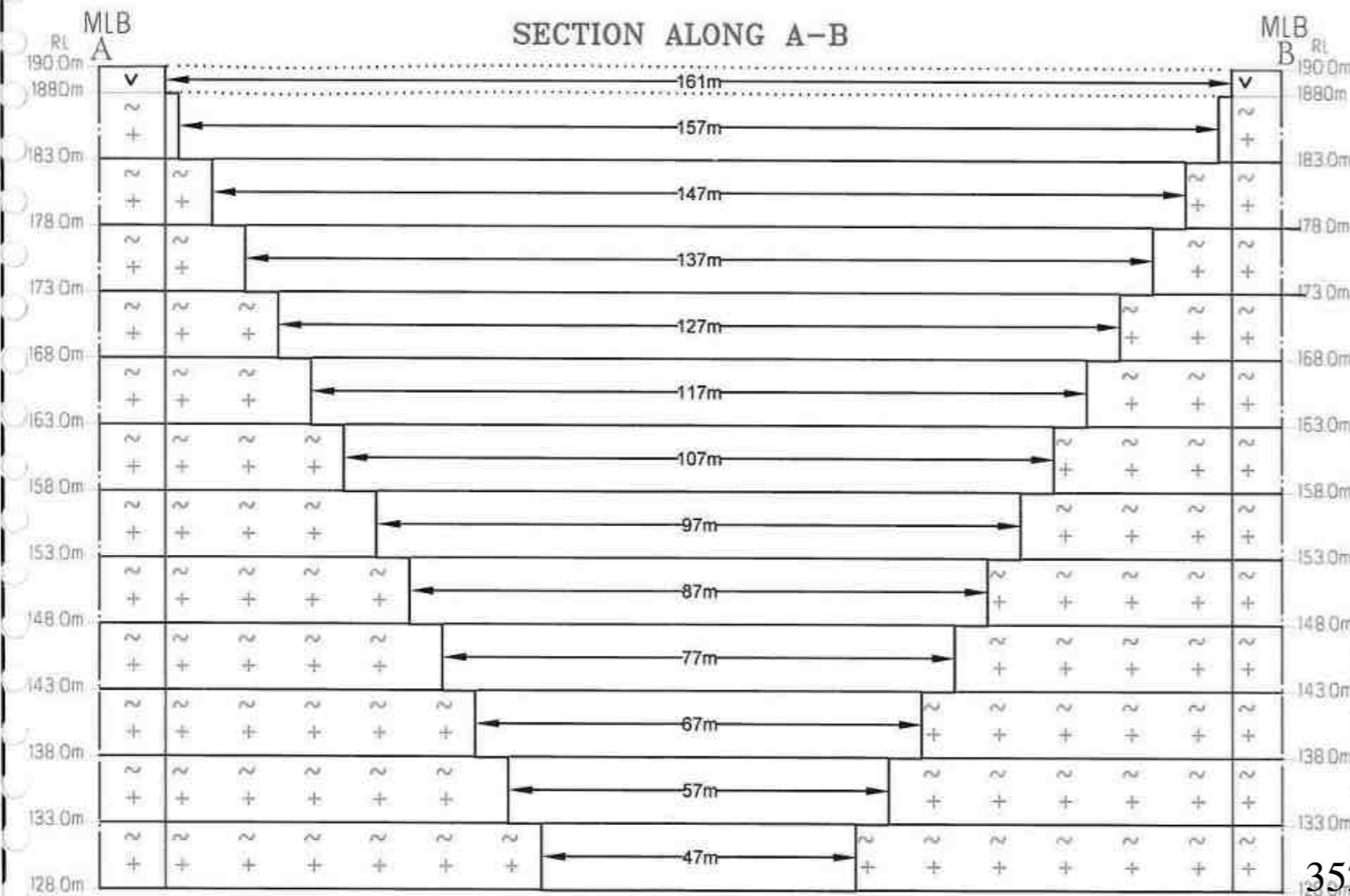
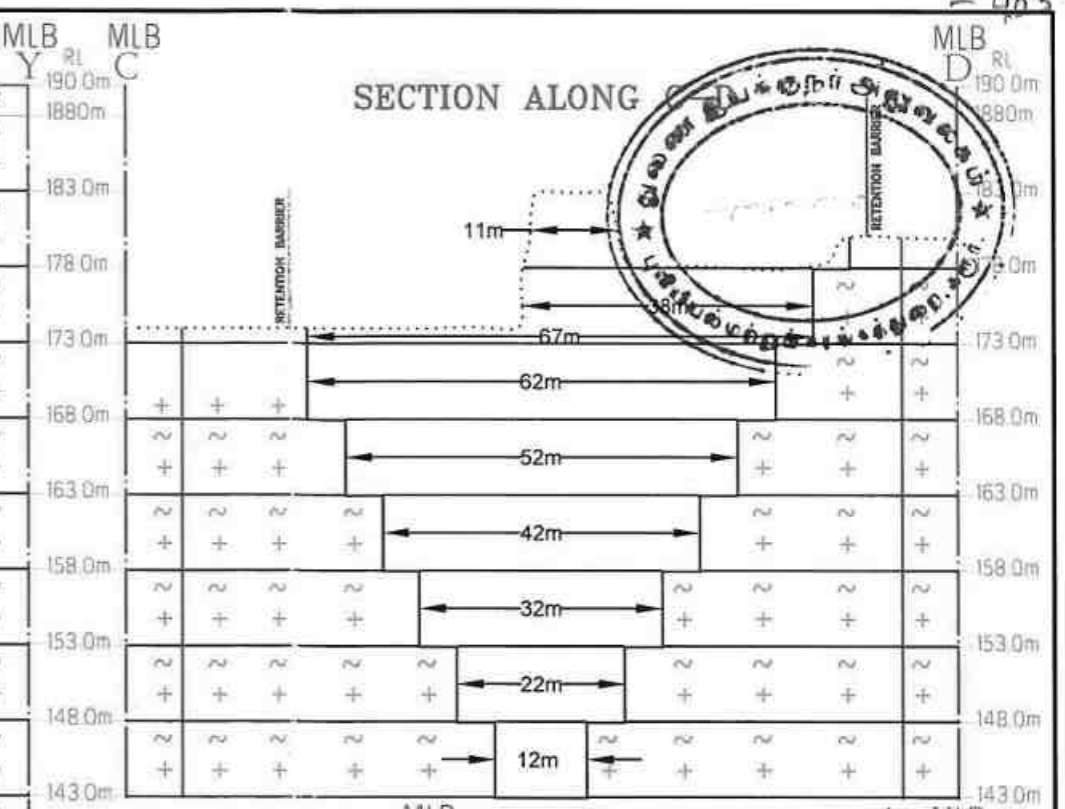
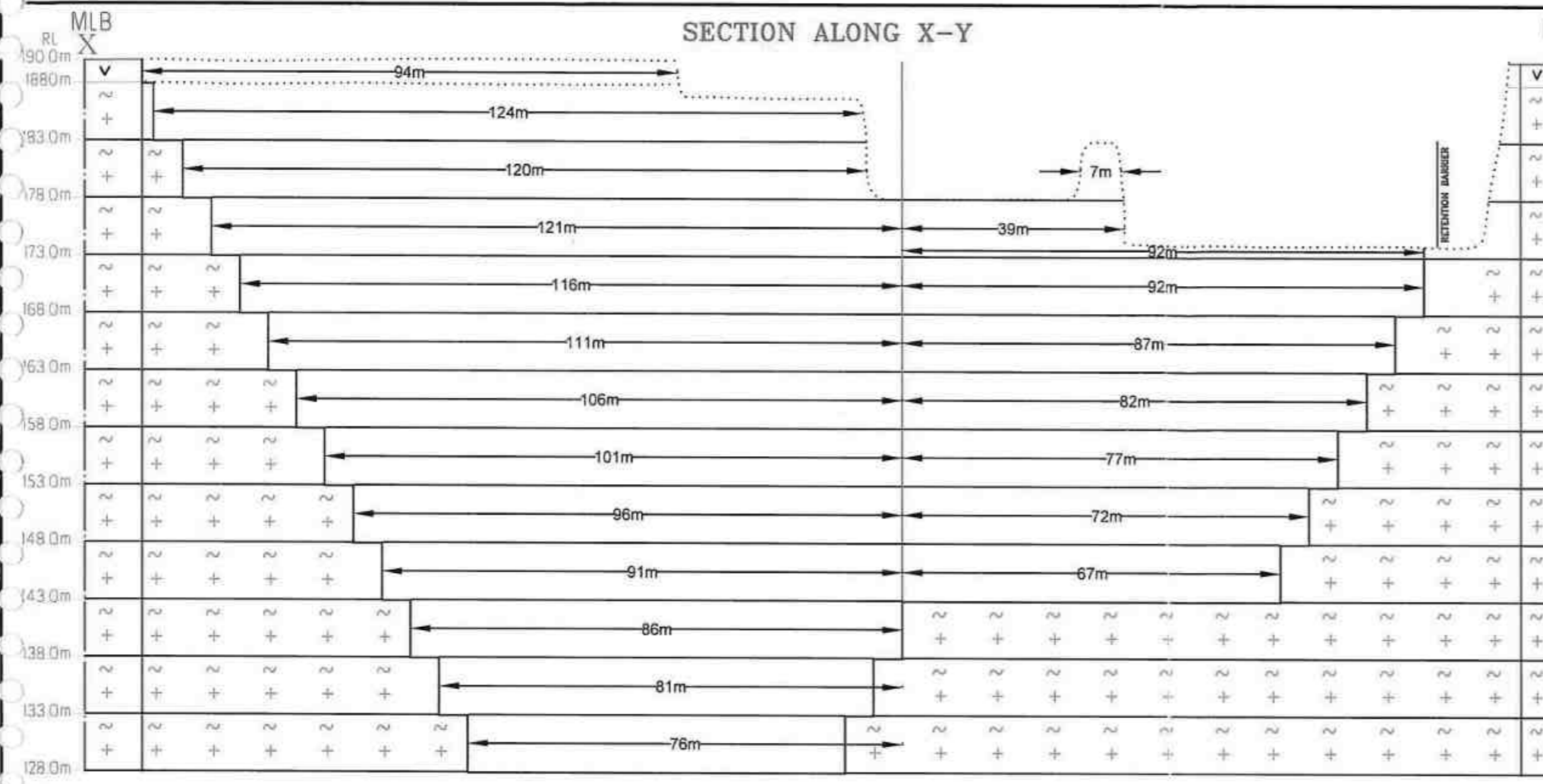
A. Annimund
 A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 ROP/DMG/HYD/85/2022



Plantation Proposed for VI-Year

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	94	161	2	30268	.....	30268
	II	124	157	5	97340	97340	.....
	III	120	147	5	88200	88200	.....
	IV	121	137	5	82885	82885	.....
	V	116	127	5	73660	73660	.....
	VI	111	117	5	64935	64935	.....
	VII	106	107	5	56710	56710	.....
	VIII	101	97	5	48985	48985	.....
	IX	96	87	5	41760	41760	.....
	X	91	77	5	35035	35035	.....
	XI	86	67	5	28810	28810	.....
	XII	81	57	5	23085	23085	.....
	XIII	76	47	5	17860	17860	.....
TOTAL					689533	659265	30268
XY-CD	III	7	11	5	385	385	.....
	IV	39	38	4	5928	5928	.....
	IV	92	67	1	6164	6164	.....
	V	92	62	5	28520	28520	.....
	VI	87	52	5	22620	22620	.....
	VII	82	42	5	17220	17220	.....
	VIII	77	32	5	12320	12320	.....
	IX	72	22	5	7920	7920	.....
	X	67	12	5	4020	4020	.....
	TOTAL					105097	105097	0
XIY1-EF	I	28	18	2	1008	.....	1008
	II	18	16	5	1440	1440	.....
	III	14	12	5	840	840	.....
	IV	11	12	1	132	132	.....
	IV	32	115	4	14720	14720	.....
	V	22	110	5	12100	12100	.....
VI	12	105	5	6300	6300	.....
TOTAL					36540	35532	1008
GRAND TOTAL					831170	799894	31276

J. Jayaprasamy



INDEX

MINE LEASE AREA	
SAFETY BOUNDARY	
GRAVEL	
ROUGH STONE	
ULTIMATE BENCH	

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A

EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

PLATE NO-VIA

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

A. Allimuthu
A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

S. Jayaraman

From
Dr.P.Jayapal M.Sc., Ph.D.,
Deputy Director,
Geology and Mining,
Karur.

To
Thiru.S.Kuppusamy,
S/o.Samiappagounder,
Door No.95, Saliankattupallam,
Thotiyapalayam,
Muthur, Kangeyam Taluk, —
Tiruppur District - 638 105.

Rc.No.300/Mines/2022, Dated:01.03.2023

Sir,

Sub: Mines and Minerals – Minor Mineral – Karur District – Pugalur Taluk – Anjur Village - S.F.Nos.764/3 (1.14.00 hectares), 765/3(0.48.00 hectares), 766/1(1.34.50 hectares), 766/2(1.14.00 hectares), 766/3A(0.47.35 hectares), 767/1(0.11.50 hectares) and 767/2A (0.13.35 hectares) Over an extant 4.82.70 hectares - Quarry lease application for Rough Stone and Gravel – Preferred by Thiru.S.Kuppusamy - Precise area communicated - mining plan submitted for approval – Approved – Regarding.

- Ref:
1. Quarry lease application for Rough stone and Gravel preferred by Thiru.S.Kuppusamy, S/o.Samiappagounder, Door No.95, Saliankattupallam, Thotiyapalayam, Muthur, Kangeyam Taluk, Tiruppur District - 638 105, dated: 28.06.2022.
 2. Order of the Hon'ble Supreme Court of India in I.A.Nos.12-13/2011 in SLP (C) No.19628-19629/2009, dt: 27.02.2012.
 3. Government of India, Ministry of Environment and Forest Office Memorandum, Dated:18.05.2012.
 4. The Chairman, State Level Environment Impact Assessment Authority, Tamil Nadu D.O.Lr.No.SEIAA-TN/Minor Minerals/2012, Dated: 17.09.2012.
 5. The Commissioner of Geology and Mining, Chennai letter Rc.No.3868/LC/2012, dt: 19.11.2012.
 6. Deputy Director, Geology and Mining, Karur Notice Rc.No.300/Mines/2022, Dated: 14.02.2023.
 7. Mining Plan submitted by Thiru.S.Kuppusamy letter Dated: 20.02.2023.


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Thiru.S.Kuppusamy applied for quarry lease to quarry Rough Stone and Gravel vide in the reference 1st cited and Precise area communicated to the applicant regarding to submit the mining plan for approval as per rule 41 and also submit the Environmental Clearance as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules

Accordingly Thiru.S.Kuppusamy have submitted three copies of draft mining plan for approval in respect of Rough stone and Gravel quarry lease applied areas, over an extent of 4.82.70 hectares of patta lands in S.F.Nos.764/3 (1.14.00 hectares), 765/3(0.48.00 hectares), 766/1(1.34.50 hectares), 766/2(1.14.00 hectares), 766/3A(0.47.35 hectares), 767/1(0.11.50 hectares) and 767/2A (0.13.35 hectares) of Anjur Village, Pugalur Taluk, Karur District in the reference 7th cited.

The above submitted mining plan for the grant of Rough stone and Gravel quarry lease in S.F.Nos.764/3 (1.14.00 hectares), 765/3(0.48.00 hectares), 766/1(1.34.50 hectares), 766/2(1.14.00 hectares), 766/3A(0.47.35 hectares), 767/1(0.11.50 hectares) and 767/2A (0.13.35 hectares) Over an extant 4.82.70 hectares of patta lands in Anjur Village, Pugalur Taluk, Karur District has been examined in detail.

As per the guidelines/ instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, date: 19.11.2012., the mining plan submitted by the applicant is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884

S. Kuppusamy 354

(Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

(III) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

(IV) As per the Deputy Director, Geology and Mining, Karur notice in Rc.No.300/Mines/2022, Dated.14.02.2023 the following conditions are incorporated in the Mining Plan plates.

1. விண்ணப்ப புல எண்.766/1, 766/2 மற்றும் 766/3A -க்கு மேற்கு மற்றும் தென்மேற்கில் உள்ள புல எண்கள். 756 மற்றும் 757-இல் தென்வடலாக செல்லும் வண்டிப்பாதை புறம்போக்கிற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
2. விண்ணப்ப புல எண்.764/3-க்கு கிழக்கில் புல எண். 764/4-இல் தென்வடலாக செல்லும் பட்டா மண் பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
3. விண்ணப்ப புலத்திற்கு அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் மற்றும் புறம்போக்கு நிலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு யாதொரு சேதமுமின்றி முறையாக குவாரிப்பணி செய்ய வேண்டும்.
4. குத்தகைக்காலத்தில் கைத்துளைப்பான் கருவி கொண்டு பாறைகளை துளையிட்டும், மிதமான வெடிபொருள் பயன்படுத்தியும், பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ யாதொரு சேதமுமின்றி விதிமுறைகளின்படி குவாரிப்பணி செய்ய வேண்டும்.
5. குவாரித் தொழிலாளர்களின் பாதுகாப்பினை உறுதி செய்ய Mettalliferous Mines, விதிகளின்படி அகலமானதும், பாதுகாப்பானதுமான Benches அமைத்து பாதுகாப்பான முறையில் குவாரிக்குள் வாகனங்கள் சென்றுவரவும் மற்றும் குவாரி தொழிலாளர்களின் பாதுகாப்பினை உறுதி செய்தும் குவாரிப்பணி செய்ய வேண்டும்.
6. குவாரி குத்தகை வழங்க ஏதுவாக துணை இயக்குநர் (சுரங்கம்) அவர்களால் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினையும், மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (SEIAA) அனுமதி பெற்று மாவட்ட நிர்வாகத்திற்கு விண்ணப்பதாரரால் சமர்ப்பிக்கப்பட வேண்டும்.

(V) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.



(VI) If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

Encl: Two copies of Approved Mining Plan.

[Handwritten Signature]
01/03/22

Deputy Director,
Geology and Mining,
Karur.

Copy to:
Thiru.A.Allimuthu, M.Sc., M.Phil.,
RQP/DMG/HYD/85/2022,
D.No.1/231,
Pattakaranavalavu,
Chinnamuthiyampatti,
Puduppalayam Post,
Edapaddi Taluk,
Salem District.

[Handwritten Signature]
01/03/2023

[Handwritten Signature]

TOWARDS
ERODE

TOWARDS
KODUMUDI

MUTHUR

TOWARDS
VELLAKOIL

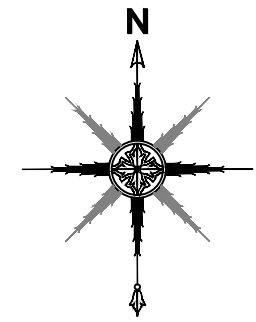
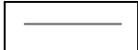
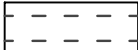

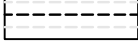
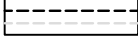


PLATE NO-I

APPLICANT:
Mr.P.SAMBATH KUMAR,
S/O. PALANISAMY,
DOOR NO:98,
MUTTUR,KANGAYAM,
TIRUPPUR DISTRICT.

LEASE APPLIED AREA:
S.F.NO : 759/2 (P),761/2(P),761/3(P),
762/2, 762/3,763/2 &763/3
EXTENT : 4.81.50Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

INDEX

MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
SH -189 ROAD	
NH - 381A ROAD	

KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

A.ALLIMUTHU, M.Sc., M.PHIL.,
RECOGNISED QUALIFIED PERSON
RQP/DMG/HYD/85/2022

36.0Km

12.3Km

5.0Km

0.15Km

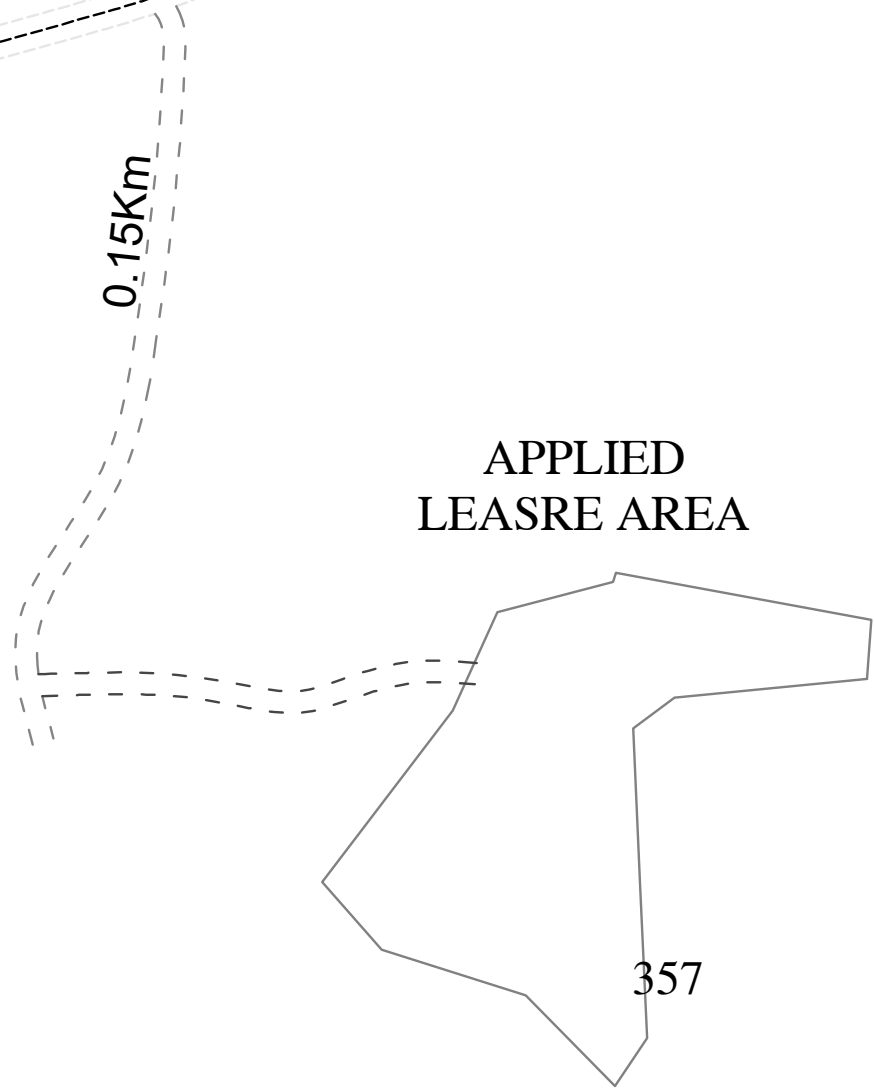
11.2Km

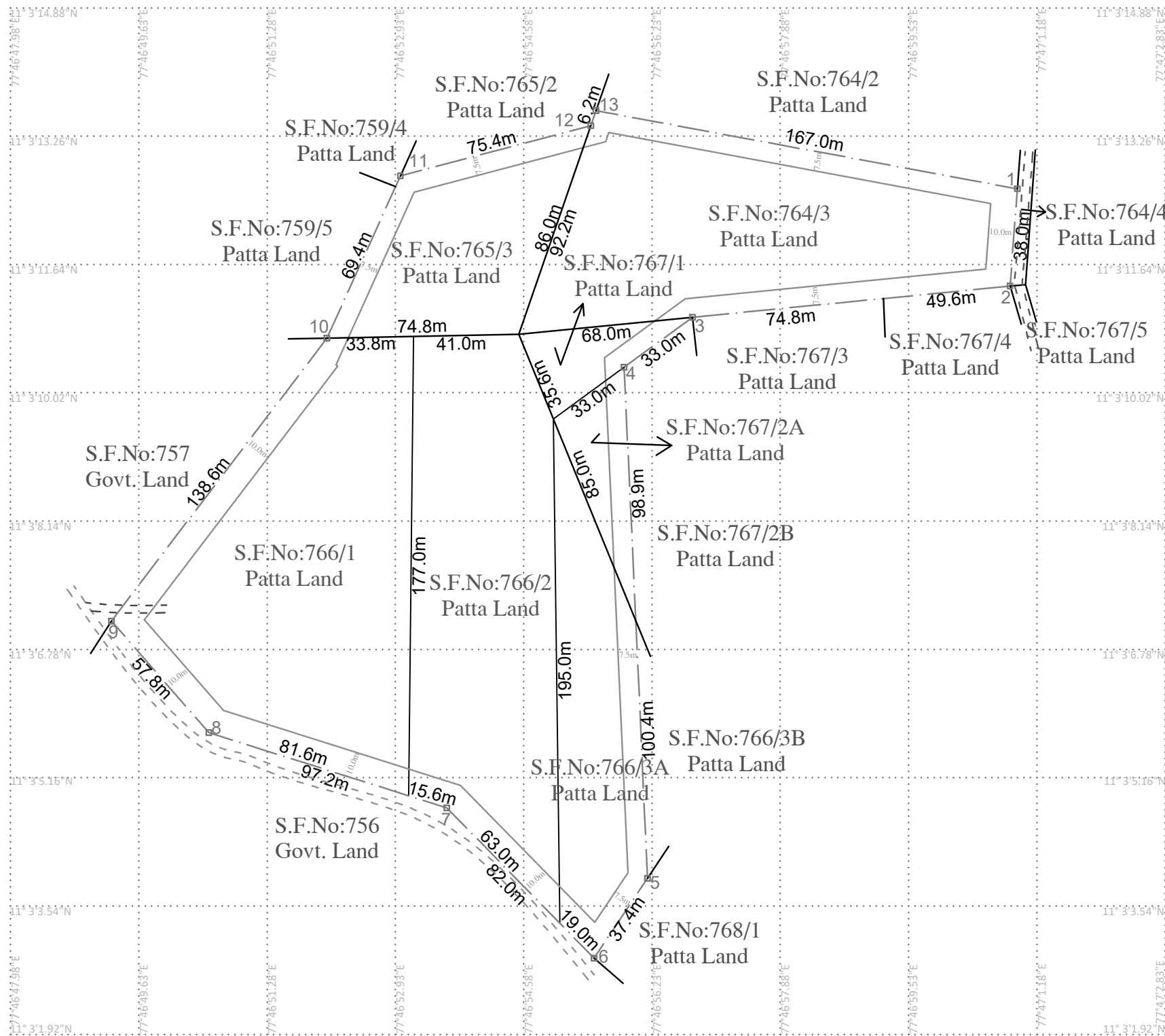
NH-381A

SH-189

APPLIED
LEASRE AREA

357





Pillar No	Latitude	Longitude
1	11° 3'12.47"N	77°47'0.88"E
2	11° 3'11.23"N	77°47'0.78"E
3	11° 3'10.88"N	77°46'56.70"E
4	11° 3'10.25"N	77°46'55.81"E
5	11° 3'3.77"N	77°46'56.05"E
6	11° 3'2.77"N	77°46'55.36"E
7	11° 3'4.69"N	77°46'53.49"E
8	11° 3'5.67"N	77°46'50.44"E
9	11° 3'7.10"N	77°46'49.20"E
10	11° 3'10.66"N	77°46'52.00"E
11	11° 3'12.70"N	77°46'52.97"E
12	11° 3'13.32"N	77°46'55.42"E
13	11° 3'13.51"N	77°46'55.49"E

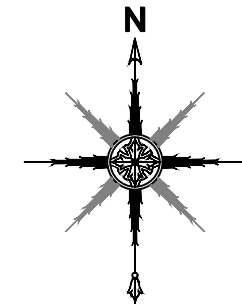


PLATE NO-II

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A

EXTENT : 4.82.7Hect,
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DISTRICT : KARUR.

INDEX

MINE LEASE AREA	
SAFETY DISTANCE	
APPROACH ROAD	
CART & PATTI ROAD	
BOUNDARY PILLAR STONES	

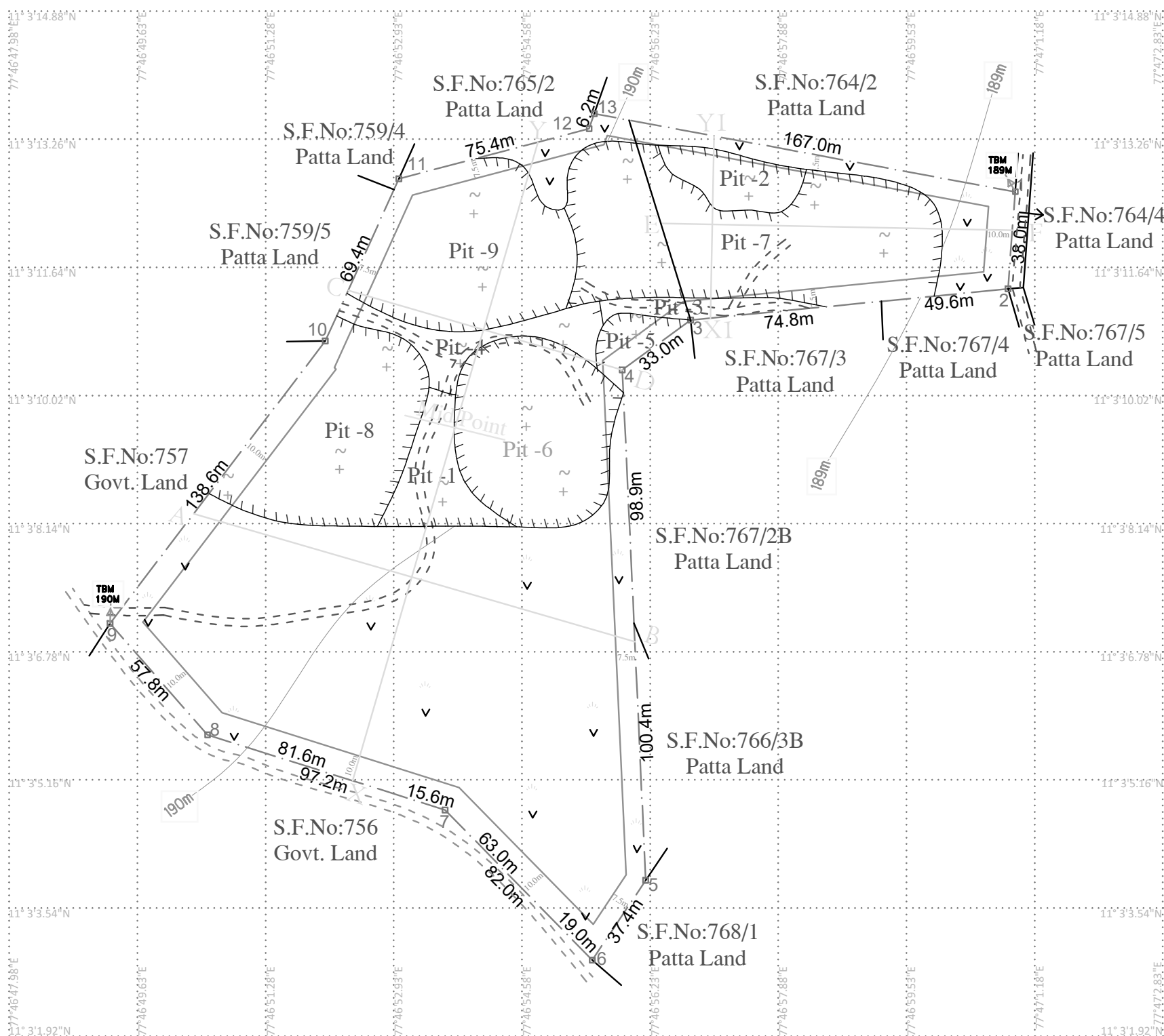
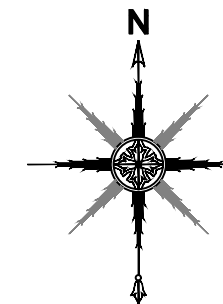
MINE LEASE PLAN

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

A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022



EXISTING PIT DIMENSIONS			
Pit Levels	Length in (m)	Width in (m)	Depth in (m)
1	53	22	3
2	20	45	4
3	8	60	6
4	15	95	7
5	25	20	10
6	71	61	12
7	48	140	13
8	82	58	15
9	62	76	16

PLATE NO-III

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGHEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

INDEX

- MINE LEASE AREA
- SAFETY DISTANCE
- APPROACH & MINE HAUL ROAD
- CART & PATA ROAD
- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
- CONTOUR LINES
- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT

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

A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

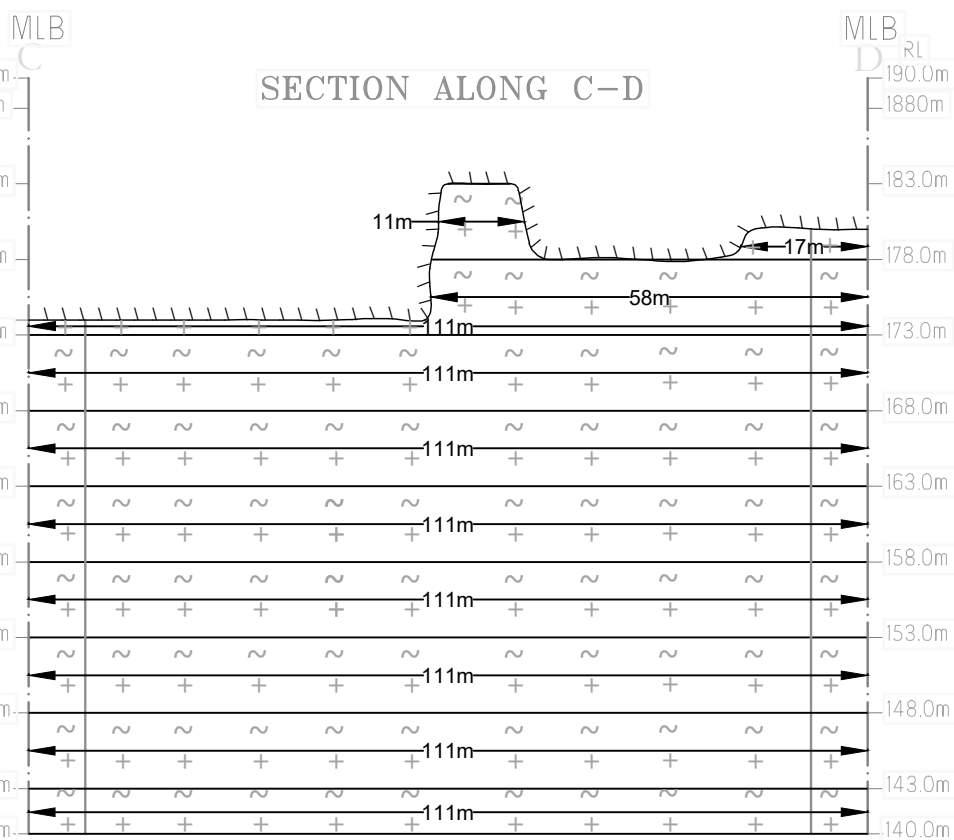
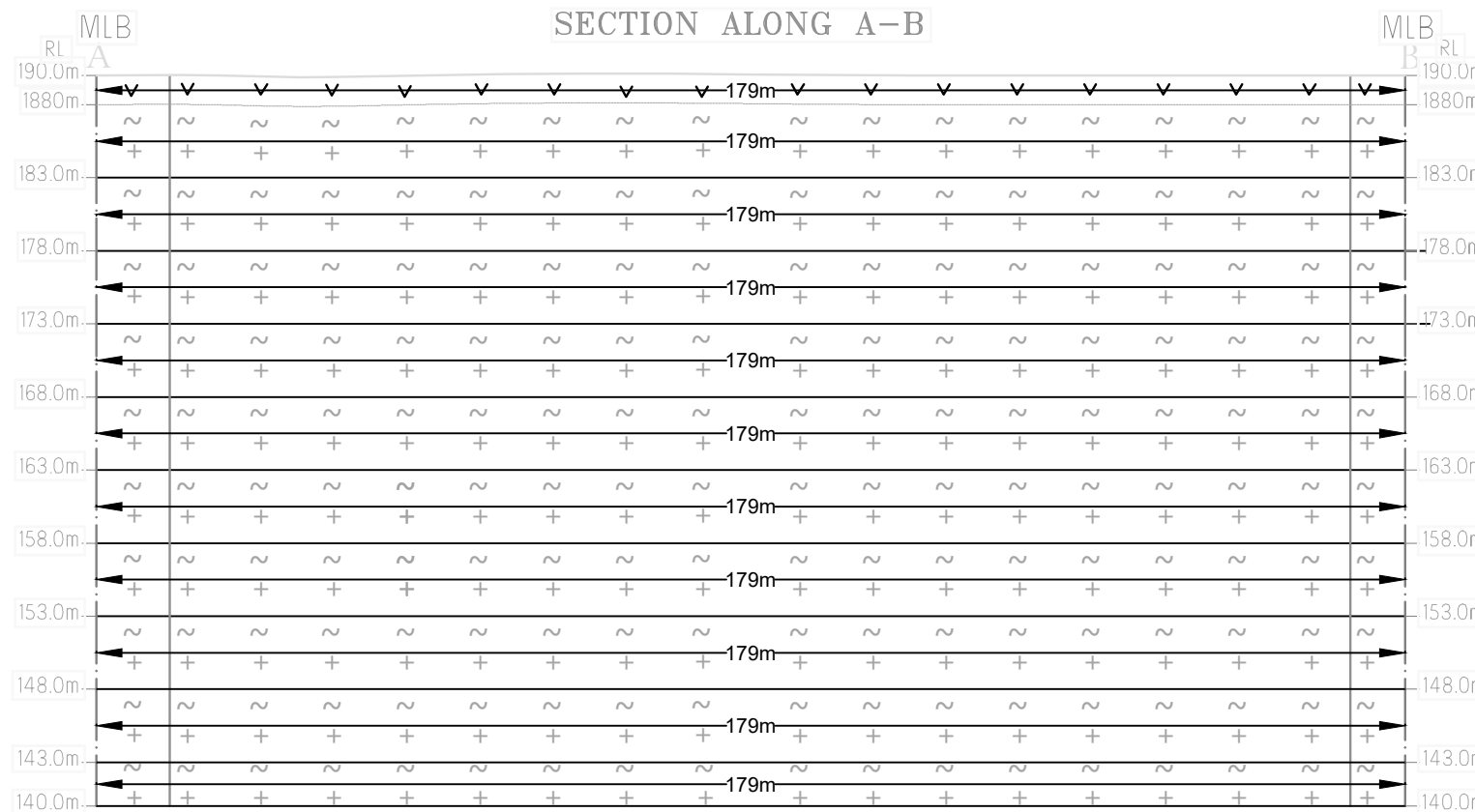
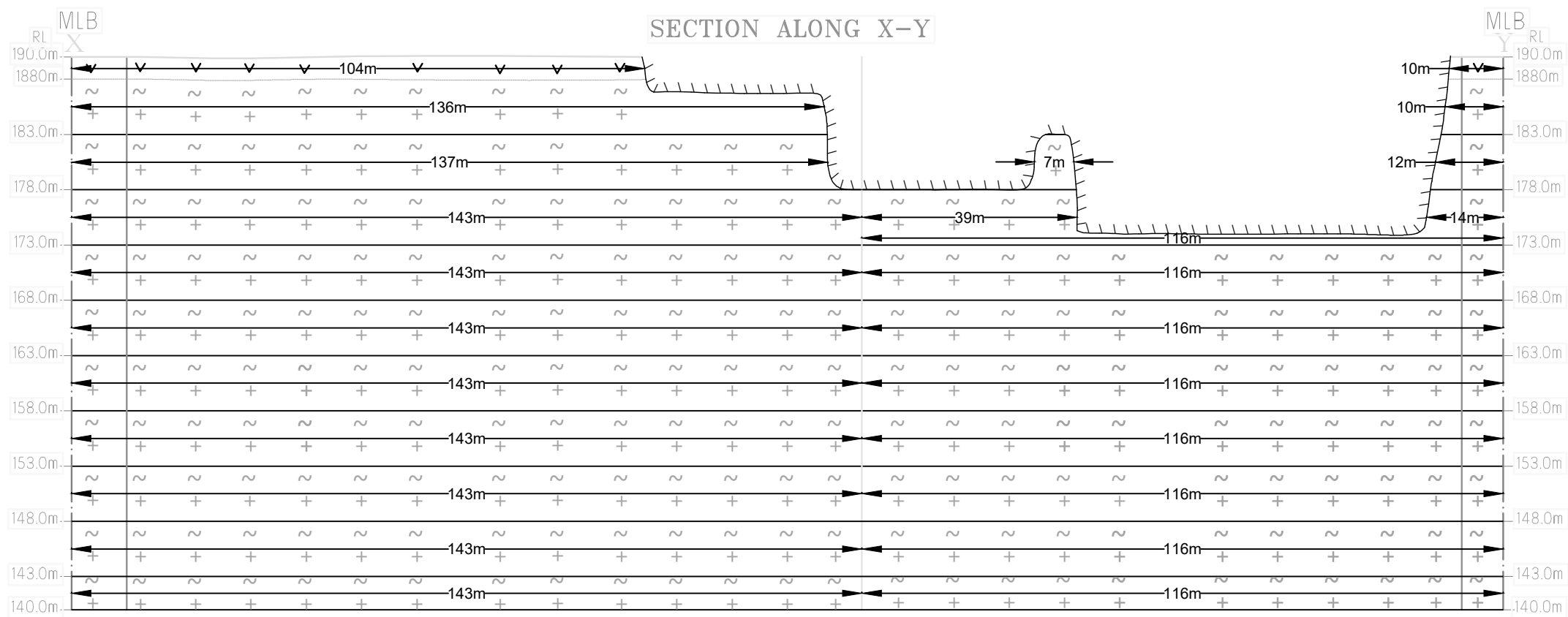


PLATE NO-III A

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

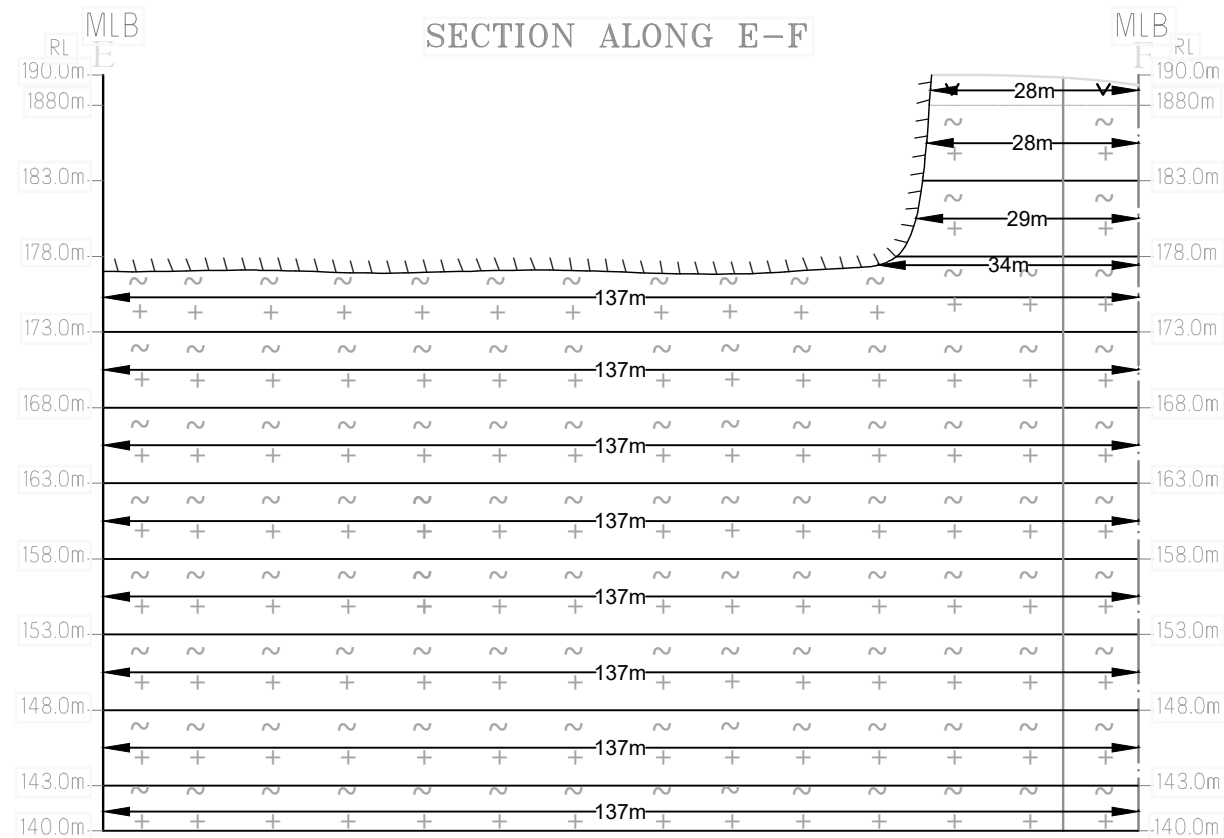
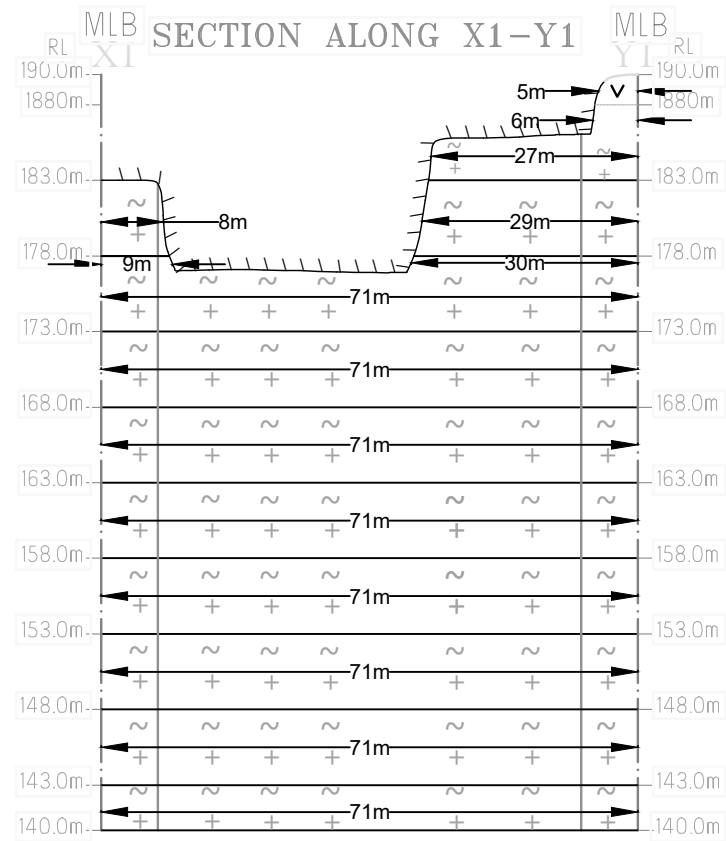
INDEX

- MINE LEASE AREA
- SAFETY BOUNDARY
- GRAVEL
- ROUGH STONE
- EXISTING PIT

GEOLOGICAL SECTIONS
 SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:
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 TO THE BEST OF MY KNOWLEDGE

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 RQP/DMG/HYD/85/2022



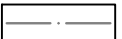
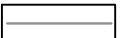
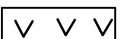
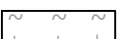
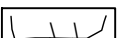
GEOLOGICAL RESOURCES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³	
XY-AB	I	104	179	2	37232	.....	37232
	II	136	179	5	121720	121720	.....
	III	137	179	5	122615	122615	.....
	IV	143	179	5	127985	127985	.....
	V	143	179	5	127985	127985	.....
	VI	143	179	5	127985	127985	.....
	VII	143	179	5	127985	127985	.....
	VIII	143	179	5	127985	127985	.....
	IX	143	179	5	127985	127985	.....
	X	143	179	5	127985	127985	.....
	XI	143	179	3	76791	76791	.....
TOTAL				50	1254253	1217021	37232	
XY-CD	I	10	9	2	180	.....	180
	II	10	9	5	450	450	.....
	III	19	11	3	627	627	.....
	III	19	28	2	1064	1064	.....
	IV	53	58	4	12296	12296	.....
	IV	116	111	1	12876	12876	.....
	V	116	111	5	64380	64380	.....
	VI	116	111	5	64380	64380	.....
	VII	116	111	5	64380	64380	.....
	VIII	116	111	5	64380	64380	.....
	IX	116	111	5	64380	64380	.....
X	116	111	5	64380	64380	.....	
XI	116	111	3	38628	38628	.....	
TOTAL				50	452401	452221	180	
X1Y1-EF	I	5	28	2	280	.....	280
	II	6	28	2	336	336	.....
	II	27	28	3	2268	2268	.....
	III	37	29	5	5365	5365	.....
	IV	39	34	1	1326	1326	.....
	IV	71	137	4	38908	38908	.....
	V	71	137	5	48635	48635	.....
	VI	71	137	5	48635	48635	.....
	VII	71	137	5	48635	48635	.....
	VIII	71	137	5	48635	48635	.....
	IX	71	137	5	48635	48635	.....
X	71	137	5	48635	48635	.....	
XI	71	137	3	29181	29181	.....	
TOTAL				50	369474	369194	280	
GRAND TOTAL						2076128	2038436	37692

PLATE NO-III B

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
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 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

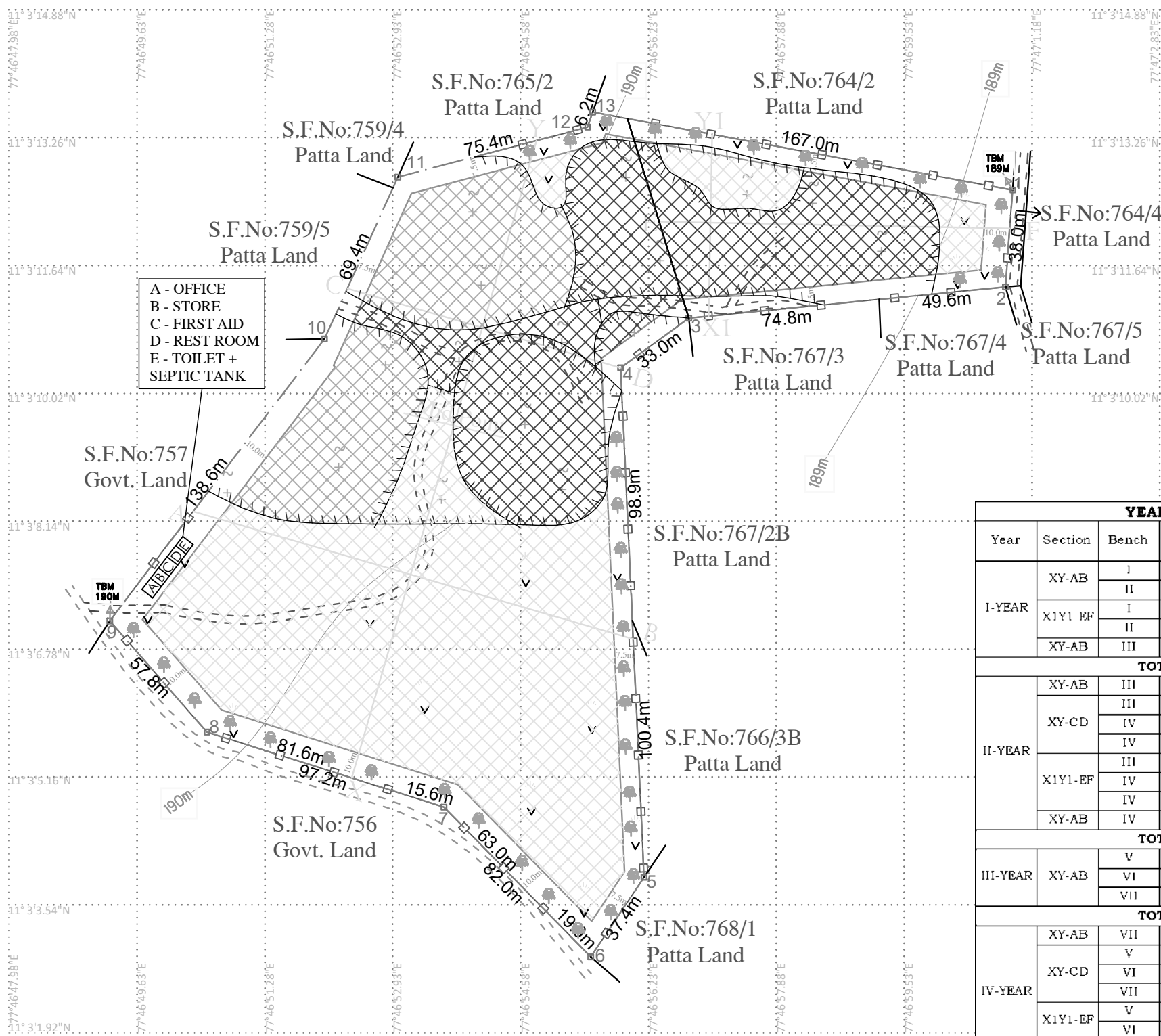
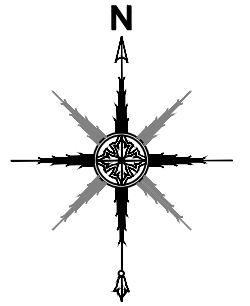
INDEX

- MINE LEASE AREA 
- SAFETY BOUNDARY 
- GRAVEL 
- ROUGH STONE 
- EXISTING PIT 

GEOLOGICAL SECTIONS
 SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:
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 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022



- 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

YEARWISE PRODUCTIONS RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
I-YEAR	XY-AB	I	94	161	2	30268	....	30268
		II	124	157	5	97340	97340	....
	X1Y1-EF	I	28	18	2	1008	....	1008
		II	18	16	5	1440	1440	....
XY-AB	III	70	147	5	51450	51450	....
TOTAL						181506	150230	31276
II-YEAR	XY-AB	III	50	147	5	36750	36750	....
		III	7	11	5	385	385	....
	XY-CD	IV	39	38	4	5928	5928	....
		IV	92	67	1	6164	6164	....
	X1Y1-EF	III	14	12	5	840	840	....
		IV	11	12	1	132	132	....
XY-AB	IV	32	115	4	14720	14720	....
XY-AB	IV	121	137	5	82885	82885	....
TOTAL						147804	147804	0
III-YEAR	XY-AB	V	116	127	5	73660	73660	....
		VI	111	117	5	64935	64935	....
		VII	40	107	5	21400	21400	....
TOTAL						159995	159995	0
IV-YEAR	XY-AB	VII	66	107	5	35310	35310	....
		V	92	62	5	28520	28520	....
	XY-CD	VI	87	52	5	22620	22620	....
		VII	82	42	5	17220	17220	....
	X1Y1-EF	V	22	110	5	12100	12100	....
		VI	12	105	5	6300	6300	....
	XY-AB	VIII	71	97	5	34435	34435	....
	TOTAL						156505	156505	0
V-YEAR	XY-AB	VIII	30	97	5	14550	14550	....
		IX	96	87	5	41760	41760	....
		X	91	77	5	35035	35035	....
	XY-CD	VIII	77	32	5	12320	12320	....
		IX	72	22	5	7920	7920	....
	XY-AB	XI	86	67	3	17286	17286	....
TOTAL						132891	132891	0
GRAND TOTAL						778701	747425	31276

PLATE NO-IV

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

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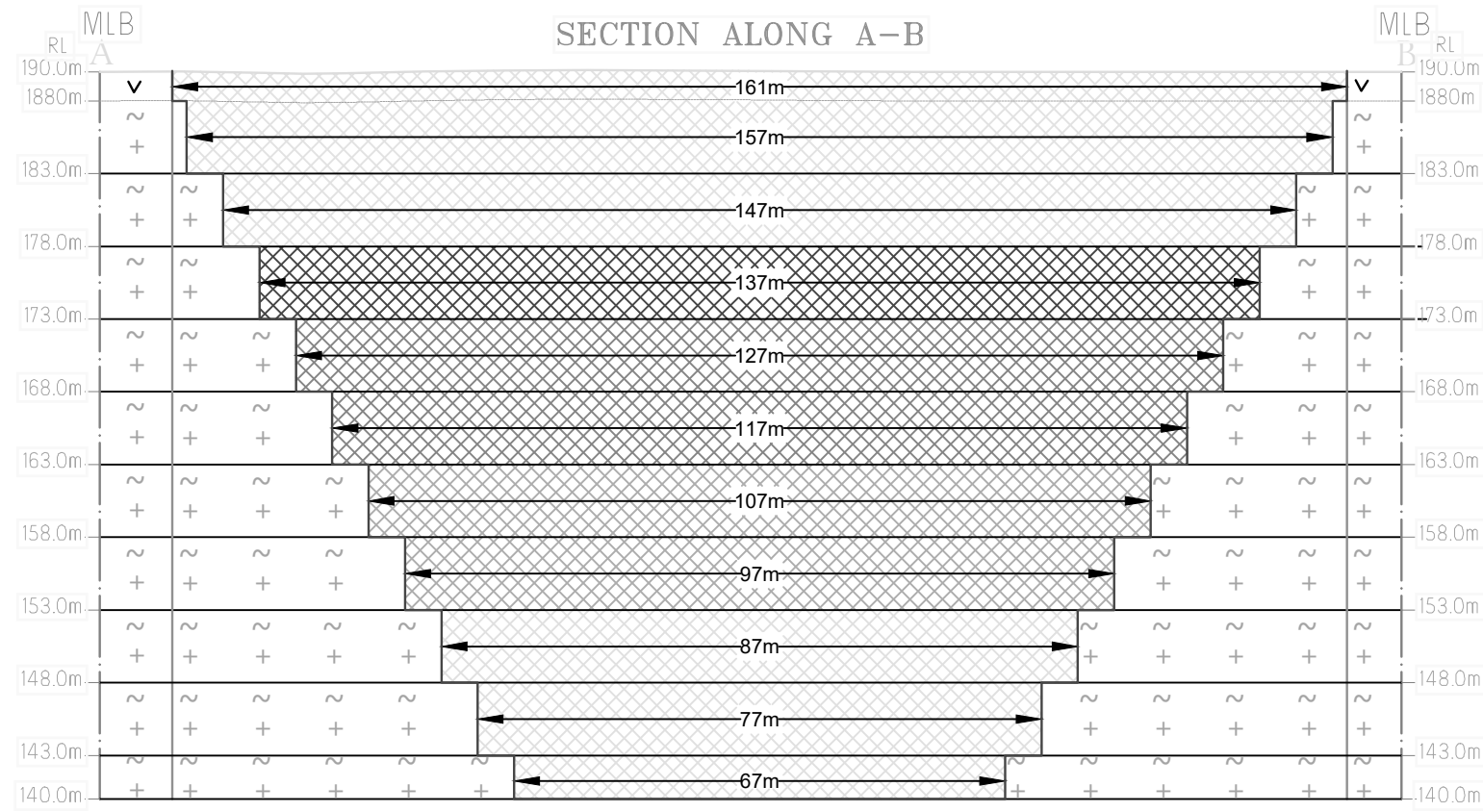
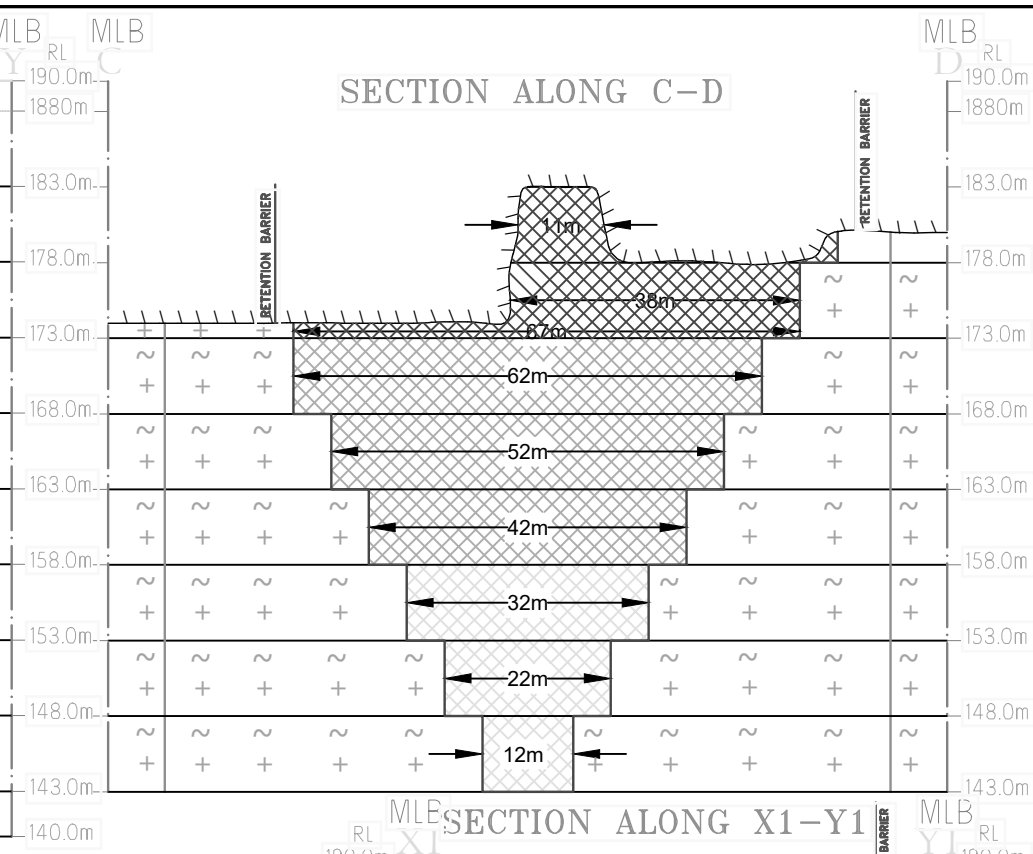
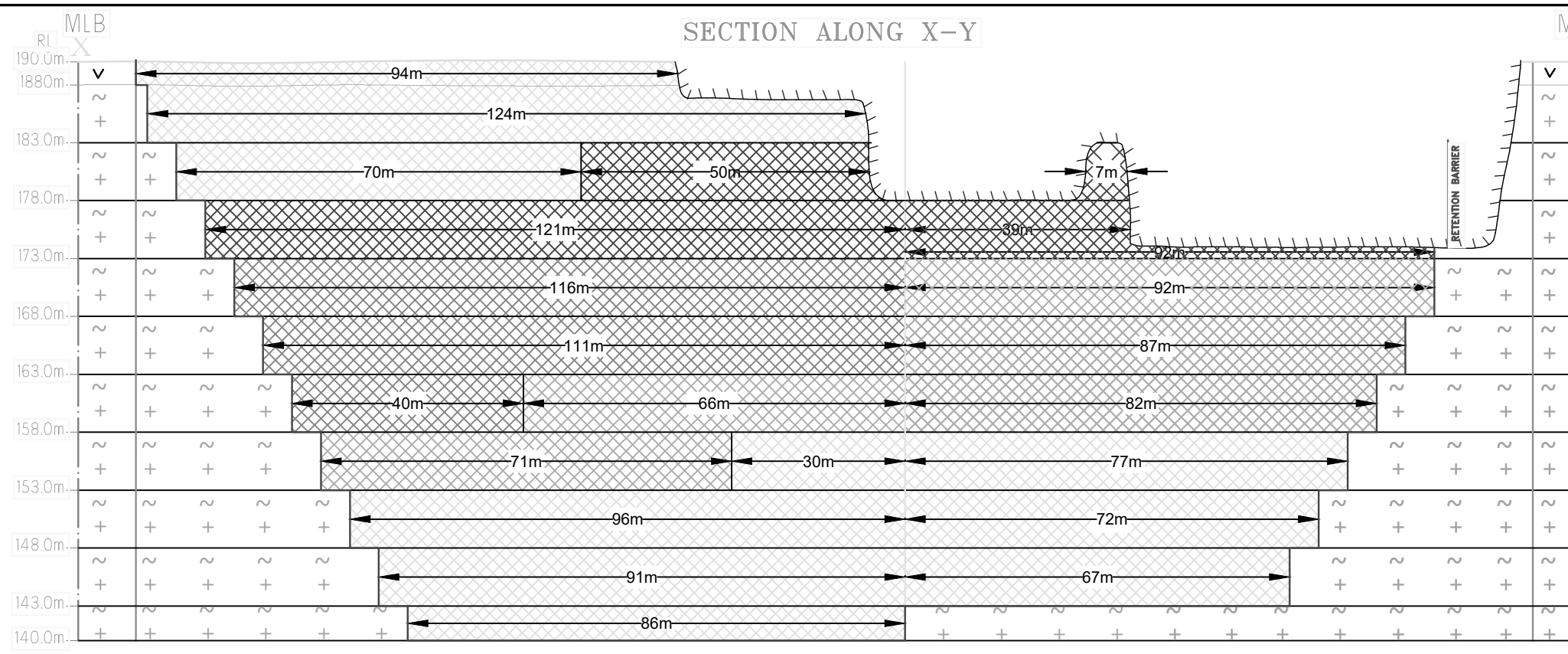
- MINE LEASE AREA
- SAFETY DISTANCE
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- CART & PATTA ROAD
- BOUNDARY PILLAR STONES
- TEMPORARY BENCH MARK
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- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT
- FENCING

YEARWISE DEVELOPMENT & PRODUCTION PLAN
 SCALE PLAN 1 : 2000

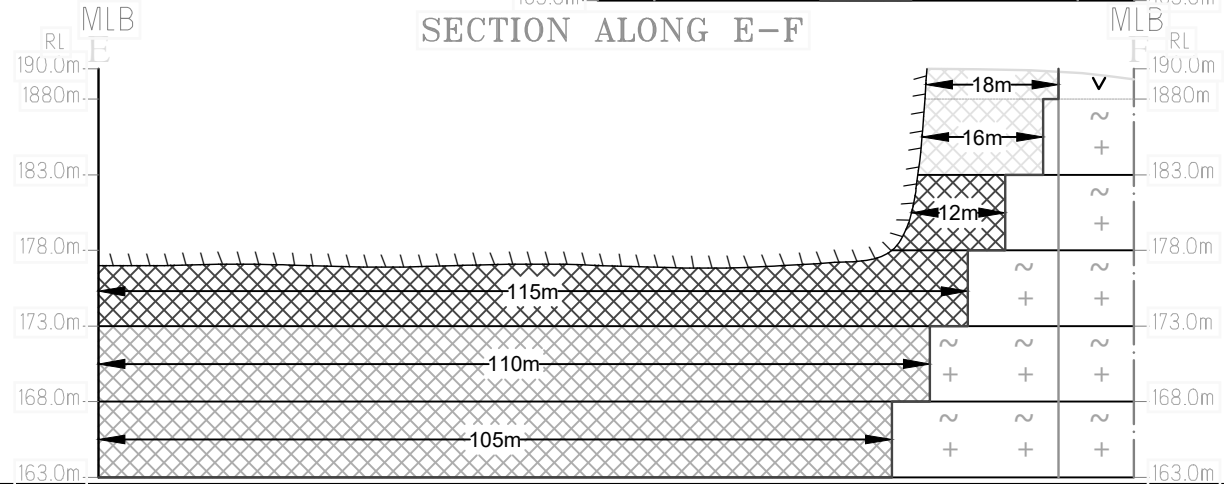
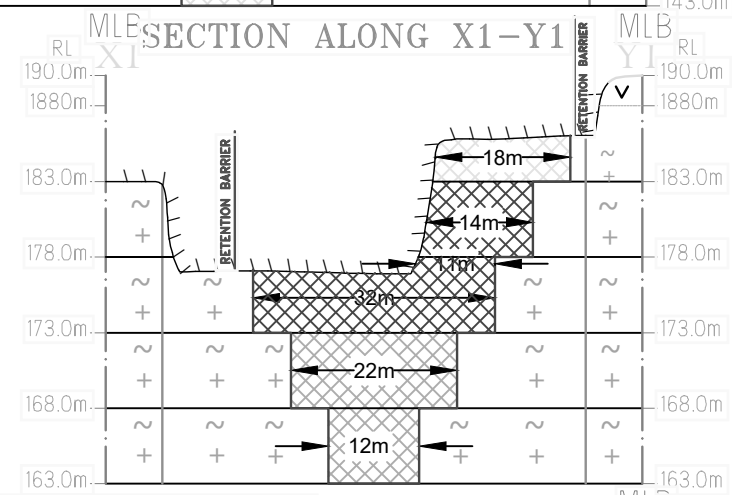
Prepared By:

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 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022



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- III - Year Proposed area to be Quarried
- IV - Year Proposed area to be Quarried
- V - Year Proposed area to be Quarried



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EXISTING PIT	

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
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EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

PLATE NO-IVA

YEAR WISE PRODUCTION SECTIONS
 SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE
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 RQP/DMG/HYD/85/2022

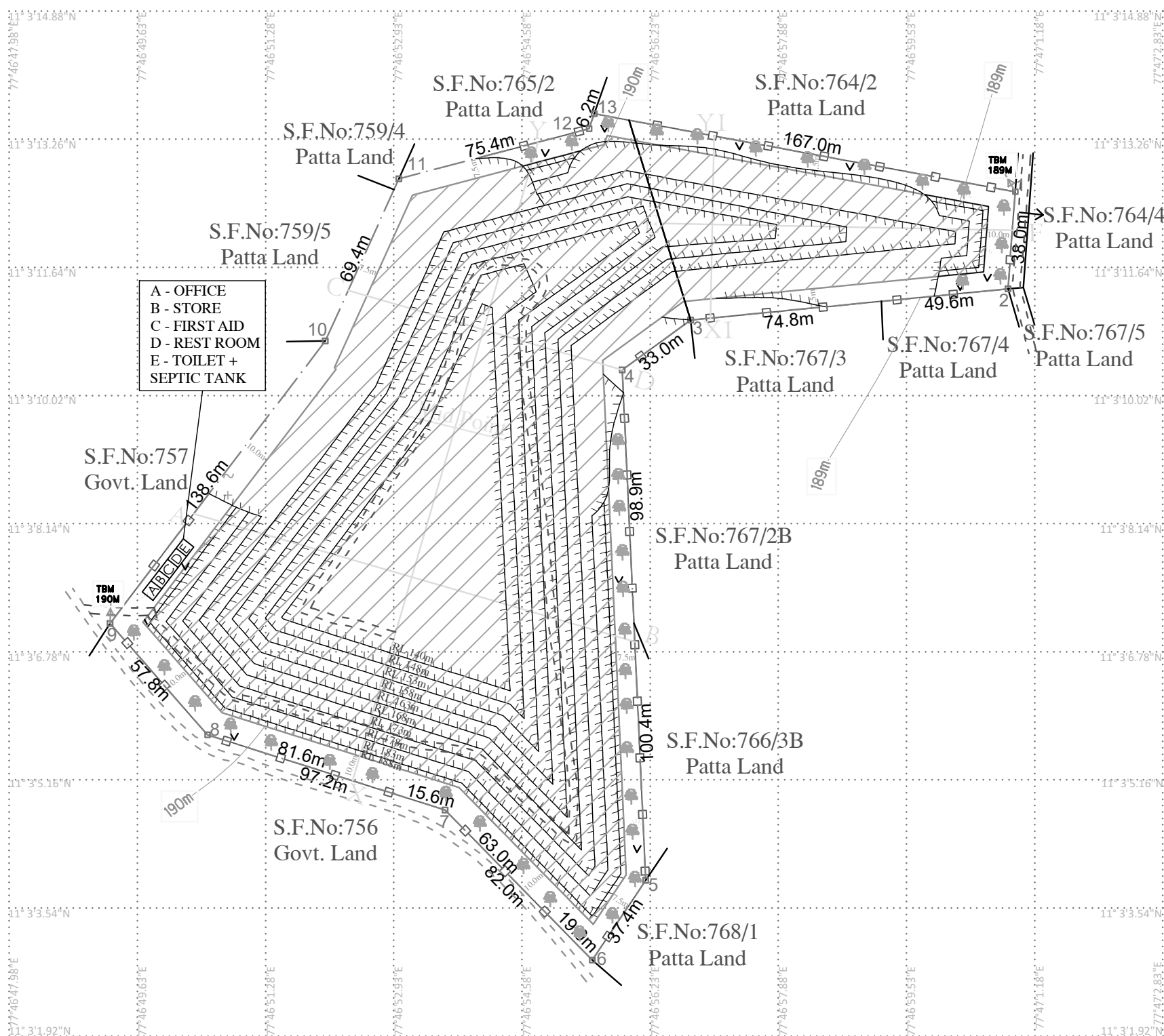
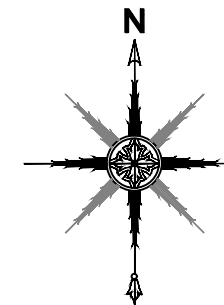


PLATE NO-V

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
 TIRUPPUR DISTRICT - 638105.

LEASE APPLIED AREA:
 S.F.NO : 764/3, 765/3, 766/1, 766/2,
 766/3A, 767/1 & 767/2A
 EXTENT : 4.82.7Hect,
 VILLAGE : ANJUR,
 TALUK : PUGALUR,
 DISTRICT : KARUR.

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- TEMPORARY BENCH MARK
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- SHRUBS
- GRAVEL
- ROUGH STONE
- EXISTING PIT & PROPOSED BENCH
- FENCING

DESCRIPTION	PRESENT AREA (Hect)	AREA IN USE DURING THE QUARRYING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	2.40.70	3.94.50	
INFRASTRUCTURE	NIL	0.02.00	
ROADS	0.04.00	0.15.00	
UN-UTILIZED AREA	2.38.00	0.10.70	...
GREEN BELT	NIL	0.60.50	
GRAND TOTAL	4.82.70	4.82.70	...

MINE LAYOUT PLAN AND LAND USE PATTERN
 SCALE 1 : 2000

Prepared By:

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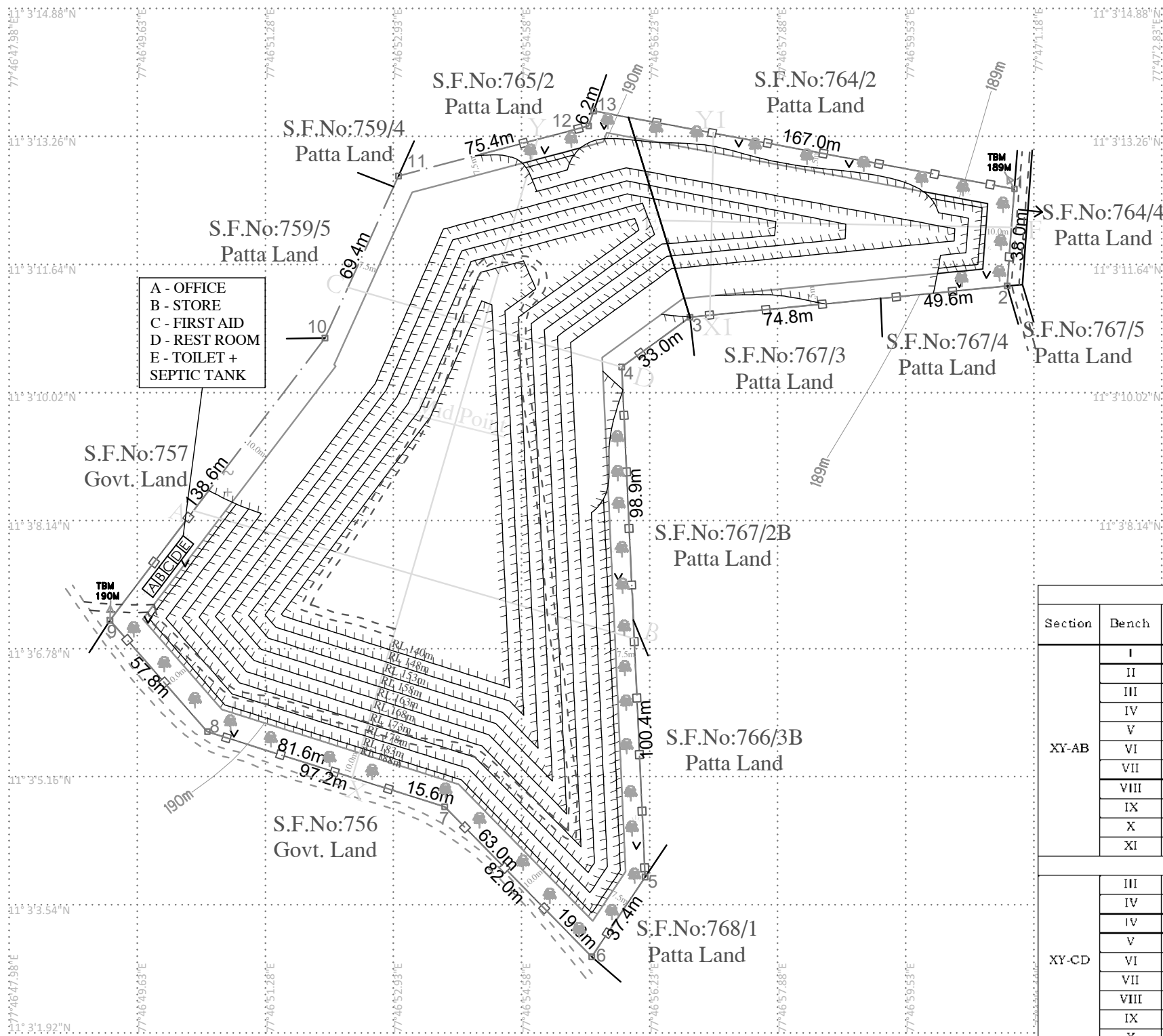
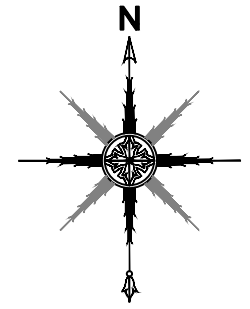


PLATE NO-VI

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
 Door No.95, SALIANKATTUPALLAM,
 THOTIYAPALAYAM,
 MUTHUR, KANGEYAM TALUK,
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LEASE APPLIED AREA:
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 DISTRICT : KARUR.

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MINE LEASE AREA	
SAFETY DISTANCE	
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CART & PATTA ROAD	
BOUNDARY PILLAR STONES	
TEMPORARY BENCH MARK	
CONTOUR LINES	
SHRUBS	
GRAVEL	
ROUGH STONE	
EXISTING PIT & PROPOSED BENCH	
FENCING	

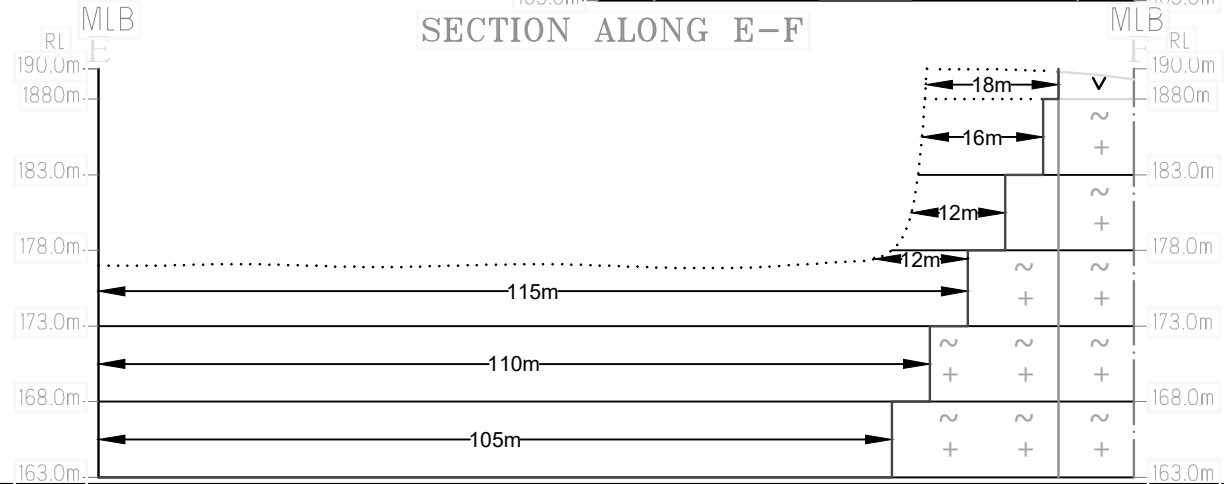
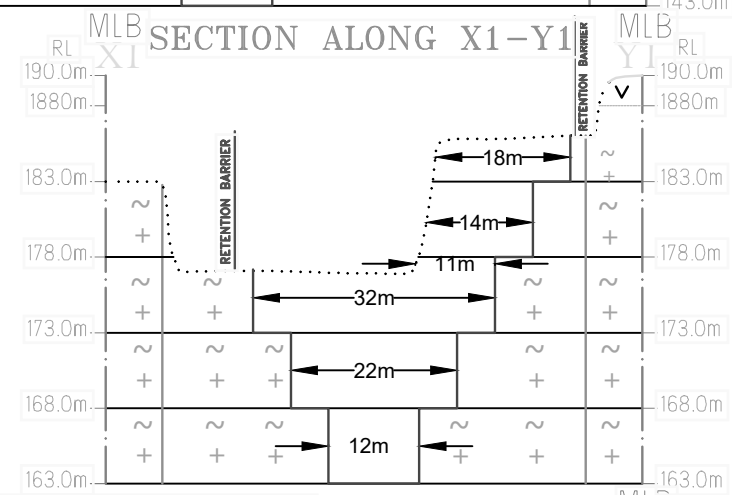
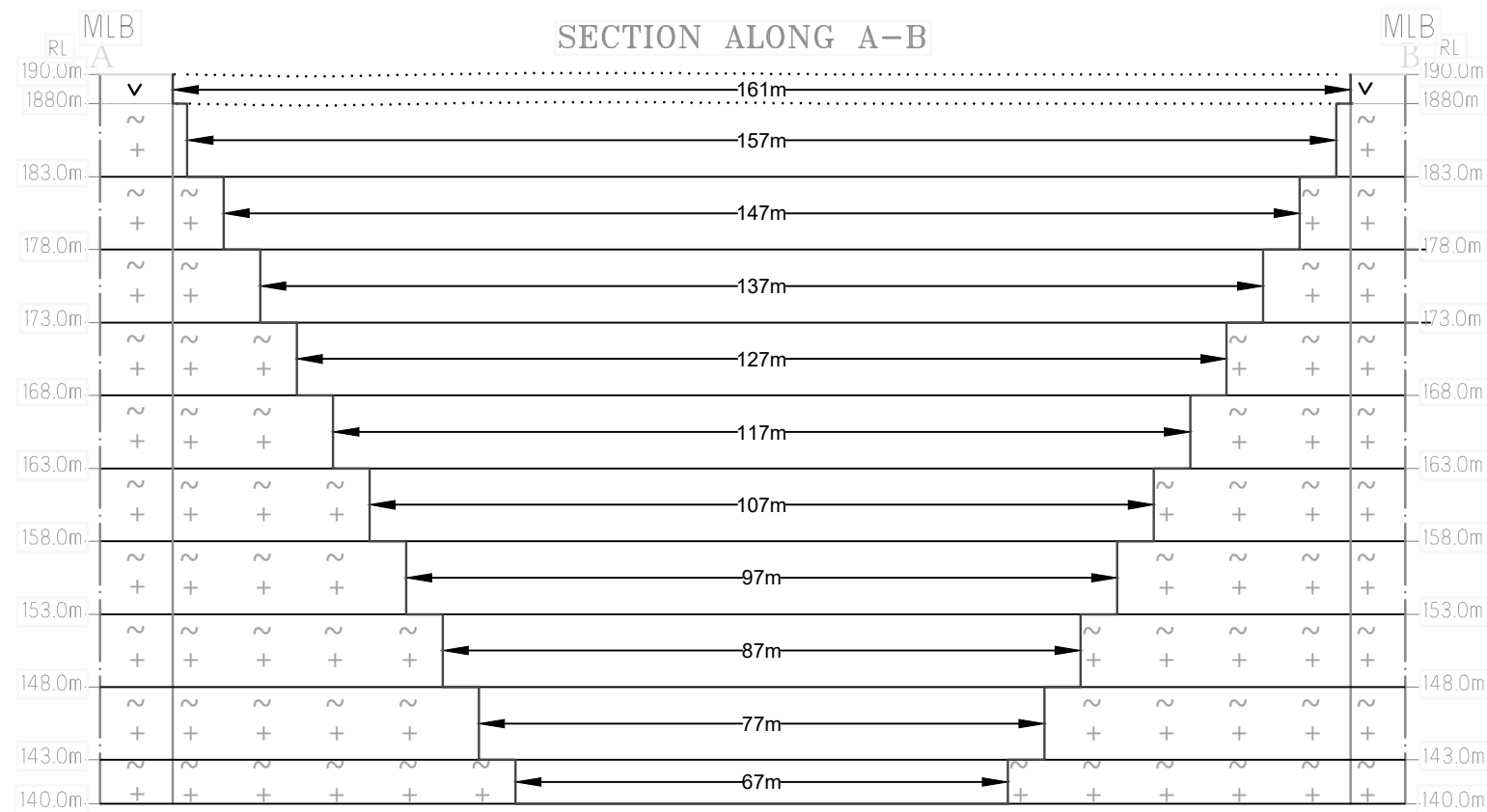
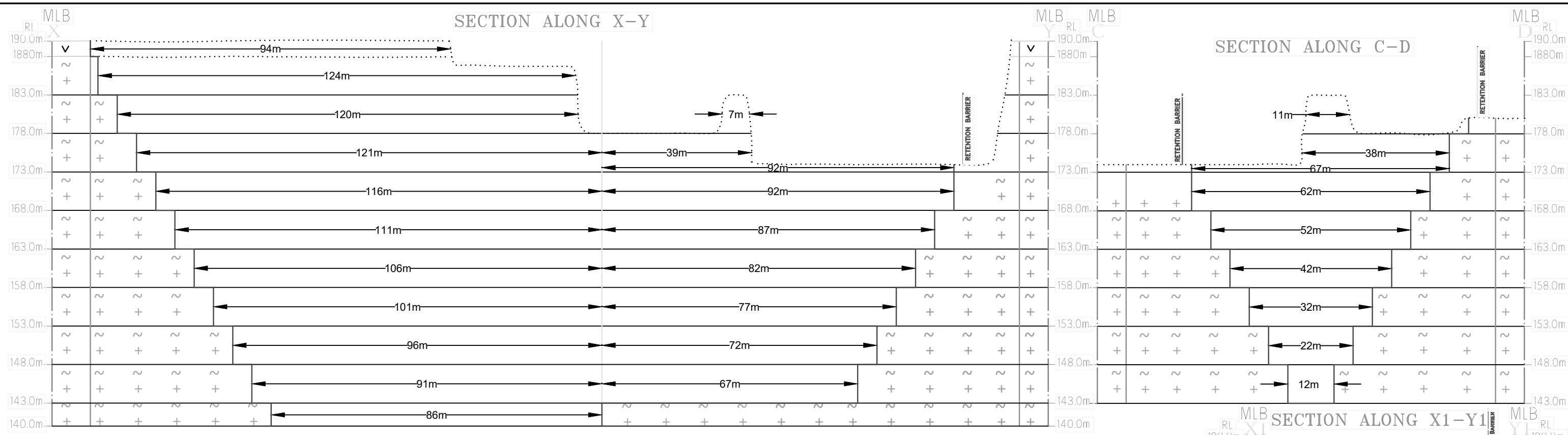
CONCEPTUAL PLAN
 SCALE 1 : 1000

Prepared By:

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A.ALLIMUTHU, M.Sc., M.PHIL.,
 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

MINEABLE RESERVES							
Section	Bench	Length in [m]	Width in (m)	Depth in (m)	Volume in m ³	Rough Stone in m ³	Gravel in m ³
XY-AB	I	94	161	2	30268	....	30268
	II	124	157	5	97340	97340	....
	III	120	147	5	88200	88200	....
	IV	121	137	5	82885	82885	....
	V	116	127	5	73660	73660	....
	VI	111	117	5	64935	64935	....
	VII	106	107	5	56710	56710	....
	VIII	101	97	5	48985	48985	....
	IX	96	87	5	41760	41760	....
	X	91	77	5	35035	35035	....
	XI	86	67	3	17286	17286	....
TOTAL					637064	606796	30268
XY-CD	III	7	11	5	385	385	....
	IV	39	38	4	5928	5928	....
	IV	92	67	1	6164	6164	....
	V	92	62	5	28520	28520	....
	VI	87	52	5	22620	22620	....
	VII	82	42	5	17220	17220	....
	VIII	77	32	5	12320	12320	....
IX	72	22	5	7920	7920	....
X	67	12	5	4020	4020	....
TOTAL					105097	105097	0
X1Y1-EF	I	28	18	2	1008	....	1008
	II	18	16	5	1440	1440	....
	III	14	12	5	840	840	....
	IV	11	12	1	132	132	....
	IV	32	115	4	14720	14720	....
	V	22	110	5	12100	12100	....
VI	12	105	5	6300	6300	
TOTAL					36540	35532	1008
GRAND TOTAL					778701	747425	31276



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MINE LEASE AREA	
SAFETY BOUNDARY	
GRAVEL	
ROUGH STONE	
ULTIMATE BENCH	

APPLICANT:
Mr.S.KUPPUSAMY,
 S/o.SAMIAPPAGOUNDER,
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EXTENT : 4.82.7Hect,
VILLAGE : ANJUR,
TALUK : PUGALUR,
DISTRICT : KARUR.

PLATE NO-VIA

CONCEPTUAL SECTIONS
 SECTION HOR 1 : 1000 & VER 1: 500

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 RECOGNISED QUALIFIED PERSON
 RQP/DMG/HYD/85/2022

367 കമ്മ്യൂണിറ്റി, 467 മെമ്പർ

മിന്നി കമ്മ്യൂണിറ്റി മെമ്പർമാർക്ക് മിന്നി
മിന്നി.

മിന്നി കമ്മ്യൂണിറ്റി, മിന്നി മെമ്പർ

മെമ്പർ, മിന്നി കമ്മ്യൂണിറ്റി, മിന്നി മെമ്പർ.
- മിന്നി കമ്മ്യൂണിറ്റി മെമ്പർമാർക്ക്

മിന്നി കമ്മ്യൂണിറ്റി മെമ്പർമാർക്ക് മിന്നി

മിന്നി കമ്മ്യൂണിറ്റി മെമ്പർമാർക്ക് മിന്നി

മിന്നി കമ്മ്യൂണിറ്റി മെമ്പർമാർക്ക് മിന്നി

764/3 മിന്നി 1.14.10 മിന്നി, 765/3 മിന്നി

മിന്നി 0.48.00 മിന്നി, 766/1 മിന്നി മിന്നി

1.34.50 മിന്നി 766/2 മിന്നി മിന്നി 1.14.00

മിന്നി, 766/3A മിന്നി മിന്നി 0.47.35 മിന്നി

767/1 മിന്നി മിന്നി 0.11.50 മിന്നി, 767/2A

മിന്നി 0.13.35 മിന്നി മിന്നി മിന്നി

മിന്നി 4.82.70 മിന്നി മിന്നി മിന്നി

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Dr. Jayaram

Dr. Jayaram

தலைவரவர்களே, கருத்து
 சமய உணர்வுகளைக் கொண்டு சீர்திருத்த அமைதி
 சீர்திருத்த அமைதி அமைதி அமைதி அமைதி அமைதி
 உடனடி நடவடிக்கை எடுத்த சமயம் 300ல்
 சீர்திருத்த அமைதி அமைதி அமைதி அமைதி அமைதி
 மறைக்காமல், சீர்திருத்த அமைதி, சீர்திருத்த அமைதி
 அமைதி அமைதி, அமைதி அமைதி அமைதி அமைதி அமைதி
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11/03/2023

கிராம நிர்வாக அலுவலர்
 நெ: 1 அஞ்சல் அமலம்,
 புகழர் வட்டம், கரூர் மாவட்டம்.



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.

